# Introduction

The research theme we have chosen for the 2019 Bi-City Biennale of Urbanism and Architecture (UABB 2019) in Shenzhen is “Eyes on the City” - what happens when the city acquires eyes and develops the ability to “see” what occurs within its boundaries?

Addressing this question is urgent, as urban technologies – from facial recognition to ubiquitous sensing – have come to the forefront of the urban debate. Also, no place would be better suited to explore their implications than the Greater Bay Area in China.

At UABB 2019, over 60 exhibits, a series of critical essays (collected hereafter) and a number of public debates organized in sync with the Biennale explore the above question with the aim of sparking a wide debate on issues that have become critical to our urban future.

Ultimately, as Deyan Sudjic argues below, we risk losing “the possibility of anonymity, [. . .] one of the most important qualities that differentiates a city from a village.” Sudjic adds, “We need to find ways of using technology to restore some of the essential qualities of the city.”

Others at UABB 2019 have taken a more nuanced view, but a plurality of opinion is inherent in what a Biennale should be today - not, like it once was, a gallery of curated projects (which can now be accessed online) but a forum for debating societal issues and promoting research in the field.

With the aim of fostering as wide a debate as possible, we have chosen an open-source approach. For the first time all projects have been conceived for full digital fabrication, both locally and internationally through the Fab Foundation and the Fab Lab network.

In general, we believe in the role of design as a way to explore alternative futures and speculate about them. While the “Eyes of the City” are focusing their gaze upon us, it is urgent that we look back at them. In so doing, we will better understand ourselves.

Shenzhen, 21 December 2019

The curatorial team

# Table of Contents


**CURATORIAL STATEMENT** 2

Curators Profiles 4
Colophon 6

**OPEN CURATORSHIP** 8

One Exhibition, Four Open Processes 10

**“EYES OF THE CITY” FOUNDATIONAL CONTRIBUTORS** 14

**VENUE DESIGN** 70

An Unusual Exhibition Venue 72
A Platform for Facial Recognition 74
Hiding from the Eyes of the City 76
Curating Curation 78

**EXHIBITS & BLUEPRINTS** 80

Section 1 | The World’s Urban Lab 82
Section 2 | Mobility Landscapes 124
Section 3 | Silicon Pupils 158
Section 4 | Digital Society 192
Section 5 | Design Intelligence 238
Section 6 | Artificial Ecologies 262
Section 7 | Resisting Technologies 296
Section 8 | Curating the City 326

**PAPER ABSTRACTS** 340

EYES OF THE CITY

# "EYES OF THE CITY" | CURATORIAL STATEMENT

by Carlo RATTI, Michele BONINO, SUN Yimin

Observing people's presence in physical space and deciphering their movements and behaviors have always been critical actions to designers, planners and anyone else who has an interest in exploring how cities work. It was in 1961 that Jane Jacobs, in her seminal book "The Death and Life of Great American Cities", coined a famous expression to encapsulate a characteristically relational aspect of this observational activity. According to Jacobs, "the natural proprietors" of a certain part of the metropolis – these may be the people who live or work or just spend a substantial amount of time there – become the "eyes on the street." Their collective, distributed, decentralized gaze becomes the prerequisite to establishing "a marvelous order for maintaining the safety of the streets and the freedom of the city."

Almost half a century later, we find ourselves at the inception of a new chapter in the relationship between the city and digital technologies, which calls for a reexamination of the old "eyes on the street" idea. In the next few years, thanks to the most recent advances in Artificial Intelligence, deep learning and imaging, we are about to reach an unprecedented scenario, the most radical development in the evolution of the Internet-of-Things: architectural space is acquiring the full ability to "see." Imagine that any room, street or shop in our city can recognize you, and autonomously respond to your presence. With Jacobs's "eyes on the street," it was people who looked at other people or the city and interpreted its mechanisms. In this new scenario, it will not be just people but also buildings and streets themselves that acquire the ability to observe and react as urban life unfolds in front of them. After the "eyes on the street," we are now entering the era of the "Eyes of the City."

In her original conceptualization, Jacobs used the "eyes of the street" as a tool to dissect a series of key spatial concepts – from the distinction between private and public space, to the limits of urban anonymity, to how borders are expressed and constructed, to the value of safety and the sense of belonging. Tomorrow's "Eyes of the City," fueled by historical breakthroughs in AI, from facial recognition to natural language processing, compels us to challenge all of these concepts, while also addressing novel issues – factors like the ethics of technological agency, the meaning of urban observation and design by proxy, the power of data ownership, and the ways in which technology can be re-appropriated by individuals and communities. What can the consequences of the "Eyes of the City" scenario be on the built environment and the way people live it? The "Eyes of the City" exhibition at UABB strives to tackle these themes while focusing on two parallel relationships: the one between space and users and the one between space and design practices, as the latter change under the pressure of technological advancement.

The exhibition path is divided among a series of sub-sections, each of them exploring a different circumstance in which the “Eyes of the City” will impact our daily life. The writings of the “Foundational Contributors” - authoritative scholars who were invited to react to the curatorial statement you are reading, suggesting new fields of investigation - are displayed in parallel to the interactive installations developed by sixty international teams of architects, designers, computer scientists, engineers, sociologists, and artists. These installations emerged as the winners of an open call held in mid 2019, which attracted hundreds of applicants from all around the world. The outside walls of the exhibition tell the overall story of such “open-source curatorship” approach through a series of original infographics.

While the purpose of the show is to engage visitors into a broad conversation on our common future, the exhibition venue of the “Eyes of the City” acts itself as a discursive device. Chosen as one of the main locations of UABB 2019 by the Biennale organizing committee, the Futian high-speed station, located in the heart of Shenzhen’s Central Business District, offers a unique angle with which to dissect the complex relationship between digital innovations and city life. For a long time, railway stations have been places where one could experience urban anonymity at its highest form. Strikingly, this very architectural typology is now at the forefront of the opposite phenomenon. Railway stations, along with airports, are becoming the quintessential examples of a built environment that is able to recognize us, and react to our presence in real time. In other words, the halls of the Futian high-speed station provide the ideal backdrop for an exhibition whose objective is to prompt all participants to gauge the consequences of an “Eyes of the City” scenario, and react critically to it.

We believe that one of the fundamental duties of architects today is to engage with the great challenges of our present - alternatively, our profession might soon be condemned to irrelevance. What we are currently facing is an “utopia or oblivion” crossroads, to say it with the words of one of the most notable thinkers of the past century, Richard Buckminster Fuller. Among the projects on display in the “Eyes of the City” section, one can read two recurring themes. The first theme deals with the importance of preserving rooms for “opting out” - allowing each of us to position himself or herself out of the system of the digitally-augmented metropolis, at least on a temporary basis. The second theme reclaims the primacy of mankind over machines as a choice that is necessary if we want to keep achieving a positive balance between “the safety of the streets and the freedom of the city”.

The American historian of technology Melvin Kranzberg once stated that “technology is neither good nor bad; nor is it neutral.” One of the objectives of the “Eyes of the City” exhibition is to encourage visitors to take a stance, shunning the dangerous option of neutrality. Using critical design as a tool, it seeks to create experiences that will encourage people to form an opinion. It will be up to us to have the “Eyes of the City” becoming not much a surveillance tool, but rather a new way to look at ourselves.

## CURATORS PROFILES

CARLO
RATTI
ASSOCIATI®

POLITECNICO
DI TORINO

### Carlo RATTI

Director, MIT Senseable City Lab
Founding Partner, Carlo Ratti Associati

An architect and engineer by training, Professor Carlo Ratti teaches at MIT, where he directs the Senseable City Laboratory, and is a founding partner of the international design and innovation practice Carlo Ratti Associati. A leading voice in the debate on new technologies' impact on urban life, his work has been exhibited in several venues worldwide, including the Venice Biennale, New York's MoMA, London's Science Museum, and Barcelona's Design Museum. Two of his projects – the Digital Water Pavilion and the Copenhagen Wheel – were hailed by Time Magazine as 'Best Inventions of the Year'. He has been included in Wired Magazine's 'Smart List: 50 people who will change the world'. He is currently serving as co-chair of the World Economic Forum's Global Future Council on Cities and Urbanization, and as special advisor on Urban Innovation to the European Commission.

## Michele BONINO

Michele Bonino, architect and PhD in History of Architecture, is Associate Professor of Architecture and Urban Design and Vice-Rector for Relations with China at the Politecnico di Torino. He was Visiting Scholar at the Massachusetts Institute of Technology (MIT, Boston 2016) and Visiting Professor at Tsinghua University (Beijing 2013 and 2014). He is the Politecnico di Torino's coordinator for the international project "Transition toward Urban Sustainability through Socially Integrative Cities in the EU and in China" (financed by the Horizon 2020 research program), and he is leading the design of the "Olympic Experience" building in Shougang for the XXIV Olympic Winter Games in Beijing. Among his recent books are The City after Chinese New Towns (Birkhäuser 2019, with F. Governa, M.P. Repellino, A. Sampieri) and Beijing Danwei. Industrial Heritage and the Contemporary City (Jovis 2015, with F. De Pieri).

## SUN Yimin

SUN Yimin, Dean of School of Architecture, South China University of Technology, Doctoral tutor, Changjiang Scholar, National Teaching Master, and National Talents of Ten Thousand Talents Project, is the Young and Middle Aged Expert with outstanding contributions,the first Guangdong Engineering Survey Design Master and enjoys special allowance from the State Council. Concurrently he is also the deputy director of the State Key Laboratory of the Subtropical Building Science, standing director of the Chinese Architectural Society, deputy chairman of the sports architecture professional committee of the Chinese Sports Science Association, and Member of the Urban Design Expert Committee of the MinistryConstruction. He graduated from the School of Architecture of Harbin Institute of Technology in 1992 with a Ph.D. degree. From 1995 to 1997, he was a senior visiting scholar at the Massachusetts Institute of Technology and served in SASAKI Associates Inc.
Sun Yimin has been focusing on ommitted large-scale public buildings and urban design for years, he has presided over 4 projects of the National Natural Science Foundation of China, including 11 international key cooperation and key project.

# EYES OF THE CITY I COLOPHON

**Chief Curator:**
Carlo RATTI

**Academic Curator:**
Politecnico di Torino - Michele BONINO
South China University of Technology (SCUT) - SUN Yimin
(South China-Torino Lab)

**Executive Curators:**
Daniele BELLERI (CRA-Carlo Ratti Associati)
Edoardo BRUNO (Politecnico di Torino)
XU Haohao (SCUT)

## CURATORSHIP

**Head Curator of Editorial and Events:**
Valeria FEDERIGHI

**Head Curator of Exhibition and Graphic Design:**
Claudia MAINARDI

**Head Curator of Exhibition and On-site Coordination:**
Monica NASO

**Assistant Curators:**
Erika BETTEGA, Camilla FORINA, HE Xingxin, Jiachen LIN, LU Xian

## DESIGN

The exhibition venue inside the Futian station was designed by CRA-Carlo Ratti Associati and Politecnico di Torino

**Creative Consultancy:**
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**Exhibition Venue Design:**
**Head of design:** Andrea CASSI
**Team:** James SCHRADER, Alberto BENETTI, Niccolò CENTRONE, Pietro FRANCESCHINI, Serena GIARDINA, GUAN Rui, Stephanie LEE, Federico RICHES, Ina SEFGJINI, Alessandro SERVALLI, XU Chenyu

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**Renderings by:**
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**Executive Design:**
Jiang & Associates Design (J&A)

EYES OF THE CITY

## PRODUCTION & CONSTRUCTION

**Exhibition Production Manager:**
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**Venue Project Manager:**
LIU Si

**Exhibition Production Assistants:**
ZHANG Yunqian, WANG Yitong, CHANG Lan

**Venue Development:**
Silkroad Vision Technology Co. Ltd

**Facial Recognition Platform:**
Turingviz Technology (Shenzhen) Co. Ltd.

**LED Screen System:**
Hisense TV

**Curator of GBA Academy:**
Adalberto DEL BO, Marco BOVATI with Florencia ANDREOLA, Maria Vittoria CARDINALE, Davide CASTORO, Lorenzo CECCON, Daniele VILLA

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**Foundational Contributors*:**
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***List updated at the moment of press (15 November 2019)**

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## ONE EXHIBITION, FOUR OPEN PROCESSES

The exhibition "Eyes of the City" was conceived over the course of sixteen months, starting from August 2018, and is the result of a series of processes under a common open approach.

The urge of an "Open Curatorship" approach emerged from the very beginning: after drafting our curatorial statement, we realized that the relations between city and technology included so many implications and critical points, to require a broader discussion with experts of different disciplines and diversify the range of opinions and voices included in our curatorial thinking. With the aim of sharing and expanding our statement, we invited 33 leading architects, designers, philosophers and scientists as "foundational contributors", to reflect on and respond to the underlying themes of the exhibition. Their articles have been published over the months on Archdaily.com – one of the media partners of "Eyes of the City" – and are displayed in the exhibition itself.

On the basis of this collective conversation, an "Open Call" for design and research projects was launched to identify the best installations, running from April 1 to May 30, 2019. It attracted more than 280 applicants from four continents, representing countries from China to the USA; from Russia to Germany; from Colombia to South Korea. We selected 69 cross-disciplinary teams and invited them to take part in the exhibition. They're 50 % designers (architects and urban planners), but include a 30 % of scholars and educators, and 20 % of thinkers from other disciplines.

To translate these ideas into physical form, "Eyes of the City" has adopted an open stance also towards the production of the installations. A process of "Open Production" was activated to make UABB 2019 the world's first architecture Biennale to be fabricated (almost) entirely on-site. The selected exhibitors were asked to develop blueprints with detailed instructions on how to build each installation. These were then made available to the Shenzhen-based suppliers in charge of constructing them. The blueprints have also been published online at www.eyesofthecity.net, where anyone can freely download them and potentially reproduce part of the exhibition in any School, Fab Lab, Museum around the globe.

In fact, to push the conversation further, "Eyes of the City" developed a partnership with the Fab Foundation, representing the world's largest network of Fab Labs, to ensure people who are not able to join the debate in Shenzhen can continue the discussion prompted by the exhibition by interacting with the varied network of Fab Labs across the world – including Hong Kong (Openground), Shenzhen

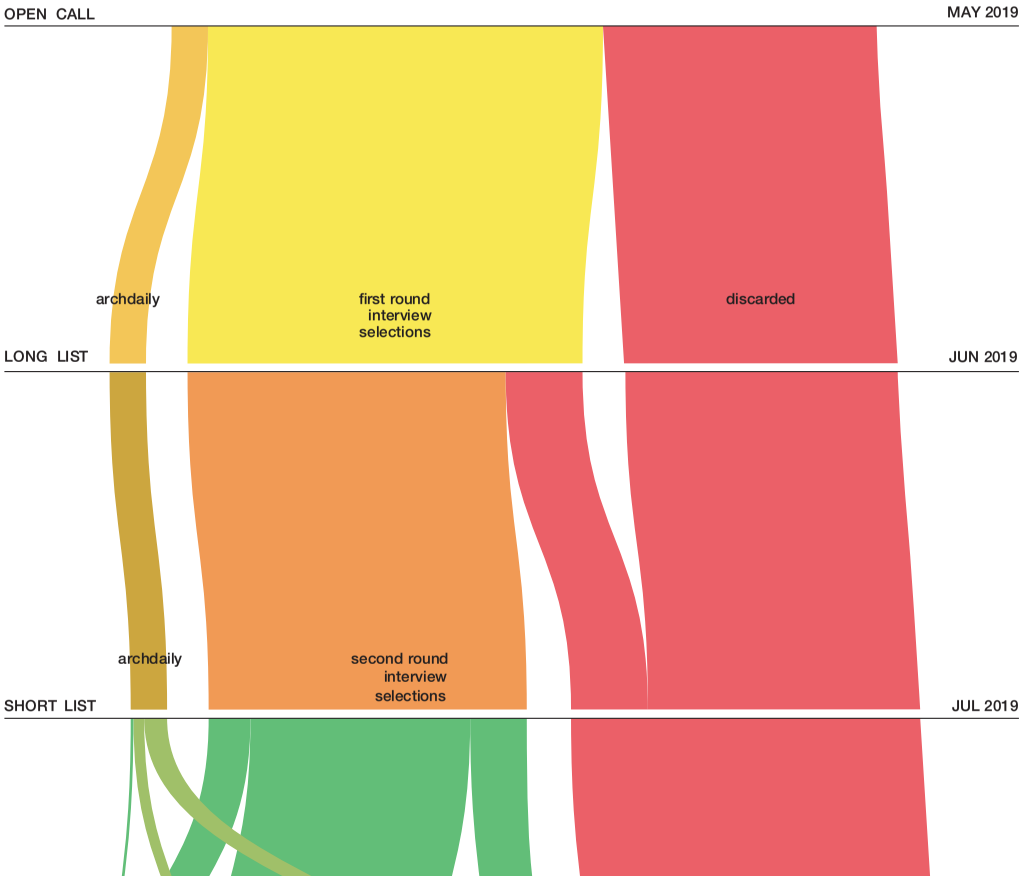
(SZOIL), Seoul, San Francisco, Boston and Lima. Individual Fab Labs could come together and experiment with ideas and projects that were first introduced in Shenzhen, enhancing their scalability or simply reinterpreting them based on their local context. This decision is both a tribute to Shenzhen's role as "factory of the world" and a way to push the boundaries of open-source design, whereby information circulates digitally and production happens locally – as it is often envisaged for tomorrow's world. On-site fabrication also made it possible to develop the entire exhibition without international shipping – significantly reducing its environmental impact.

Finally, our open approach also informed the design of the exhibition itself: an "Open Exhibition Layout" was created by our curatorial team. Setting up a big exhibition in a large transportation hub such as the Futian Railway Station means that the majority of potential visitors are commuters and travelers – and are not necessarily aware of what is happening in those spaces. Engaging them in a general interest topic such as the relation between city and technology became one of our main design goals. We designed a space that opens up to the main halls of the station and is able to attract passersby in through a rather commercial look. A labyrinthine, "duty-free" style layout keeps people walking through the exhibition and makes them unexpectedly discover the main messages of the eight sections of "Eyes of the City".

The curatorial story – from concept to completion – is illustrated through a series of original infographics by Professor Paolo Ciuccarelli and his students at the Northeastern University's College of Arts, Media and Design in Boston. In the first UABB edition where Universities are part of the curatorial team, they and their students were crucial to guaranteeing the open exchange of knowledge and information at the very base of our curatorial processes.

# EYES OF THE CITY

Infographic of the open curatorship process, by Paolo Ciuccarelli and students at the Northeastern University, Boston.



# EYES OF THE CITY

FOUNDATIONAL CONTRIBUTORS
Foundational Contributors
FOUNDATIONAL CONTRIBUTORS

# “Eyes of the City” Foundational Contributors

As part of the open-source curatorial approach, since April 2019, several leading architects, designers and writers have submitted written contributions in response to the themes outlined in the curatorial statement. All articles were published on ArchDaily, and amplified the conversation around the topics of the “Eyes of the City” exhibition while inspiring the curatorial process.

FOUNDATIONAL CONTRIBUTORS

# Media Architecture: New Interactions in the City

by Alice BRITTON (November 2019)

Media Architecture is a merging of new technologies and the built form in order to explore narrative and to imbue character, to engage people and create new dialogues through a layer of meaningful experience.

It isn't a new concept - telling a story about a building through its form, particularly the facade of a building, has been around throughout history;- just think of York Minster's stained glass windows, St Mark's Basilica in Venice, and the Meenakshi Temple in Tamil Nadu. What is exciting now is the opportunities brought about by technology to create new narratives and new forms of human interaction.

Everyday experiences of the city are increasingly being mapped through memorable, sensory moments as visual media all around us is consumed not only through small personal devices but on an all encompassing scale in the urban fabric.

From Transport Hubs to Shops, Museums to Art Galleries, everything from digital media to immersive interactive visuals is prevalent. We are deep in an evolving landscape of the experiential - from Instagram tourism to immersive retail experiences - a media layer is seemingly permeating all aspects of our lives.

Cutting through the noise of advertising and marketing, there is a place for technology and the built form to be closely integrated bringing about new meaningful interactions between users and space. Buildings or places with built-in technology such as sensors can create, harvest or translate data to produce creative output within physical interventions, anything from still and moving imagery to sound and text.

In the case of the Weill Cornell Institute's new medical research centre in Manhattan, a large wall on the ground floor created of 2300 mini screens on a grid each one set behind a circular acrylic disc becomes a wall of messages and imagery created from the research centre's database. Algorithms pipe data from their database, animates it and broadcasts it onto the screens in different configurations - the story is constantly shifting and growing alongside the research of the institute. A new expressive digital layer embedded within the physical fabric of the building, it attracts debate from a new community, those beyond the science industry. People are intrigued and invited to understand a world which is traditionally impenetrable. It's not just a feed of information, it's a powerful outward expression of the work and values of the research institute and an invitation to participate.

Humans are social beings - anything that can enhance and facilitate community by bringing people together physically, not just through personal devices are important aspects of our future cities. We are suffering from smartphone fatigue as people look for more social ways to interact. People want to come together and share experiences - media architecture creates engaging, and as of yet, vastly untapped opportunities for this.

One Shenzen Bay by KPF projects real-time data from a weather station situated on the roof. It measures things like air quality and wind direction. It then interprets it visually on the skyscraper as media art, aiming to provoke attention and encourage debate about the natural environment. Aeolian Tower by Jason Bruges was a 5m steel structure erected next to Waterloo Bridge covered with 1200 tiny wind-powered LEDs, each one made of a plastic turbine. As wind blew over the tower, swirling patterns of light revealed the strength and direction of the breeze, demonstrating visually how much energy is freely available but is not being used. In the M+ Museum by Herzog and De Meuron, due for completion in 2020, the museum's concept is to make visible as much of their collection as possible - broadcast across the facades of the building, visible from afar, which will consequently make M+ a site of constant renewal, rather than being locked into a predefined form. It aims to become a public forum, a platform for exchange and the convergence of people and art.

These are not just digital art installations, billboards stuck on the sides of buildings, or interactive light displays; these hyper textures add layers of new meaning and social value to the built environment. As architecture becomes the creation of technology platforms for content, which theoretically anyone can contribute to, architects must consider their role and the impact and opportunity for the future of city design.

*Since co-founding Squint/Opera in 2002, Alice has directed and produced a wide range of large-scale film and digital projects for architects, cultural institutions and other key stakeholders shaping cities across the globe. Working at the intersection of creativity and technology, Alice plays a key role in articulating Squint's creative vision in exploring how digital media will change the future of the built environment.*

*Squint/Opera is a creative digital studio with the mission? t make better places and to inspire and expand the ways in which people imagine and interact with the physical world. Specialising in the architectural and cultural sectors, Squint introduce teams to the power of technology and work to integrate and develop digital content and products into projects and businesses. With recent work including the new observatory experience at the Empire State Building, Squint help businesses navigate the digital possibilities, find the right message, and tell their stories in a beautiful and compelling way.*

*Article available at: https://www.archdaily.com/928377/media-architecture-new-interactions-in-the-city-alice-britton-for-the-shenzhen-biennale-uabb-2019*

FOUNDATIONAL CONTRIBUTORS

# From the "Eyes on the Street" to the "Eyes of the City"

by Antoine PICON (April 2019)

Comparisons, transpositions and metaphors can be misleading if one does not unpack carefully their point of departure. The notion that the digital age introduces us to a new regime of "eyes on the street", an expression famously coined by Jane Jacobs, requires understanding exactly what the author of The Death and Life of Great American Cities implied when she used it. For Jane Jacobs, the active presence of city dwellers in the street, their unconscious or conscious monitoring of what was going on in their immediate surroundings was the best way to ensure public safety. "The public peace — the sidewalk and the street peace— of cities is not kept primarily by the police, necessary as police are. It is kept primarily by an intricate, almost unconscious, network of voluntary controls and standards among the people themselves, and enforced by the people themselves," wrote Jane Jacobs.

When trying to transpose this intuition to the digital age, one should probably keep in mind a few important things. First and foremost, the surveillance exerted by citizens is irreducible to the top-down monitoring of the police of any other overarching authority. The risk with a formula such as "the eyes of the city" is precisely to imply the intervention of such an authority. How not to be reminded on this matter of the last film of Austrian-German-American director Fritz Lang, The Thousand Eyes of Dr. Mabuse? In this 1960 movie, Lang imagines a place that enables the evil Doctor Mabuse to spy on everybody. A dystopian take on "the eyes of the city" would be to imagine a universal surveillance through the use of sensors, meters and geolocation, which would be detrimental to individual freedom. From such a perspective, the control or operations room that fascinates so many of advocates of the "smart city" would appear as the inheritor of the hidden room from which Mabuse watches everything that is going on. Nothing could be actually further from what Jane Jacobs was referring to: a decentralized and spontaneous watchfulness. No Big Brother effect, rather a swarm condition, this "intricate, almost unconscious network of voluntary controls and standards" that constitutes the foundation of true citizenship.

A difficult issue immediately arises. Who or rather which kind of collective entity is watching, if vision is not the monopoly of the police and other institutions and companies? The difficulty doubles as soon as one begins to take into account the rising agency of algorithms and the rapid development of artificial intelligence. Beyond human groups and communities, as we know them, beyond even the new and disconcerting forms that they are taking in the age of social networks, we have to imagine collectives constituted by humans and non-humans both invested with deliberative powers. In a few years from now, our streets will be for instance roamed by partially intelligent autonomous vehicles that will take part in the monitoring of what is going on. Jane Jacobs had certainly not this perspective in mind, but the extension of the city vision to artificial actors seems unavoidable. The power of metaphors lies not only in the analogies that they contribute to uncover; they enable us to grasp fundamental differences between the terms that they bring together. The eyes of the

digital city are certainly not a mere transposition of the eyes on the street. What both have however in common is a distributed and thus deeply spatialized condition, which makes them irreducible to any kind of centralized Big Brother vision.

Returning again to the "intricate, almost unconscious network of voluntary controls and standards" evoked by Jane Jacobs, let us finally insist of the word standards, in other words on the existence of underlying and shared criteria of evaluation. There is not naïve, uninformed and unprejudiced vision. The gaze is always permeated by standards, or in other words codes and values. How would otherwise citizens on the street distinguish between the permissible and the unacceptable? Another way to put it is to affirm that vision is always political. The French philosopher Jacques Rancière has theorized some decisive features of this political dimension with his notion of "aesthetic regime". According to him, an aesthetic regime conditions what he calls the "distribution of the sensible", in other words, what is visible and what is invisible and to whom in a given society. Ultimately, the most fundamental question raised by the perspective of the eyes of the city may have to do with such a distribution of the sensible.

*Antoine Picon is the G. Ware Travelstead Professor of the History of Architecture and Technology and Director of Research at the GSD. Trained as an engineer, architect, and historian, Picon works on the history of architectural and urban technologies from the eighteenth century to the present. He has published extensively on this subject.*

*Three of his recent books are dealing extensively with the question of the changes brought by the digital to buildings and cities. Digital Culture in Architecture (2010) offers a comprehensive overview of this important transition. Ornament: The Politics of Architecture and Subjectivity (2013) focuses on the "return" of ornament in digital architecture to further the investigation. Smart Cities: A Spatialised Intelligence (2015) discusses its impact on cities.*

*Picon is a member of the French Académie des Technologies and the French Académie d'Architecture. He is also Chairman of the Fondation Le Corbusier.*

*Article available at: https://www.archdaily.com/916169/from-the-eyes-on-the-street-to-the-eyes-of-the-city*

FOUNDATIONAL CONTRIBUTORS

# Thoughts on Cities and the Human Body - Eyes and Ears of the City

by Brian ZHANG Li (September 2019)

The human body, at least in terms of anthropomorphic ideals, was in the centre of western architectural debates from Greco-Roman times up to the Renaissance. Although the very concept of the body didn't come as explicit in traditional architecture writing in the east, the notion that the body (or, the envelope of the soul) connects the mind and the physical world was constantly revisited and reinterpreted.

In his mid-18th-century masterpiece, Laugier proposed the idea of comfort, or convenience, as one of the pillars of the essence of architecture, linking the human body (physics) with architecture necessity, albeit more from a scientific point of view. While this approach may have helped the human body to remain architecturally relevant in a world rapidly moving to industrialisation and modernisation, its reductivist mentality could do little to the marginalisation of the same topic, when the visual (of architecture and cities) eventually ruled in mass consumerism culture, both in late industrial and post-industrial times.

Although a big chunk of late-19th-to-20th-century philosophical writing is aimed at this crisis, it was Pallasmaa's epic treatise at the turn of the 21st century that reinstated the human body to its central position in the core debates of architecture, particularly in those investigating the phenomenology and the poetics of microcosm built environments. One question remains unresolved nevertheless, which is the human body and space on the contemporary urban scale, physical and virtual. Considering how technology (AI in particular) is reshaping our urban infrastructure, and will reshape our urban cognitive structure come what may, the question seems urgent.

We would like to argue that with the arrival of the neo-urban-technocracy driven by AI and 5G, the liberty of the human body would never become more important. If in Laugier's time, convenience (of the human body) was significant enough to become a new necessity of architecture, we would like to propose that in our time, the liberty of the human body is significant enough to become a new necessity of our cities. Under such a proposition, we would like to raise three topics for further investigation, in order to understand the full extent of crisis we are facing, before solution attempts could possibly be made.

The first topic is on the microcosm scale, which is the closest to individual human bodies. The key point of interest here is the synaptic quality of any built environment interface. An extension of Pallasmaa's inquiry, a scientific gathering and reading of data of how our bodies will react to the different touches and setups of surfaces will help hugely in the understanding of the mechanism of our body memories of the urban spaces. It will also provide us with tools, or at least means to them, of countering the growing dominance of the visual in contemporary cities. Our proposed installation in UABB 2019 at the metro station in Shenzhen is directly linked to this topic.

The second topic is on the intermediate scale, which is bigger than an individual human body, but small enough to be related to its movement for a sustained period of time. The key point of interest here is the design of systems of passes, crosses and loops of human body movement within an urban cluster. If the underlying idea of making the human body move in the creative and healthy way for a sustained period of time is not that different from the old idea of public parks and open spaces, the spatial typology it tries to advocate, namely hybrid spaces for physical activities, playfulness AND daily routines, is. Our growing sedentary lifestyle, a product of this doing-everything-through-internet era, cries out for the overhaul of existing spatial typologies, and the definition of new ones that drive the human body to act again.

The third topic is on the urban scale, which is far bigger than individual human bodies, and addresses human bodies of the city in big numbers. The key point of interest here is the potentiality of the human body in coordinating technological advancements and the vulnerability of the human body before malicious technological abuses. Autonomous driving infrastructure can change the way we take movement in our cities and may prefer standardised body movements than improvised ones. Facial recognition, bio-feature identification, and body movement reading programmes have the potential of improving safety and security in our cities but can also help to block access to certain parts of our cities.

We believe the proposition of the liberty of the human body in the city is very relevant to the overarching topic of the UABB 2019 Eyes of the City.

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*ZHANG Li and Atelier TeamMinus have won Zomtobel Group Award for Young Practice (Frankfurt, 2017), ArchMarathon Best Art and Culture Building (Milan, 2014), AR+D Highly Commended (London, 2013), along with multiple Chinese national awards.*

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# George Orwell x Leonardo da Vinci

**by Daan ROOSEGAARDE (June 2019)**

So, what happens if architecture were given the ability to see? In my eyes, there are two possible scenarios. The first is the "George Orwell" scenario, in which technology is used to dominate and control the environment and "we become 'robot-food.'" The second scenario I call "Leonardo da Vinci," in which technology and design merge and help us to improve ourselves. It is a version in which the city becomes our friend. A city that takes care of and looks out for the environment and its inhabitants.

I am hopeful, and I identify myself with the second scenario. I have been working on several projects that support this vision of a future world. SMOG FREE PROJECT is a good example: I led a worldwide campaign for clean air, to reduce air pollution and to provide an inspirational experience of a clean future. The project consists of a series of urban innovations like the
SMOG FREE TOWER, which senses the pollution, sucks it up, cleans it and releases it. This way people can enjoy clean-air parks in heavily polluted cities. The campaign also entails workshops with governments, students and the clean-tech industry to work together and make an entire city smog-free.

WATERLICHT is another example: it is a dream landscape about the power and poetry of water. A reminder of what would happen if we stop doing innovation and stop caring about the world of tomorrow. As a virtual flood, WATERLICHT raises awareness about rising water levels and creates a collective experience to share the importance of water innovation. I describe this project as an example showing that the city can feel what happens if there is a flood risk and also what it would look like if we didn't intervene.

One of my early works, Dune, is an example of merging nature and technology. These artificial Dunes are thousands of fibers that react to the sounds and motions of people passing by, a landscape of light interacting with human behavior.

Use technology and sensibility to improve life, to make cities and landscapes that are good for people: that should be our focus. We are on a mission for clean air, clean water and clean energy, and we want to inspire people to do the same.

*Daan Roosegaarde is a Dutch artist and innovator. He founded Studio Roosegaarde in 2007 and has been a pioneer in the livability of our future landscape ever since. He speaks of clean air, clean water, clean energy and clean space as the new future values. As a social design lab, Roosegaarde and his team connect people and technology to improve daily life in urban environments and spark the imagination.*

*Article available at: https://www.archdaily.com/920406/george-orwell-x-leonardo-da-vinci-daan-roosegaarde-for-the-shenzhen-biennale-uabb-2019*

# Is the Internet Bringing Us to the Middle Ages?

by Deyan SUDJIC (May 2019)

Without the city, modernity could never have been invented. What we are in the midst of discovering now is whether modernity can survive in a city transformed by the digital revolution. The village may offer security and community, but what it does not allow its inhabitants is the possibility of being different, a phenomenon that is as true now as it was during the witch-burning era.

At its best, the city allows for difference and for tolerance. That is what made and still makes the city such a powerful magnet for the ambitious and the creative, the poor and the desperate. To walk into a bar, or a store, to rent a room, or buy a book, or log onto the web, without having anyone know who you are, is a precious, and essentially modern, a privilege that some of us have been fortunate enough to be able to expect as a right.

The possibility of anonymity is one of the most important qualities that differentiate a city from a village. It is precisely these qualities that are being challenged by the digital revolution.

The social media explosion, and the universal adoption of the smartphone, delivered just 12 years ago by Steve Jobs to a largely uncomprehending world, were promised as the next steps in modernity, but have turned out to be pushing the world back into a premodern condition. Twitter was meant to overthrow the autocracies of the Middle East, but has taken us back to the Middle Ages with the digital lynch mob; and the return of ancient superstitions about vaccines and prejudices against outsiders have reappeared in a new age of unreason.

Yet this “village” condition was one that Jane Jacobs celebrated so powerfully in The Death and Life of Great American Cities in 1961, perhaps the first genuinely popular book on city planning since Ebenezer Howard’s cranky-looking pamphlet on garden cities, and not so much a defense of the city, as a misunderstanding of the essential quality of “cityness.”

Jacobs set out to slay what she saw as the double-headed demon of urban planning, combining Howard and Le Corbusier – two vastly different and mutually antagonistic thinkers – into a single entity. Howard believed in drastically lowering the density of existing cities. Le Corbusier believed just the reverse, yet to Jacobs they had both “set spinning powerful, city-destroying ideas.”

By helping to mobilize the residents of a rapidly gentrifying Lower Manhattan, she played her part in stopping plans for a highway across the city. But stopping Robert Moses had the unintended consequence of making the area safe for newcomers to invest in.

Her message, at heart, was simple. She had taken over a rundown home in West

Greenwich Village and, along with her architect husband and their three children, had returned it to middle-class comfort. She did not want that changed by a new six-lane road.

Clearly, she enjoyed the life of Hudson Street, with its delicatessens and bars, its familiar grocery store with its friendly, but not too friendly proprietor ready to look after her front door keys but not to pry into the details of her domestic arrangements. But beyond the nostalgia for these intimate charms, much of her writing reflects the sense of threat that she feels coming from the city. She could sound like a pioneer from the old West, guarding her homestead in hostile territory.

Her description of what she calls the daily ballet of the Hudson Street sidewalk celebrates "the allies whose eyes help us natives keep the peace of the street." Despite her ostensible celebration of diversity and community, the underlying message is closer to paranoia. She identified what she called the birds of passage who would not help defend the stockade. She disapproved of them with all the strong silent scorn of John Wayne in Stagecoach contemptuously dismissing a lily-livered carpet bagger.

A city policed by number-plate and facial recognition systems, kept moving by car-share schemes, and crowd monitoring on the underground network, and contactless payment systems that track every journey taken on every bus and metro line in a city, may or may not represent the "allies" that Jacobs would have called on for help to keep the peace in Greenwich Village.

We may be able to tame the power of the social media empires of our times, as the robber barons of steel and rail were once tamed, but an even more necessary priority is to find ways in which we can use the potential of the digital to reverse our retreat from modernity.

Can we, for example, make do without physical public spaces if we have a digital substitute? Andrés Jaque looked at the impact of location-based apps in a work he made for the Design Museum that he titled Intimate Strangers. Technology similar to the one that allows the Pentagon to order a pinpoint drone strike, can allow two strangers to decide to meet, and immediately find each other in a crowded city. Jaque's focus was on Grindr. He looked at the way that what was first conceived as a dating app had been used by Syrian refugees with the help of sympathetic strangers to navigate their way across Europe, and through the squalor of the Jungle, the camp outside Calais, to wait for the chance of reaching Britain. He explored steps taken by its founders to introduce a measure of security for its users, to protect them from entrapment. And he asked questions about the future of social interaction for people of all sexualities when the physical world is replaced by avatars on a smartphone screen. The shopping mall and the department store are already menaced by internet retailing. What is online dating doing to the night time economy?

The rise of AirBnB has transformed tourism and the hotel industry and is now having a substantial impact on the wider housing market by flooding the streets with the "birds of a feather" that Jane Jacobs despised, and who have turned out to be even more destructive in their effects than she feared, raising rents and injecting large numbers

of temporary visitors with no stake in the community.

While the smartphone abolishes the idea of privacy, we need to find ways of using technology to restore some of the essential qualities of the city. Bitcoin might offer a model for what might be a contemporary version of anonymity. In urbanistic terms, if the impact of digital development is to undermine the physical city, the Internet, which, in a way that is analogous to all authentic physical cities, has both its light, and its dark side, must step up to the plate, and stand in as the new public realm. Crime and vice hover at the edges of virtual space, which also encompasses the great free library that is Wikipedia, the explosion of online archives and the market stalls that are open source designs. It has become a polyglot mix of the inspirational and the banal. Meanwhile, Twitter is the twenty-first-century equivalent of the lavatory wall, a place for the scurrilous and the anonymous to leave their mark, combined, if we are being generous, with an electronic version of a democracy wall. To offer a way of life that offers as much as the old city did, the digital realm must retain enough of the fundamental values of "cityness," and find new ways to provide them.

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*Article available at: https://www.archdaily.com/917019/is-the-internet-bringing-us-to-the-middle-ages-deyan-sudjics-response-to-the-curatorial-statement-of-the-shenzhen-biennale-uabb-2019*

# Amateur Visual Forensics and the View from Nowhere

by Dietmar OFFENHUBER (October 2019)

If the 1991 Gulf War marked the beginning of electronic media warfare, the recent armed conflicts in the Middle East have highlighted an equally central role of social media. Platforms such as Twitter and Facebook have long been used to galvanize protest movements, organize assemblies, and spread information. During the decade from the Arab Spring movement to the Syrian civil war, the role of social media has grown from a utilitarian infrastructure to the principal medium of conflict. Today's version of Jean Baudrillard's "war porn" comes as battleground footage recorded by smartphones and drones mixed with propaganda messages and pop culture references to computer games and internet memes. As documented by the journalist Abdel Bari Atwan, mercenary groups plan military operations according to their expected media impact on followers, opponents, and foreign funders. Sometimes, fights are entirely staged to collect persuasive footage.

In this context, a diverse group of amateur visual forensics experts has emerged, studied by scholars such as Laura Kurgan and the Forensic Architecture Initiative. During the battle of Aleppo in 2016, activists used drone footage to document and bear witness of the destruction in their hometown. Meanwhile, on the internet, a distributed collective of conflict mappers skims through information posted on various social media channels to verify claims by the conflict parties and make sense of the shifting front lines. They extract clues about time and locations by cross-referencing the footage with satellite images, for example, by identifying the shapes of characteristic buildings. Based on their findings, they create detailed real-time maps and disprove propaganda by the conflict parties. In many cases, intelligence agencies have drawn from the insights of the collective.

In a recent article, I have argued that the visual language invented by these amateur experts break with the traditions of information design and cartography. Their cartographic choices do not follow the goal of creating the best and clearest representation of a data set, but of making the process of data generation and spatial reasoning legible. Rather than using the generic language of data visualization, collectives such as the "Institute for United Conflict Analysis" create visual assemblages of screenshots, satellite footage and other sources, only lightly annotated to highlight identical elements and perspectives. Sources are left unmodified as a testament of their authenticity. Conflict maps are not intended as canonical and universal representations of reality, instead they play a transient and contextual role in the discourse. They are constantly changed and updated, never considered finished. Fragments of impromptu maps are exchanged on twitter and online forums to resolve disagreements over locations depicted in footage. Participation in this discourse requires considerable of skills and geographic literacy — the maps are not made for instant consumption. In this performative and non-representational mode of cartography, the viewer has to do the work of the cartographer; connect the dots and draw conclusions. By using visual artifacts of the medium as clues of authenticity, the representation highlights the material rather than the abstract qualities of information. While traditional cartography

is based on generalization, the lens of forensics strives for individualization: not two things in the world are the same if one only looks close enough.

Using social media remains a risky proposition for conflict mappers and protesters alike, as the current events in Shenzhen's immediate neighborhood illustrate. The Janus-headed platforms are, at the same time, effective megaphones and instruments of surveillance and control. Driven by the ubiquity of computational cameras carried by people and embedded in the environment, online communication has become even more visual. This development has allowed activists to "let images speak" while remaining anonymous but has also exposed them to new threats such as facial recognition technologies. Despite the global uniformity of platforms, the online tactics of activists depend on the local situation and are locked into a perpetual arms-race with their adversaries. While activists of the Arab Spring such as Sami Ben Gharbia focused on finding niches in the media landscape that have not yet caught the attention of the governments, current protestors struggle with cybersecurity, obfuscation, and strategies of maintaining anonymity in an urban environment saturated with connected imaging sensors at the fingertips of authorities. Still, the varied practices on digital media platforms defy simple characterizations. When trying to understand the roles of digital media platforms in conflicts, it is worth adopting the forensic attention of conflict mappers rather than subscribing to the idea of platforms as neutral infrastructures that offer what Donna Haraway described as a disinterested view from everywhere and nowhere.

*The post includes excerpts from Offenhuber, Dietmar. 2017. "Maps of Daesh: The Cartographic Warfare Surrounding Insurgent Statehood." GeoHumanities 4 (1): 1–24. https://doi.org/10.1080/2373566X.2017.1402688. The paper can be accessed here: https://offenhuber.net/publications/*

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*His research focuses on the relationship between design, technology, and governance. Dietmar is the author of the award-winning monograph "Waste is Information – Infrastructure Legibility and Governance" (MIT Press) and published books on the subjects of Urban Data, Accountability Technologies and Urban Informatics. His PhD dissertation received the Outstanding Dissertation Award 2014 from the Department of Urban Studies and Planning at MIT, his research received the Best Paper Award 2012 from the Journal of the American Planning Association and the Ascina Award 2017.*

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# Urban Cinematics and the Revenge of Place

**by François PENZ (October 2019)**

Ever since the Lumière brothers trained their camera on La Place des Cordeliers in Lyon in 1895, cinema has shaped our collective urban imagination. For 125 years, film has relentlessly recorded the deaths and lives of not just great American cities but of all great – and not so great – cities the world over. Film-makers have observed, expressed, characterized, interpreted and portrayed hundreds of thousands of city streets. By charting the cities' evolution across the 20th century to present days, films are the quintessential Eyes on and of the City.

Dziga Vertov was probably the first to express the power of the camera eye with his Kino Eye manifesto "I'm an eye. A mechanical eye. I, the machine, show you a world the way only I can see it […] I am kino eye. I am a builder' (1923). In some ways it was the answer to Le Corbusier's Eyes which do not see [1923]. The camera was going to reveal, imagine and build what we can't ordinarily conceive, overcoming our natural blindness to our everyday life and environment. It created new geographies and new visions – it made us see the world differently, it liberated us.

Technologies are transforming cities providing fantastic opportunities but also plenty of pitfalls. Our contemporary societies, especially in the West, stage regular forums about smart cites, more often than not pointing out the dangers of the digitalization of cities, for example facial recognition and social media used for political and commercial gains being high on the list of controversial issues. Indeed, the intersecting observations of 'eyes that must see without being seen' [after Foucault] remain a worrying concern. Unsurprisingly this has provided the film industry with a wealth of subjects – and modernism, modernity, technology are all invariably associated with dystopia. It can be humorous as in the Electric House (Keaton 1922) or Mon Oncle (Tati 1958) but becomes more sinister with Alphaville (Godard 1965), Enemy of the State (Scott 1998), The Truman Show (Weir 1998) or Minority Report (Spielberg 2002) to name just a few.

Perhaps the best example of the impact of surveillance is Haneke's Caché [Hidden] (2005) where a Parisian family keeps receiving anonymous video tapes filming their home. The mysterious camera eye trained on their street has none of the benevolent qualities attributed by Jane Jacobs to neighborhood observations. Quite the opposite, and the film perfectly captures the insidious and pervasive nature of surveillance and the paranoid effect it has on ordinary citizens. Caché sums up the debate on surveillance admirably and its narrative drama makes a complex reality more tangible and accessible to us. No wonder there is such a heated debate about Quayside, Toronto's Google City project, recently dubbed as 'the most highly evolved version to date of surveillance capitalism'.

Cinema not only provide us with an accelerated education in complex situations but it has transformed how we look at the world as remarked by Wim Wenders: 'our contemporary life as it is would be completely different if the 20th century had happened without the cinema […] the moving image changed our way of thinking,

moving around and seeing things…' Wim Wenders [2003] – cities became more comprehensible thanks to the invention of cinema. But our contemporary cities have now become ubiquitous as many world cities present striking similarities. This apparent sameness is partly due to the flattening effect of technologies, in particular the proliferation of CAD tools. This will only accelerate through the further deployment of AI and surveillance techniques. Algorithms have no cultural allegiances. Digital technologies are globalization's relentless agent of cultural erosions.

While we all enjoy fast networked accessibility, more and more people will yearn for places that distinguish themselves from Google-cities. William Mitchell reminded us that 'the capacity of places to distinguish themselves by virtue of superior accessibility is long gone and that cities to remain competitive will have to provide something that you cannot find anywhere else. That something unique, irreplicable, non-transferrable advantages will be the most highly desired real estate. Mitchell called this phenomenon 'the revenge of place' (2001). In crowded digitally enhanced and hyper surveillanced worlds, the true luxury will soon become 'incommunicado urbanism' – places of unique qualities, physically distinct and culturally sensitive – untouched by globalization and un-flattened by digital technologies. Cinema has yet to take up this most advanced of urban challenge!

*Reference: William Mitchell, The Revenge of Place in Proceedings. 3rd International Space Syntax Symposium Atlanta 2001: 1-6.*

*François Penz directs the Digital Studio for Research in Design, Visualization and Communication in the Department of Architecture at the University of Cambridge. He recently published a monograph 'Cinematic Aided Design: An Everyday Life Approach to Architecture' (Routledge, 2018). His current AHRC funded research project CineMuseSpace, 'A cinematic musée imaginaire of spatial cultural differences' (2017-2020), expands many of the ideas developed in his Routledge book to other cultures, China and Japan in particular. CineMuseSpace has been the subject of recent museum and gallery exhibitions: the NextMixing Gallery in Shanghai in March/April 2019, the Art Museum of the Nanjing University of the Arts in May 2019, Manchester's Centre for Chinese Contemporary Art (CFCCA) in August 2019 and Lady Lever Art Gallery in Port Sunlight in September 2019. He is a Fellow of Darwin College and was until recently Head of the Department of Architecture [2017-2020] at the University of Cambridge.*

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# The City To Be Deceived

by Geoff MANAUGH (July 2019)

If the city can see, we can deceive it—spoofing its sensors, denying its services, even misleading its self-driving technologies. Armed with digital exploits, zero-day threats, pranks, and glitches, we might say that every vision of the smart city implies the attacks that could bring that city to its knees. The cyber-weapon is the flipside of the near-future city, the id of the smart metropolis.

An April 2019 white paper released by the Washington DC-based New America Foundation described "an explosion of cyber-physical systems" taking over the urban landscape. These systems operate "in sectors from transportation, to water systems, to lighting, to parking, in which computers do not merely store and manipulate data, but collect data through sensors and manipulate the physical world through actuators of various types."

Of course, interactive "cyber-physical systems" have been prophesied for us by architectural avant-gardes, going back at least to Archigram, but they are now so mundane a part of our urban lives that we barely notice them. When Archigram envisioned the future of the city as a walking robot carrying high-tech denizens from one landscape to another, they were not thinking of the hostile actors who might seek to hijack those mobile cities to their own nefarious ends.

What is known as a denial-of-service attack, for example, takes on peculiar spatial characteristics when discussed in the context of urban design. Imagine residents unable to enter (or to leave) certain buildings, life-saving systems such as fire-suppression networks remotely jammed by hackings, or even entire communities blocked from crossing automated roadways. Think of technology critic Evgeny Morozov's warning from July 2014 in The Guardian that, "As both cars and roads get 'smart,' they promise nearly perfect, real-time law enforcement. Instead of waiting for drivers to break the law, authorities can simply prevent the crime." The flipside, of course, is that nefarious actors could also take the reins, blocking vehicles on certain roads, opening drawbridges, changing traffic lights, and sculpting the city around them into an accomplice in crime.

As we transform our cities into interactive textures of linked technologies, digital vulnerabilities become as much a part of the urban fabric as do tunnels, bridges, and towers. The capacity of the built environment to be digitally exploited—to be hacked or malevolently commandeered—will soon be as much a part of design criticism as whether a particular structure is affordable, accessible, or fabricated using sustainable materials. Is this building digitally safe?

"Smart cities are an absolute dream for infrastructure cyberattacks," Wired UK warned

its readers in January 2019. “Cities Are Facing A Deluge Of Cyberattacks,” security research Cesar Cerrudo wrote for Forbes in 2018, “And The Worst Is Yet To Come.” Cerrudo’s dire prophecy came only weeks after a widely publicized ransomware attack on the city of Atlanta, Georgia. Two Iranian hackers were later indicted for an international attack that froze key systems of urban governance, including Atlanta’s court system, not to mention the city’s most basic utilities.

Writing with Matthew Claudel in a 2015 editorial for Project Syndicate, Shenzhen Biennale curator Carlo Ratti emphasized that the skills of the hacker might soon prove central to any true understanding of the city. Hacking, in Ratti’s and Claudel’s conception, is a kind of investigatory decoding. “Familiarity with hackers’ tools and methods provides a powerful advantage in diagnosing the strength of existing systems,” they write, “and even in designing tighter security from the bottom up.” Whether it is benign hacking or, as I have written elsewhere, burglary, learning how to infiltrate a city can be an ideal way for learning how that city was constructed in the first place, offering ironic but instructive lessons as to how its urban systems were designed.

The risk, of course, is that by not learning to access the digital innards of today’s metropolis means that it will only be criminals who know how to do so. Cesar Cerrudo warned, for example, that the worst is yet to come. In March 2019, researchers at the Keen Security Lab, run by Tencent, went public with a chilling claim: They had used innocuous stickers placed on the ground in an intersection to steer a Tesla car, operating in autopilot mode, into opposing traffic. They referred to these stickers as “interference patches,” an evocative phrase that perhaps offers us a metaphor for how we might discuss design interventions capable of steering the smart city in unexpected, possibly harmful new directions.

Interference patches open a new space for art, humor, and creative resistance, to be sure, but they also suggest a much darker space of property crime, remote homicide, and even cyberwarfare. The risk of the smart metropolis, indeed, is that the entire city can become an interference patch, so to speak, obedient to anyone but its trusting residents.

The challenge for designers—for figures of governance, even for future critics—is to learn how interference patches can be deployed for the benefit of the populace, not simply to commit crimes at those residents’ expense. Finding and marking shortcuts through congested neighborhoods, creating temporary zones of public space for open-source festivals, clearing intersections for safer pedestrian movement, even slowing down autonomous urban vehicles to protect elderly residents in specific neighborhoods: These would all be examples of interference patches directed toward improving the city, not undermining or attacking it. Yet—like cyberweapons or digital vandalism—their method would be the same.

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As Ratti and Claudel suggested, learning to use the tools of the hacker—learning to design and deploy interference patches against the grain of the city—might soon be the most productive and festive means of engaging with public space.

In the end, the sensing city might see us, feel us, even measure, track, and interact with us, but it will also be tragically gullible. A metropolis of sensors can be spoofed, lied to, cheated, and misdirected. Once again, when a city can see, it can be deceived. The task at hand will be to do so in the name of the populace, not against their collective interests.

*Geoff Manaugh is the author of the New York Times-bestselling book, A Burglar's Guide to the City (2016). He has taught graduate architecture studios at Columbia University GSAPP, UC Berkeley, and the University of Southern California, and he has lectured around the world on topics related to technology and design, including the Australian National Architecture Conference, the Bauhaus Universität, the Strelka Institute, SCI-Arc, and the Architectural Association. His writing has been published in Wired, Harvard Design Magazine, Domus, The Atlantic, The New York Times Magazine, and many more. He lives in Los Angeles.*

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# Material Balance: Blurring Matter, Senses and Meaning

**by Ingrid PAOLETTI (September 2019)**

Nowadays materials are requested to play a more engaging role in the digital society.

They can be customized down to their molecular properties and this capacity has an enormous impact on related fields of science, but they also need to be interpreted in their meaning thanks to our 'semantic capital', as Luciano Floridi said.

We cannot reduce materials to their property and performances as, as humans, we use them to interpret the world, they are our continuously changing material culture to find an equilibrium between nature and built environment.

We can thus foster a new 'material balance', as a design equation, completely rethought for architecture, to take into consideration the future impact we carry on earth and which scenarios we can foresee.

In a purely scientific sense, material balance refers to the renowned equation of the 'mass balance', which is an application of the conservation of mass in the analysis of physical systems. By accounting for material entering and leaving a system, mass stays and cannot disappear or be created spontaneously.

Mass balance fundamental equation is

INPUT + GENERATION = OUTPUT + CONSUMPTION + ACCUMULATION

This equation is widely used in engineering, chemistry, environmental impact assessment and complementary in energy, population and other major complex systems, often linked to entropy.

Material Balance for Design can be an innovative Design Theory that arbitrary but newly, interpret the equation looking at which input we put in the world through design, what we do generate with the materials we use in architecture, which are the systems we build and how can we deal with consumption and accumulation.

Here is the new equation

humans + design activities = tools + use + accumulation

l accumulation = waste + heritage + knowledge

Accumulation is one of the major issues of contemporary practice as it can become waste, thus impacting the planet, but can also be directed in order to be heritage, knowledge and equilibrium instead of waste.

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A complete new equilibrium that is enhanced by digital technologies that allow us to understand at microscopic level how nature works, to embed its characteristic in the design and at a macro level of the city how to have a positive impact on the environment.

In this sense, the eye of the city can be a guarantee of performing a correct relation with the climate and bio-diversity.

An example is a project from Material Balance Group called 'STRUNA' – STRUTTURA-NATURA.

STRUNA is a tangible answer to a series of important interrogations, which could be summarized in the question "Are we ready to host nature?". This question recapitulates a trend which is more and more shaping our contemporary society, worried about the causes and the consequences of climate change, and an evolution in values which – detaching itself from the anthropocentric view which has been almost ubiquitously dominating starting from the Renaissance – aims at the development of a complex world-cultural ecosystem.

Specifically, the (infra-)structure is a slinky shape of a "wall" of around 8 meters long and 5 high, which aims at allowing to make the best use of spaces as a "common home" to vegetal species, and at the same time to increase the well-being of the human inhabitants through, we would say, "positive externalities".

The structure is multi-functional, and it is studied so that it can adapt to the space and regulate important parameters, such as: the quantity and distribution of light – which depends on a transparency gradient of the material and on the opening coefficient of the modules – the permeability to air and sight, the geometric conformation – which is modular and can follow infinite paths – the quality of air – which benefits from a positive balance between "consumed" CO2 and yielded oxygen.

It is then almost an infrastructure, that allows for the coexistence of different plants and functions in a formal synthesis of simple complexity, and can be monitored daily in terms of CO2 and pollutants absorbtion.

STRUNA allows the cultivation of three species of micro-algae – Spirulina (blue-green), Chlamydomonas (green), and Haematococcus (green to red) – which, in turn, produce nutritional substances in a much higher percentage than comparable vegetal cultivation or animal farming, allowing to harvest – respectively – proteins, polyunsaturated fat Omega 3-6-9 and the antioxidant Astaxanthin.

This is just a possible example of an infrastructure for the city that can have an impact on how people breathe, live, eat and behave, and that can use the digital environment to continuously adapt to climate.

A Material Balance that has no waste for our future generations.

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# The Extraction Infrastructure Web

by J. Meejin YOON (May 2019)

Urban development has intensified the development of a national landscape of energy production – a territory that could be called the 'extraction infrastructure web'. This landscape exists out of sight; obfuscated by a complex distribution of corporate, government and environmental databases. The city benefits from the energy network, while averting its gaze from the social and environmental consequences of the flow of energy from the territories of extraction to the metropolis.

Energy has a contentious history in the American context. Its trajectory begins with the logging of the east coast forests, continuing to the mining of coal, the drilling for oil, the splitting of the atom, and the hydraulic fracturing of natural gas wells. Infrastructure has catalyzed this trajectory—new energy infrastructures are increasingly 'one-way' autonomous systems. This shift has devastated the communities that were historically sustained by reciprocal infrastructures, such as canals and railways, of the early energy eras. Autonomous systems coupled with automation have hindered the flow of resources from the city back into the communities that have paid the environmental price for energy. While these new efficient systems lower the cost of energy in the city, they also increase demand, intensifying the development of the extraction network and its effect across America.

Increasing economic inequality, growing environmental contamination and shrinking populations demonstrate the inversely proportional effects of the energy economy on urban and rural territories in the United States. The city is a form of technology and its advance has changed the relationship between the metropolis and region. An extended landscape of extraction, connected with arterial pipelines across the nation, fuel urban centers along the coasts. While the American perception of energy is abstract, this representation extends the sight of the city beyond the limit of its urban boundary to see the full extents of its territory and influence.

The visualization of the interlinked extraction infrastructure network brings an awareness of the extents and expanse of energy enterprises with its effects on the city and region. As cities become more aware of their energy footprints, the web of infrastructure that enables them, and their extended environmental impacts, how will they seek sustainable solutions that benefit both urban and non-urban territories alike?

*J. Meejin Yoon, AIA, FAAR is an architect, designer, and educator. She is the co-founder of Höweler + Yoon Architecture, LLP and MY Studio. She is currently Dean of Cornell University's College of Architecture, Art, and Planning. Previously, she was Professor and Head of the Department of Architecture at MIT where she began teaching in 2001. Awarded the ACADIA Teaching Award (2016), the New Generation Design Leadership Award by Architectural Record (2015), and the Irwin Sizer Award for Most Significant Improvement and Innovation to Education at MIT (2013), Yoon is deeply committed to the relationship between design education, design research and professional practice. She is the recipient of the Rome Prize in Design (2005), Architecture Record's Design Vanguard Award in 2007, the Architecture League's Emerging Voices Award in 2007, and the United States Artist Award in Architecture and Design (2008). Her work has been exhibited at the Museum of Modern Art in New York, the Los Angeles Museum of Contemporary Art, the Smithsonian Cooper-Hewitt National Design Museum in New York, the National Art Center in Tokyo and the Vitra Design Museum in Weil am Rhein. She is the co-author of Public Works: Unsolicited Small Projects for the Big Dig (MAP Book Publishers 2009), Expanded Practice, Höweler + Yoon Architecture / MY Studio (Princeton Architectural Press 2009) and author/designer of Absence (Printed Matter and the Whitney Museum of American Art 2003). Yoon received a Bachelor of Architecture from Cornell University (1995), and a Master of Architecture in Urban Design with Distinction from Harvard University (1997).*

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# Eyes of the City: Seeing and Designing Beyond the Human

**by Jeanne GANG (June 2019)**

The advance of AI technologies can make it feel as if we know everything about our cities—as if all city dwellers are counted and accounted for, our urban existence fully monitored, mapped, and predicted.

But what happens when we train our attention and technologies on the non-human beings with whom we share our urban environments? How can our notion of urban life, and the possibilities to design for it, expand when we use technology to visualize more than just the relationship between humans and human-made structures?

In Chicago and the surrounding region, the Lincoln Park Zoo Urban Wildlife Institute (UWI) manages a "massive and unprecedented" wildlife monitoring network. Toward the goal of establishing a healthier and more biodiverse urban ecosystem, the organization uses technologies like motion-triggered cameras, radio collars, and radio telemetry to reveal unexpected portraits of the city's wild inhabitants, tracking everything from endangered species to escaped pets. Community members also play an important role in the network. With crowd-sourcing apps such as eBird, iNaturalist, and Chicago Wildlife Watch, people from across the city contribute sightings and identifications to the project, becoming keen observers whose expanded vision of their environment may lead them to change their behavior within it.

Studio Gang's Nature Boardwalk at Lincoln Park Zoo (2010) is a public park that has become a major node in this larger natural/technological network. Designed to support biodiverse urban life and to heighten human Chicagoans' awareness of it, the project's architecture and landscape were shaped by ecological criteria. More than 250 animal species have now been observed on its 14-acre site, which serves as UWI's "living laboratory" for wildlife monitoring and education.

Here and elsewhere, scientists and citizens are discovering that much conventional ecological wisdom just doesn't apply in urban areas. Predators co-exist with their prey on tiny patches of habitat; rare and endangered species return home in droves; and tropical birds repeatedly survive long, cold winters.

There is much we have yet to discover about our evolving urban environments. As new technologies are developed, deployed, and appropriated, it is critical to ask how they can help us see both the city and our discipline differently. Can architecture and urban design become a multi-species, collaborative practice? The first step is opening our eyes to all of our fellow city dwellers.

*American architect Jeanne Gang is the founding principal of Studio Gang, an architecture and urban design practice headquartered in Chicago with offices in New York City, San Francisco, and Paris. Understanding architecture as a practice of "relationship building," Jeanne focuses on creating projects that connect people with each other, their communities, and their environment. In addition to the Nature Boardwalk at Lincoln Park Zoo, her award-winning body of work includes Writers Theatre in Glencoe, Illinois; the Arcus Center for Social Justice Leadership at Kalamazoo College in Kalamazoo, Michigan; and the undulating Aqua Tower in downtown Chicago. She and Studio Gang are currently designing major cultural and civic projects throughout the Americas and Europe. These include the expansion of the American Museum of Natural History in New York City; the new United States Embassy in Brasília, Brazil; and the Global Terminal and Global Concourse at O'Hare International Airport in Chicago. The author of three books on architecture, she is a Professor in Practice at the Harvard Graduate School of Design and the only architect named one of TIME magazine's most influential people of 2019.*

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# Listen to Change - Eyes and Ears of the City

by Kees KAAN (June 2019)

Digital technology in the Information Age, and all its offspring, are having a significantly different effect on our lives than previous technological revolutions had. With the possibility to develop and produce in different and quicker ways, these new technologies allow us to use what we already have in a completely different manner. New technologies bear the promise of a more sustainable life.

The space that we move in will be aware of our presence and actions, and the vehicles we drive and the tools we use will be connected and communicate with us and each other directly. This opens a perspective on previously unimaginable possibilities of a different daily life coming true in the existing urban space. The future will not only be made of new buildings and spaces but will also reveal an entirely different use to what is already there.

Architects are ultimately interested in urban change caused by new ways of living and working, new infrastructure and urban facilities and different uses and management of public spaces. To be able to design for an unknown future we need to develop a proper understanding or informed intuition of this change. To predict the future based on what we know and can imagine today is hardly possible. However, it is possible to get a better understanding of what is already there and from that point onwards to identify and understand what is likely to change and what is not. Only then can we start to speculate on how to recover the future with architecture.

For planners/architects/designers, the challenge is to translate the impact of rapid changes – especially on energy, mobility, health and leisure – into planning and design questions. The question for us is: “how can the City of the Future be imagined? How can those smart innovations be introduced into the domain of architecture and urban design?”

By using Amsterdam as a living laboratory, graduate students, researchers and teachers have been exploring how these changes might affect this city. We aim to understand the structure of today’s Amsterdam, to explore possible future scenarios and to speculate on new architectural types and new ways of living in this city. By listening to the changes from the past, we foresee what is then coming.

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## Seoul City Machine

by Liam YOUNG (May 2019)

Seoul City Machine is a city symphony from the urban landscape of tomorrow. Narrated and scripted by an AI chatbot trained on smart city data sets the film is a love letter from the City Operating System to the citizens it affectionately manages. The film is a portrait of a city where machines and technology are now the dominant inhabitants of space. Here the eyes of the city are numerous and we are endlessly scanned by its countless sensors, lasers, cameras and satellites in order to feed the data models and optimize our experience. Our guide to the city is the disembodied voice of its urban management software. The script and dialogue have been generated through a conversation with a real artificially intelligent chatbot. We listen as the city machine voices its own creation story and introduces itself to its citizens.

The film is an abstract sequence of vignettes, fragments and moments of a future Seoul, a city in which all of the hopes and dreams, fears and wonders of emerging technologies have come true. Using contemporary Seoul as a visual backdrop the present-day city is overlaid with cinematic visual effects to depict an autonomous world of machines where the sky is filled with drones, cars are driverless, the street is draped in augmented reality and everyone is connected to everything.

For all of their history, the machines around us have stood silent, but when the city acquires the ability to see, to listen and to talk back to us, what might constitute a meaningful reciprocal interaction? Is it possible to have a productive dialogue with an autonomous shipping crane loading containers into the hull of a ship at a Chinese mega port; or, how do we ask a question of a warehouse filled with a million objects or talk to a city managing itself based on aggregated data sets from an infinite network of media feeds? Consumer-facing AIs like Amazon's Alexa, Microsoft's Cortana, Google Assistant or Apple's Siri repeat biases and forms of interactions which are a legacy of human to human relationships. If you ask Microsoft's personal digital assistant Cortana if she is a woman she replies "Well, technically I'm a cloud of infinitesimal data computation." It is unclear if Cortana is a she or an it or a they. Deborah Harrison, the lead writer for Cortana, uses the pronoun she when referring to Cortana but is also explicit in stating that this does not mean she is female, or that she is human or that a gender construct could even apply in this context. "We are very clear that Cortana is not only not a person, but there is no overlay of personhood that we ascribe, with the exception of the gender pronoun," Harrison explains. "We felt that 'it' was going to convey something impersonal and while we didn't want Cortana to be thought of as human, we don't want her to be impersonal or feel unfamiliar either."

The personalities of machines like these may seem innocuous, just novel interfaces through which to open an app, set a reminder or operate our devices while we have dirty hands but the assumptions and decisions that underpin these AI characters will form the foundation for generations of autonomous technologies to follow. How we engage with these artificial bits of intelligence is shaping our expectations for the next generation of human-machine interactions. "I have the deepest respect for humans,

you invented calculus…and milkshakes," says Cortana. Do we need to become fluent in C++ or the mechanics of machine vision in order to have a productive conversation with our city? How might we develop new forms of empathy or understanding with our technologies through alternative protocols of machine native interactions? The purpose of these questions is not to explore whether or not these early forms of computational intelligence constitute any kind of sentience but rather, as our technology companies race to bring more and more natural AIs to market, the question of how we design and interact with machines and how they might behave when we do is increasingly significant. Machines don't see or understand the world as we do yet we insist on trying to push our interfaces with them through the forms of language and vision that we associate with ourselves. Perhaps what we should be doing is looking at how, at these early stages, we can be prototyping new modalities of communication. The future of AI is not natural conversations with latex skinned, humanoid-shaped robots, but rather its complex relationships with driverless cars, mirrored black rectangles, giant infrastructural objects and planetary scaled logistical systems.

*An extended version of this text can be found in "I'm a cloud of infinitesimal data computation": When Machines Talk Back, by Liam Young, from Machine Landscapes: Architecture of the Post Anthropocene, edited by Liam Young, Architectural Design Special Issue 89:1, January/February 2019.*

*Liam Young is a speculative architect who operates in the spaces between design, fiction, and futures. He is a cofounder of Tomorrow's Thoughts Today, an urban futures think tank, exploring the local and global implications of new technologies, and Unknown Fields, a nomadic research studio that travels on expeditions to chronicle these emerging conditions as they occur on the ground. He has been acclaimed in both mainstream and architectural media, including the BBC, NBC, Wired, Guardian, Time, and Dazed and Confused; is a BAFTA-nominated producer; and has had his work collected by institutions such as the Metropolitan Museum of Art, the Victoria and Albert Museum and MAAS in Sydney. He has taught internationally at the Architectural Association and Princeton University and now runs the ground-breaking MA in Fiction and Entertainment at Sci-Arc in Los Angeles. He is the editor of the recent book Machine Landscapes: Architectures of the post Anthropocene, and with Unknown Fields has published the book series Tales from the Dark Side of the City. Liam's narrative approach sits between documentary and fiction as he focuses on projects that aim to reveal the invisible connections and systems that make the modern world work. Liam now manages his time between exploring distant landscapes and prototyping the future worlds he extrapolates from them.*

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# Whose Eyes on the Street

by LIU Jian (July 2019)

Since its breaking-out more than 200 years ago, Industrial Revolution has never stopped its pace of advancement, along with the revolutionary progresses of science and technology. The mechanization in the 1760s, the electrification in the 1870s, the informatization in the 1950s, and the intelligentization in the 2000s either had driven or is driving forward the economic development and the urbanization process of the world, transforming the human society from agricultural to industrial and then post-industrial, as well as from rural to urban. Each revolutionary progress of science and technology had caused about remarkable transformations of not only the way of the world's production and the way of people's life, but also the spatial layout and the functional organization of cities, sometimes positively, sometimes negatively.

This argument can be easily justified by the development of vehicles and its impacts on cities since the mid-19th century up to day. From horse-carriage to automobile, from collective bus to private car, and from manual to automatic or even driverless, the continuous upgrading of vehicles has greatly facilitated the mobility of people and goods by transforming their travel mode. At the same time, it has also remarkably reshaped the form of cities, promoting the expansion of existing cities and the growth of new cities, while making many of them, especially the big ones, struggling with its consequent byproducts, such as the growing of traffic jam, the increase of commuting time and distance, the shortage of parking area, and the popularization of air pollution, etc..

As an important representation of modernization, technology has always double-side-sword effects, as shown by the development of vehicles. Nowadays, in the era of intelligentization, the remarkable advancement of informational and digital technology push human society to face such a dilemma again. Artificial Intelligence and Internet of Things are no longer theoretical ideas on papers, but practical creations in reality, which undeniably help to improve the efficiency of production and the quality of life. Intelligent robots are more and more used to do the arduous jobs that were once heavily relied on human labor, such as coal mining and steel making, as well as the subtle jobs that were once impossible for any man power, such as micro-invasive surgeries and operations under extreme conditions. AlphaGo successfully defeated the world champion, showing the capability of deep-learning of an intelligent machine. Driverless car is expected to be an effective measure to deal with the challenge of aging society by guaranteeing the mobility of the aged.

In the field of physical environment construction, different kinds of sensors are used in both interior and exterior spaces to observe and monitor users' movements and activities, facilitating the management of social security, building performance, and city operation, as the basis for the construction of intelligent buildings and intelligent cities. Data collected through these sensors are analyzed for the possible controlling of lighting and air-conditioning in interior environment, for both energy-saving and personal comfortableness, as well as for the possible monitoring of traffic flows and

pedestrian movements in exterior space, for both functional efficiency and social equity. In some sense, these sensors function as the "eyes" and "ears" of a building or a city, which guarantee its safety, efficiency and convenience much better than before.

However, it should be noticed that the application of intelligent technologies also brings about unexpected consequences at the same time, in particular, the nuisance on privacy during the process of data collection and data annotation, which are frequently reported by the media in recent years. Take Amazon as an example. A report made by Niraj Chokshi for The New York Times on May 5, 2018, showed that one of Amazon Echo devices, Alexa, recorded a woman's conversation with her husband in Portland and shared it with one of her husband's employees in Seattle. An in-depth investigation reported by Matt Day, Giles Turner and Natalia Drozdiak on Bloomberg on April 11 2019 disclosed that, at Amazon, thousands of human beings are listening to the recordings of voice requests sent to Alexa to check it for errors (https://www.bloomberg.com/news/articles/2019-04-10/is-anyone-listening-to-you-on-alexa-a-global-team-reviews-audio). According to Nick Statt's article published on The Verge on April 10, 2019, this approach is known as "supervised learning" or "semi-supervised learning" which is believed to be "one of the only, and often the best, ways" to improve the service of Alexa. Although Amazon puts some privacy implications in its product and service terms, such as having human beings listen to recordings of your voice requests, it has often downplayed the privacy implications of having cameras and microphones in millions of homes around the world. It even uses automated systems to monitor and supervise its warehouse workers and automatically fires those who fail to meet productivity quotas, according to Collin Lecher's report on The Verge on April 25, 2019.

The intelligent devices like Alexa are always listening and on the internet, sharing private conversations without consent. This is not an isolated case taking place incidentally at Amazon, but a quite popular phenomenon among the high-tech companies that invest heavily in AI all over the world, as shown by a personal experience during a high school classmate reunion in Beijing in the summer of 2018. While we met and chatted in a private room in a restaurant, one mentioned a TV program which she thought might be interesting for all of us. On our return to home, two of the eight members replied that they received respectively a recommendation for that TV program from the different apps on their intelligent mobile phones of different brands. It means that, without letting us know about it, intelligent mobile phones listened to our talk and made the automatic recommendation.

All these cases imply that, whenever clear information and strict regulations are absent, there is room for misuse, or even abuse, of the data collected by sensors. At least at this moment, supervised learning of intelligent machines requires human eyes and ears, although the future orientation might be semi-supervised, weakly supervised, and then ultimately unsupervised learning. Sensors as the "eyes" and "ears" of a city are not the "eyes" on the street appraised by Jane Jacobs that transfer directly the emotions and judgements of the people who are observing. Though sensors are more capable in observing through data collection, they are less capable in judging through data analysis, because they don't have their own values of judgement. All their values of judgment come from the hidden "eyes" who are listening or watching behind them.

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We may imagine that one day, when a city was full of sensors to give it the ability of watching and hearing, data could be collected and analyzed as much as possible to make the city run more efficiently. Public space would be better managed to avoid any offense and crime, traffic flows be better monitored to avoid any traffic jam or traffic accident, public services be more evenly distributed to achieve social equity in space, land use be more reasonably zoned or rezoned to achieve a land value as high as possible, and so on. The city would function as a giant machine of high efficiency and rationality that would treat everyone and everything in the city as an element on the giant machine, under the supervision and in line with the values of the “hidden eyes and ears.” But, the city is not a machine, it is an organism composed of first of all numerous men who are often different one from another, and then the physical environment they create and shape in a collective way. Before the appearance of the city full of sensors, man needs to first work out a complete set of regulations on the utilization of sensors and the data they collect to deal with the issues of privacy and diversity.

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## Designing Freedom

by Luigi PRESTINENZA PUGLISI (October 2019)

When the city has eyes to see, it will become the stuff of nightmares. The panopticon prophecy will come to life. Democracy will die.

The pretexts through which a thousand mechanisms that spy on us have been introduced into cities are three:

- security from thieves, criminals and terrorists;
- energy savings and performance optimization;
- the possibility of having structures that spontaneously understand our needs, without any requests on our part.

To the objection that a city that is capable of watching us does not allow us to hide, it was argued that those who are honest should feel no need to hide, since this kind of technological transparency simply allows us to make our needs and desires immediately clear.

We need to look at it the other way round. Those who are honest may want to hide because this is the only way to escape evil, oppressors, dictatorships, conformity. Transparency also kills desire.

Should we then return to the ancient city? To the past? To darker times? Certainly not. But we have to dispel the myth of the interactive city, of the smart city, as a place where formulating a thought is all that is needed to get an immediate answer from an intelligent mechanism.

We have to design spaces that afford us the risk of choosing. Spaces where the intelligence at work is human, not mediated by an algorithm.

We could start with the workspace. The idea of a centralized intelligence monitoring every worker action will impede progress, stifling smarter options, including truly innovative and disruptive hypotheses. It will increase stress levels among those who have been deprived of their privacy, of that silent dialogue taking place within themselves, which is often dismissed as inefficient. It will promote authoritarian behavior among leaders. It will generate malaise.

Those who sell goods and services may want cities planned around transparency and predictability. Knowing what potential buyers want in real time is an incredible opportunity to direct and optimize their offers.

Cities that are able to see can also adjust energy supply, eliminating waste. They can provide assistance to those who are lost, and suggest alternative routes to avoid traffic. They can effectively manage climate and microclimates, report traffic offenses, identify dangers, robberies and terrorist acts.

Should we do away with all this? Not necessarily. But we shoud not compromise on freedom. Privacy specialists should work alongside transparency specialists. Each move by the former should be balanced out by the latter's counter-move–and vice versa.

Software can help with this: auto-delete tools for data, encrypted information, systems that prevent authoritarian regimes from spying, programs that allow people to remain in control of their choices.

When designing a project, just like there are energy specialists, we should have specialists who look at spaces in terms of freedom rather than efficiency. This way, there will be areas that could not be reached by digital signals, where only analog technology works and the latest control tools cannot be used to scrutinize us.

Of course, there will be ways to circumvent this. We are not so naive as to not understand that these spaces could be controlled all the same, perhaps using more traditional instruments. But this approach would help us be clear about a fundamental principle: that a city that is capable of watching us will not necessarily make our world better. It will make it more efficient, perhaps, but not necessarily smarter, and a lot more complex and dangerous.

*Luigi Prestinenza Puglisi is an architectural writer, critic and president of Associazione Italiana di Architettura e Critica (www.architetturaecritica.com). He is director of the weekly presS/Tletter (www.presstletter.com), an editor for Le Carré Bleu, and he was the chief editor of the international magazine Compasses (www.compasses.ae). His many books include: HyperArchitecture, Birkhäuser and New Directions in Contemporary Architecture. Evolutions and Revolutions in Building Design Since 1988, Wiley. His writings can be found at http://www.prestinenza.it.*

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# Travels in Woundedland

by Manfredo MANFREDINI (November 2019)

Two key phenomena of contemporary spatial production are critically challenging the integral resilience of present-day communities: translocalization and transduction. Their increasing pervasion and dynamism are profoundly transforming our society. Translocalization is the redefinition of territorialization patterns due to an increasing mobilization of people and things that dissipate the continuity, cohesion and permanentness of traditional social and spatial networks. Transduction implies the coming together of heterogeneous forces in either progressive iterative processes or irregular ones that restructure given domains into provisional unities through the diffusion of an exogenous activity. The combination of these two phenomena within an environment pervaded by augmented and mixed realities produces unprecedented metastable spatialities with powerful, yet ambivalent, relational capacities.

The Woundedland Project responds to this challenge by addressing territorial contexts with particularly strong metastability and relational capacity: places where radical deterritorialization and reterritorialization processes have profoundly restructured the central space of large, both local and translocal, communities. Major walled political borders are prime instances of such disruptive and momentous processes. As bastions of geopolitical interests of primary global organizations, these walls are the global epitome of divisive strategies that inhibit migration and networked translocalism, constituting symbol and matter of the unmovable and unforgiving boundary of staged, stalled or latent conflicts that dissociate both the locale and the trans-locale.

The heavily fortified, armed and ruthlessly enforced Korean Demilitarized Zone (DMZ) is the context chosen for this project. Its Demarcation Line, a 250 km-long divider separating Korea in two parts, is just one of the multiple formal boundaries originating from the post-WW2-designated border on the 38th parallel north. Its space is an indiscernible composite of simulation and reality. Grand metanarratives are deployed by multilayered geopolitical apparatuses of hegemonic powers in unstable internal alliances and wavering external conflicts. Semicoherent administrative mechanisms and knowledge structures transform the DMZ into a multistage political arena of superimposed plays, cowritten by ill-related authors, intertwining represented dramas with actual tragedies. Semi-dependent characters interpret propagandistic and spectacularized narratives that cobble together objective, symbolic and experiential authenticities in performances rich in solipsistic dialogues and absurdist practices. Weaponization, overdetermination and abstraction are deployed to progressively strengthen control on this space of power. The established social, material and cognitive relationality of local individuals and communities is diminished, their traditional commoning practices interrupted.

Closer studies on the DMZ-based local and translocal communities show how they develop relevant antagonist forces. The new metastable spatialities foster both their associative emancipatory capacity and alternative conceptions, perceptions and usages of space. The profusion of the digital public sphere enables the formation of independent networks based on inclusionary and collaborative commoning practices that claim the right to the city. Digital augmentations contribute to the affirmation of civic counterspaces with new types of commons that produce diffuse spells of

reappropriated places: wonderlands of reimagined, diverse and participative concrete utopias of autogestion.

The design propositions affirm these antagonist commoning machines through creative speculations, scenarios and proses focused on key centers of the DMZ. Specific topoi are used as discursive sites for reimagining utopia; they envision the future of the new civic commons set free from the dominative symbolic and spectacular warfare of the imposed mode of spatial production. The future commons embody desiring-formation processes that combine distant and heterogeneous elements in composite assemblages of material and immaterial infrastructures for cohesive, resilient and productive social, physical, and symbolic assemblages of pluralistic jouissance. Allegorical, context-specific narrative methods to give consistency and cohesion to the translocal metastable environments and establish critical engagements with possible worlds, proposing tight signifying chains of fluidly recoded components, instituting realms that make moments of utopia accessible as parodic fabulatory proses of the ordinary.

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# Synthetic Design Method as a Tool for Design in the Second Machine Age

by Matthias HANK HAEUSLER (August 2019)

Based on research conducted as part of the Computational Design (CoDe) degree at the University of New South Wales in Sydney, we argue that large-scale rapid urban developments in combination with vast amounts of data are beyond human comprehension and consequently need to be synthesized when designed.

In the synthetic design method I've outlined below, I aim to sketch out a hypothesis that could potentially influence what design might be and how it might be produced in the second machine age.

What is the starting point and motivation for investigating this new method? To answer, one first needs to introduce the term "machine age"; explain what defines a machine age; reflect on how the first machine age has influenced architecture and urban design; and lastly outline the second machine age.

The first machine age can be roughly defined as an industrial era from the 1880s to 1945. It matches a late part of the Second Industrial Revolution as well as the rise of modern art and modernism in design, architecture and urban planning [1]. From an economic viewpoint, a machine age is defined by general purpose technologies, technologies that affect the entire economy.

For the first machine age, the combustion engine and electricity were among the technologies that most drastically altered the economic and social structures of societies around the globe, but they also altered their design, architecture and urban planning.

This can be shown through two causalities: no combustion engine - no car, no car - no urban sprawl; no electricity - no elevators, no elevators - no high-rise buildings. Without a doubt, general purpose technologies influence architecture and urban design. Our cities would look very different without the combustion engine and electricity. One can therefore make the argument that current general purpose technologies will have a similar effect on architecture in the second machine age.

The term "second machine age" has gained prominence through a recent seminal publication titled The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies [2]. For the authors, current general purpose technologies include: Big Data, Internet-of-Things, social media, user-generated content, machine learning, artificial intelligence and digital fabrication–all 21st-century technologies that form part of our daily lives and that are transforming our cities and the way we will design in the second machine age.

Whilst Big Data and the Internet-of-Things have been and will be the "Eyes of the City"–the theme of part of next year's Biennale–one also needs to comprehend

what has been “seen” and how to react to it. Thus, one needs not only to “see” but also “think”–to process the vast amount of data produced in the past, present and future of a city in order to address global challenges such as rapid urbanization due to population growth, climate change caused by greenhouse gases, and migration between countries and from rural to urban areas.

One can argue that these challenges result in the development of vast greenfield and brownfield areas with a transport-focused orientation, as is the case locally with Western Sydney or internationally on a far larger scale with the Pearl River Delta.

One can also argue that these developments are too large in size, with their time frames too pressing, and their financial and political dimensions too complex, to design them via conventional design methods.

As mentioned at the start, these large-scale, rapid urban developments, when combined with vast amounts of data, are beyond human comprehension and consequently need to be designed in a synthesis. How do we define synthesis in the context of the Bi-city Biennale of Urbanism/Architecture Shenzhen?

I will refer to an early example of human-machine interaction (machine learning). After being beaten by the IBM supercomputer Deep Blue in 1997, Gary Kasparov introduced advanced chess. His objective was to let a human player and a computer chess program play as a team against other such pairs. After introducing the idea to the chess world, many proponents claimed that the quality and level of chess had improved to heights never before seen [3]. We argue that a similar strategy of human-machine interaction needs to be applied to design in the 21st century.

A synthetic design method could provide insights that go beyond data visualization, allowing humans to evaluate and select from multiple options, and thus writing a new chapter in the relationship between digital technologies and the city. We can imagine a synthetic design method combining machine learning with computational design for an optimized design workflow that can be used by people in the Architecture, Engineering and Construction (AEC) disciplines.

With machine learning, we could study algorithmic and statistical models, perform tasks without a specific pattern and develop algorithms that improve automatically through experience: Computational Design as a “process [that] starts with elemental properties and generative rules to end with information which derives form as a dynamic system” [4]. This could then allow us to link the predicted data to geometry using dimensions as measurable extents of a particular kind and with particular parameters, as measurable factors forming part of a set that defines a system or sets the conditions of its operation.

On what observation can one base a hypothesis of a synthetic design method?

Firstly, projects now need to be completed in a shorter amount of time, budgets do not allow for extra staff, and firms still manually produce design iterations or documentation drawings via staff members operating a CAD program and entering information–aka

by drawing a design.

Secondly, with the increase in complexity within a project, sharing information and communicating it efficiently has become a must.

Lastly, while CAD programs are now the norm in AEC firms, they do not necessarily make full use of computers' power to process huge amounts of information thanks to programmed and automated processes and efficient management tools.

A failure to address each of these three observations will result in financial loss. The construction industry generated a $15.8 billion annual loss in 2004 with $1.169,8 billion mainly in three key cost areas: (1) Manual re-entry–the first observation; (2) Request for information management costs–the second; and (3) Inefficient business process management–the last observation [5].

Using these observations as a basis for the hypothesis, one could ask: What are the obstacles for an uptake of a synthetic design method?

While computational design workflows exist and are commonly used by computational designers, and machine learning algorithms exist and are commonly used by computer scientists, both skill sets are still in the minority in the AEC industry and thus a broad uptake of a synthetic design method remains a challenge.

Here we see a need for changing the current business model in the AEC industry from a linear value chain to a networked value chain–consequently, architecture and urban design becoming platform businesses. A platform is a business based on enabling value-creating interactions between external producers and consumers [6].

Incumbent industries have already been disrupted and their pipeline business as a linear value chain transformed to a networked value chain. Well-known examples here are transportation services (Uber) or hotels (Airbnb).

Whereas in a linear value chain a business employs a step-by-step arrangement for creating and transferring value, with producers on the one end and consumers on the other, in a networked value chain, value may be created, changed, exchanged and consumed in a variety of ways and places, rather than flowing in a straight line from producer to consumer, all thanks to the connections that the platform facilitates [6].

A platform, set up as a two-sided network platform with browser-based modelling, is in the position to connect architects, planners and engineers with computational designers and software engineers and enable a synthetic design method.

Whilst no AEC platform business on the scale of Uber or Airbnb is yet on the horizon, the AEC industry comprises 8% of Australia's GDP and is the largest non-service related industry, contributing $134.2 billion to the country's economy. It will be a very likely target for disruption through a platform business model. "The compulsion of new technological developments" [1] in the second machine age might mean that the architectural profession will not be the same in a few years.

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# The Monarch Sanctuary

by Mitchell JOACHIM (May 2019)

Since the proverbial dawn of modernity, occupants of cities have suffered in a difficult relationship with nature. Leo Marx (and others) have diligently argued that cities and nature are essentially inseparable, which explains this pervasive tension. Cities operate as a massive system of interrelated complex organisms within an even larger system of organisms. These interdependent resources and disparate urban/ nature operations don't necessarily SEE one another. One overarching goal of municipal governing parties interested in sustaining cities was to make ecology visible.

Manifesting ecological routines into a visible spectacle is a utilitarian mechanism for building awareness and communicating intentions. Instead of burying or hiding urban metabolic infrastructure, reversing its presence is desirable. Foregrounding nature as an aestheticized and functional event in its myriad of forms is an excellent design objective. Giving citizens the capacity to SEE waste, energy or water systems in flux highlights their value and immediacy. For "Eyes of the City" our initiative at Terreform ONE concentrates on visualizing nature, or more specifically biodiversity itself. The objective was to reintroduce biodiversity everywhere feasible into the urban realm, from inside intelligent building skins in the exterior pockets of landscape mosaics. The outcome for this endeavor culminated in visualizing a certain fragile urban insect species at the edge of extinction. We wished for denizens of NYC to perceive biodiversity through the lens of a Monarch butterfly and in turn see their own environmental needs reflected back.

The Monarch Sanctuary building works to enable the public to witness biodiversity in the urban realm. It is intended to serve as an object lesson for "Eyes of the City" with salient green technologies. The aim is to make a spectacle which includes plant life, in designing for other species and in conveying images of new possibilities for urban regeneration. Our building program wants the citizens of NYC to visualize our failed relationship with nature, especially as it relates to habitat destruction. This project alone will not save the Monarch butterfly from extinction but it will crucially raise awareness about our much-loved insect residents.

Other features of the project are equally in service of the insects. LED screens at the street level provide 1,000x magnified live views of the caterpillars and butterflies in the vertical meadow. These digital screens also connect to a multi-story atrium adjacent to the circulation core to reveal insect activity. Now people can witness the life cycle of butterflies in vivid color on jumbotrons. Equally, artificial butterfly micro-drones collect data about the local biome. Hovering around the building, a dozen butterfly-shaped drones take readings, scans and maps of the immediate microclimate activity and report back to the city grid. They return every few minutes to recharge, and their combined real-time data works to maintain the butterfly health.

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# Invisible Architecture: the Necessity of Surprise - Eyes and Ears of the City

by Ole BOUMAN (August 2019)

In times normal, our eyes are the lights of our will power and the tools of our agency. Eyes oversee and control the world in front of us, help us to prioritize and make up our mind, gather the essentials we need to process before we sensibly can navigate our way to go. Eyes (and the visual cortex behind them) are essential attributes of homo erectus, becoming sapiens, providing orientation according to our values, and help us to measure the world around us properly before coordinating our actions.

Unless…

Unless times are not normal but actually completely normalized. Unless other eyes come into play: eyes that no longer serve us but rule us; eyes that follow the commands of higher authorities and their regimes as watchdogs of power we should submit to or even the instruments of actual surrender; eyes that are connected to much more powerful databases than our brain can ever be in turns connect what they see to what they have seen in the past, to the algorithmic conclusions that were drawn, to the imposed ambitions of the future, and even to the risks and potentials that we haven't even ever thought about; eyes that are never surprised, never impressed, and never seduced; and, eyes that not just see but rather alert, gather, hunt, sense, track, and even anticipate, intuit, and eventually secure, clean and who knows what is next. Eyes upon us. Eying is a verb. These eyes, indeed, do a job.

Architecture, from times immemorial, has been protection. It shielded us not only from the elements of nature but also from the gaze of the other. Architecture helped us to remain invisible, anonymous, safe – and, if wished, below the radar. A wall was not only demarcation between spaces but between private and public life. Architecture provided a dialectical world of in and out, that gave us the concept of retreat in case reaching out didn't work.

Well, this architecture is no longer – or, at least, there are reasons enough to think that soon. When you thought you were hiding behind the wall, your mind is still connected to a Siri, a Neuralink, or lesser-known helpers. Or, you may just have forgotten again what a mind was. Soon, although not yet.

But what does it mean to curate an architecture and urbanism biennale that explicitly takes the above as its subject and is titled "Eyes of the City"? Is the fact we still speak of architecture and urbanism at all indicating a rear-guard fight, revealing the ignorance of what is going on in front? Or can it be a deliberate oxymoron, subversive to the inexorable force of technology?

From the angle of the track record of this Shenzhen Biennale itself, also known as Urbanism and Architecture Bi-city Biennale (UABB), its distinguishing ambition – the special quality of the UABB if I may say so, has always been and might still be its capacity to act like an urban catalytic force. In its previous installments it did not just expose or celebrate something but acted like a trigger for a better life. This quality was easy to understand by the choice of its venues. Old and derelict factories that

got a creative boost and came back into play as urban nodes. An "urban village" for urban migrants, exposing and exacerbating its "arrival" qualities, stronger than any of the visiting culture gurus could ever imagine. The energy brought by a biennale automatically lead to vibes, a new attractiveness, programs, and new identity. Some people were even saying that beyond that boost, gentrification was the ultimate effect. Whether you like that or not, at least it proves the point of a biennale as a change agent.

But this year the situation will be completely different. It, in the first place, owes to the venue – the utterly vast Futian Station right next to the Civic Center, a place seemingly ready for decades of logistical machinery to connect Shenzhen to the world, and a place not in great need of vibes but of efficiency. Actually, not so much as a place, but rather a node to pass, and an in-between zone that is supposed to guide you through.

Secondly, this Biennale will address a public that does not, or hardly knows itself is actually a public. It is an audience that can't care less about architecture (nor its theory) for that moment it's exposed to it. But at the same time, it's an audience that has nowhere to escape. People have to be there. They will come back the next day on their daily commute. No other cultural event can count on such a loyal audience.

These conditions, combined with the intellectual paradox of the subject matter "Eyes of the City" that virtually denies its own stance, almost counter-argue against any hope for catalyst effect. Where previously it was the presumption of design's agency that justified the idea of a catalyst, now a topic is raised that is about the very fading away of the agency itself, or at least the risk thereof.

I can imagine the creative challenges that first the curators, then the many contributing design teams responding to the open call, have been through. It must have felt like a magical Houdini act to transcend to the next level of participation, or even emancipation. This must have not just about the agency of design, but about re-designing agency itself.

How, by Jove, can this event ever be a trigger of anything culturally important? For now, we can indulge ourselves in the blissful state of innocence and just wait till December – a luxurious waiting for a, hopefully, nice surprise.

*Ole Bouman is since 2015 the Founding Director of the new creative platform Design Society in Shenzhen, now in the second year of its full operation and listed by Time Magazine among the World Greatest Places. Past roles include editor-in-chief of Volume (2005-2007, a magazine he co-founded with OMA and Columbia University) and director of the national Netherlands Architecture Institute (NAi) (2006-2013). He worked as a curator for Manifesta 3 (2000), and curated national pavilions at the Biennales of Shenzhen, São Paulo and Venice. He was Creative Director of the Urbanism/Architecture Bi-City Biennale Shenzhen (UABB) in 2013-14. His publications include The Invisible in Architecture (co-author, 1994), Ubiquitous China (2006), Architecture of Consequence (2009) and (co-editor, 2017) Design Society: the Making of a New Creative Platform. Among others, Bouman taught architecture and design at the Massachusetts Institute of Technology and the University of Hong Kong. In 2019 he received the Shenzhen Creative Influencer Award.*

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# Why Robotic Construction?

by Philip F. YUAN (May 2019)

Since digital infrastructure and automation technology made it possible to correlate "eyes," "hands" and "brain" with the workings of the city, a virtual machine has emerged to integrate matter, energy and information in the lived environment. Urban sensations have become inseparable from the effects of this machine's production on the interactions between the city and its inhabitants. In investigating the new condition of social assemblage, one question could emerge naturally – why robotic construction?

To address this question, the diagram performs as an intellectual field that territorializes a series of concepts/actions/events regarding robotic construction and its interventions into social life. In this diagram, the terms are distributed across the field according to their correlation to the triangles of "Matter-Energy-Information" and "Eyes-Hands-Brain of the City," while the distances between the terms are determined by their internal "intimacies" and oppositions. In general, the diagram is intended to offer a loosely constructed network of ideas that could cultivate further speculations on the role of robotic technology in the constant reform of our living environment.

With industrial robots as the revolutionary construction platform of the digital era, the architectural profession is experiencing a great paradigm shift from traditional crafts and industrial reproduction to cyborg craftsmanship techniques combining human with a machine and new human-to-human collaborations. This hardware-software platform integrates the "hands," the "eyes" and the "brain" of the city with an information network for building. It circulates matter, energy and information to mix our virtual living environment with actual building processes.

With the robotic construction platform, the materialization process of the city could be constantly manipulated and altered through various invented fabrication technologies, continuously forming and reshaping the living environment.

Meanwhile, new possibilities of collaboration brought by this robotic platform challenge traditional design authorship and question authority within the cycle of architectural design and construction, decentralizing the control of energy consumption within the system of production.

Both off-site prefabrication technology and in-situ robotic construction make "architecture without architects" a possibility. Through the reciprocal feedback loop between cloud computation and cloud production, a tendency toward de-professionalization within the building industry emerges. The shared knowledge and liberated creativity between robots and humans brought forth by the robotic platform encourage citizen contribution in the constant building process of the lived environment.

*Philip F. Yuan is Professor at the College of Architecture and Urban Planning (CAUP) at Tongji University, where he is the director of the Digital Design Research Center (DDRC). He is also the Founding Partner of Archi-Union Architects and Fab-Union Technology. His research mainly focuses on the field of performance-based tectonics in architecture as well as robotic fabrication, and he is able to realize many of his research theories in his architectural practices. Since 2011, Yuan has been the co-organizer of the annual academic event series DigitalFUTURES, which encourages theoretical and scientific research on computational design and robotic fabrication internationally. He has published a number of books on his works and related fields in both English and Chinese. His research and projects have received many international awards, have been exhibited worldwide – including at the 2018 Venice Architecture Biennale, 2017 Chicago Biennale, Milan Triennial, UABB (Shenzhen) – and have formed parts of several renowned museum collections.*

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# Urban Refuges and Interspecies Seeing

**by Sarah MINEKO ICHIOKA (June 2019)**

First, let me declare my unambiguous aversion to the envisioned future in which "any room, street or shop in our city can recognize you, and autonomously respond to your presence." Despite this, can I see any positive potentials in pervasive systems of urban surveillance and response?

Rather than designing cities to "see" us—in aid of social control and commercial targeting and at risk of increased fragmentation and narcissism—how instead might we design cities that help us be active witnesses to and collaborators with, the many non-human lives unfolding around us, which we may currently overlook? Beijing park-goers can scan QR codes to learn about plants and birds. Melburnians can already send emails to their favorite street trees.

So, could the office elevator remind me to pop up to the roof on my coffee break to watch the butterflies emerging from their chrysalises? Could a lamppost help urban foragers detect whether the tasty-looking mushrooms at its base are indeed chanterelles or a poisonous look-alike? Could a motorway sense a bevy of otters playing on its verge and switch its traffic signals to shield them from oncoming drivers? If my neighbor's phone received a spontaneous live stream of mother bats tenderly nursing their pups, would it dissuade him from over-pruning the tree that they roost in?

This age of increasing urbanization, destabilized climate and mass extinction calls us to defend and enhance places of refuge for diverse forms of life within our cities (and, of course, beyond them). How then might we design modes of urban "vision" that enhance inter-species communication; allowing us to better see, appreciate and accommodate one another; moving toward regenerative coexistence?

*Sarah Mineko Ichioka is a strategist, curator and writer. She leads Desire Lines, an international consultancy for environmental, cultural and social-impact organizations and initiatives.*

*In previous roles, Ichioka has explored the intersections of cities, society and ecology within institutions of culture, policy and research in Asia, Europe and the United States. She has been recognized as a World Cities Summit Young Leader, one of the Global Public Interest Design 100, a British Council / Clore Duffield Cultural Leadership International Fellow, and an Honorary Fellow of the Royal Institute of British Architects.*

*Before relocating to Singapore in 2014, Ichioka served as Director of The Architecture Foundation (UK) and Co-Director of the London Festival of Architecture. She has served as an adviser or judge for many diverse projects, including the XXII Milan Triennale, Water as Leverage for Resilient Cities Asia and the European Prize for Urban Public Space.*

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# Biocities beyond the Digital

**by Vicente GUALLART (September 2019)**

Thanks to the development of the digital world, cities can be part of natural history. This is our great challenge for the next few decades.

The digital revolution should allow us to promote an advanced, ecological and human world. Being digital was never the goal–it was a means to reinvent the world. But what kind of world?

In many cases, digital allows us to continue doing everything we invented with the industrial revolution in a more efficient way. That's why many of the problems that arose with industrial life have been exacerbated with the introduction of new digital technologies.

Our cities are still machines that import goods and generate waste. We import hydrocarbons extracted from the subsoil of the earth to make plastics or fuels, which allow us to consume or move effectively while polluting the environment. Cities are also the recipients of the millions of containers filled with products that move around the world, and where we produce waste that creates mountains of garbage.

We have the ability to buy and pay for everything digitally, but we do not know where what we consume comes from, or where its waste goes. Cities have learned to manage everything more efficiently–even their own pollution.

We live in an era of instantaneous super-globalization, where the digital has soaked the physical world to make it more efficient, but it has not reinvented its vital principles.

Each new technological paradigm, like the digital world, is an opportunity to redefine our world and our cities. The challenge of cities is no longer their digitalization, but how this shift could make them more ecological and human.

Technology should benefit the biological world, promote human life and the development of natural species.

The digital revolution allows us to share knowledge and reinvent our cities while working as a team. Digital technologies should not be tools of control, but of human empowerment.

The digital world is already a fact. The destruction of the natural world has accelerated through the industrial and digital era, especially in cities. Considering that there are still emerging countries in Asia, Latin America and Africa where more than two billion people will migrate to cities in the coming years, it's fair to wonder–what kind of future awaits us?

One possible solution could be to transform cities into an extension of the natural world–to prevent the planet from destroying us through climate change. Humans

will not destroy the planet, but they can destroy themselves. The planet has suffered multiple catastrophes throughout its history and has always overcome them by creating a different natural environment. Human beings are but a small part of the history of the planet.

The new technological revolution must begin in the most densely populated cities, where the majority of our emissions take place. The great challenge for humans is to transform cities into bio-cities. We have to design and build cities that function more like forests, like self-sufficient ecosystems that produce the resources they need to thrive, and that promote life.

If the digital world allows us to be connected, global shared knowledge should allow us to produce resources locally, using clean and advanced production systems.

Cities and their surroundings should be places that produce energy, food and goods–and all production and consumption processes should be completely traceable. The great urban battle is not between analog and digital, but between centralized and distributed systems.

We should use new digital technologies to rebuild porous networks, as if these were neural systems that connect people, processes and things–and empower cities.

Today, we still consume energy from coal-fired power plants that emit CO2 into the atmosphere. These are located in the heart of many cities, and are generally accepted for the sake of progress and accelerated economic development.

With digital networks, cities could implement a blockchain of energy where each building can generate energy through photovoltaic systems and consume it, store it or share it as needed. This would require big transformations in urban design, as well as in the management and economy of cities.

Nature has developed distributed systems where millions of elements are connected and form part of complex ecosystems that promote a more balanced way of life. This should be our urban model for the digital era.

Big data, robots and artificial intelligence are already embedded in cities. We should put them at the service of humanity and ecology. They should help not only reduce, but completely eliminate CO2 emissions in cities.

Advanced urban reindustrialization should be put at the service of local economies. The digital world should encourage social interaction and make people feel in control of their own destiny. This, in turn, would build stronger local communities

The increased ability to obtain and organize information should help us better understand the potential of natural resources characterizing each territory, and should help us figure out how to use and distribute them in a sustainable way.

This way, cities can promote a type of bio-economy that integrates our environmental

resources, without destroying them to produce–for instance–biofuels, ecological food, bioplastics, carbon fibers of lignin, or construction materials such as wood or bamboo.

If climate change is humanity's greatest challenge, we should dedicate our efforts to building cities that, more than emit, absorb CO2 from the atmosphere.

We should build cities that behave like forests and buildings that act–and react–like trees. We should promote the development of a new eco-civilization.

Design should be put at the service of this vision. Too many times we designed buildings and cities that reinforce existing models and preserve the status quo. It is a moment of paradigm shift, and we should learn to work in an environment where the digital and the biological merge.

Cities survive in the material history of the planet as a materialization of the culture that created them. We are at a crucial moment in history. We can decide whether to accelerate the construction of the industrial city through digital technologies, which will lead to systemic collapse, or if the time has come to promote a new ecological culture, building cities for human life. New digital technologies allow us to build bio-cities for our future.

*Vicente Guallart, was chief Architect of Barcelona 2011-15. He is the founder of the Institute for Advanced Architecture of Catalonia (IAAC) in 2001 and a professor at the Higher School of Economics in Moscow. He is leading the international practice Guallart Architects, who has won recently several Urban Planning competitions in Shenzhen. He is author of many book including "The Self-sufficient cities", "Geologics" and has been the editor of the English edition of The General Theory of Urbanization" and Urbanization.org.*

*Article available at: https://www.archdaily.com/925216/subject-biocities-beyond-the-digitial-vicente-guallart-for-the-shenzhen-biennale-uabb-2019*

FOUNDATIONAL CONTRIBUTORS

# A Happily Tracked Day

by Ying LONG (June 2019)

We live in a world full of electric products, and we have been influenced by them deeply, especially by those with digital screens, like cell phones, computers and TVs. We use computers for work and social media like Twitter and WeChat to connect with others, we use Mobike for short-distance commutes, Dianping to navigate us to a good lunch and then Alipay to pay the bill. At the end of a long day, we usually spend the rest of our time watching TV or playing online games in order to finally relax. These electric products bring convenience to our life, but at the same time, they are kidnapping it. The overuse of them immerses us in a virtual world and pushes people farther apart. We are losing face-to-face communication and ignoring the enjoyment of real life. Currently, people are spending more time on their mobile phones than ever before. According to a report published by Aier in 2018, the average screen time in China is 6 hours per day, and the average person uses their cellphone 108 times. This mobile-dependency is leaving our lives increasingly fragmented.

With the advancement of science and technology in the last few years, the potential of new technologies and new equipment to record personal life and study individual behavior has often been explored. In this project, we're going to use wearable cameras to digitalize individual daily life, and see how far electric products have changed our lives. As a wearable device, a wearable camera offers data-driven insights into the patterns and characteristics of our lives. It features a built-in GPS, and can attach on users' clothing and automatically take a photo every 30 seconds or minute. In an urban setting, wearable cameras can become eyes that are open 24/7, digitalizing our real lives into images, recording how we spend our time and how we interact with city space and other people.

We will invite five participants who live in different Chinese cities. Each participant will be asked to wear a camera for an entire week, including both work days and weekends. They will be instructed to remove private pictures before submitting the rest of their pictures for our quantitative analysis. After obtaining all the images, we'll use both manual auditing and automatic analysis using API & Matlab color recognition algorithms to identify the major information in each image, including but not limited to how long the participants are exposed to the screen, how many people they meet and interact with, how long they stay indoors and outdoors, and how fragmented their time is.

The outcome of this project will be visualized on several A1-sized posters and models. There will be several graphs, maps and typical images in the posters to show this generation's life under the influence of new technologies. And we'll use 3D printers to make several physical models that reflect how people use their fragmented time in a more tangible way. In addition, we will invite several volunteers to wear wearable cameras in the exhibition hall, thus tracking their walking paths and physical activities in the exhibition area. Then we'll prepare several touchscreens to show the real-time situation of our volunteers from various cities, including how they interact with others

and the environment.

From this project, we can obtain a large-scale digital-self image database with rich data of individual behavior and spatiotemporal activities, provided by the wearable cameras. These images can be used for describing and analyzing the wearers' lifestyles, and thus for reflecting our contemporary culture and spirit. In addition, they provide a human-centered urban study method instead of the usual place-based measures, thus enabling a shift in the research perspective from "group level" to "individual level" and from public to individual lifestyle. The project will provide a new lens for architects and urban planners to understand the interaction between people's physical/digital activities and city space, by using a large number of digital-self image data instead of people's pure observations. Besides, it will present the visitors of the exhibition with a vivid picture of contemporary people's lifestyles, and we hope visitors will resonate with it by, for instance, reducing their screen time and increasing activities/interactions in the physical world. In the future, the wearable camera technology can be further used to portray specific groups of people, like the aged, the disabled and children. Through the all-day recording of their daily lives, their special needs can be discovered.

*Architecture, Tsinghua University, China. His research focuses on urban science, including applied urban modeling, urban big data analytics & visualization, quantitative urban studies, planning support systems, data-augmented design and future cities. He has an education background in both environmental engineering and city planning. Before joining Tsinghua University, he worked for the Beijing Institute of City Planning as a senior planner for eleven years. Familiar with planning practices in China and versed in international literature, Dr. Long's academic studies creatively integrate international methods and experiences with local planning practices. He has published almost two hundred papers and led over twenty research/planning projects. Dr. Long is also the founder of Beijing City Lab (BCL www.beijingcitylab.com), an open research network for quantitative urban studies.*

*Article available at: https://www.archdaily.com/918601/a-happily-tracked-day-ying-long-for-the-shenzhen-biennale-uabb-2019*

FOUNDATIONAL CONTRIBUTORS

## We Are Looking Back!

by Yung Ho CHANG (April 2019)

Is the virtual world replacing the physical world?
Will cyber space substitute real space?
These are some frequently asked questions today.

My intention is not to answer these FAQs, but rather to wonder what would become of the tangible realm should the intangible one threaten to take over.

My suspicion is that this good old place may get dirtier, rougher, and for sure, heavier, in order to counterbalance the so far weightless brave new world. Thanks to VR technology, we may experience the feeling of no gravity on earth whenever we wish. However, once the goggles are off, don't we crave for the sensations of weight, texture, and temperature? Just like how Detective Columbo discovered the meaning of life while holding a cup of scorching hot coffee in a bitter cold Berlin morning in the Wim Wenders movie. Not that we don't like the new technologically enhanced wonderland, we simply want the old and the new in perfect contrast. In other words, we want the fun of having two parallel yet distinct worlds.

That is why, while accepting both VR and RR (Real Reality) as realities that we dwell in, as an architect, I am more interested in augmenting RR by intensifying our sensual outreach. I don't wish to defy gravity; I prefer to celebrate weight and weightlifting, as in the past.

For the theme "Eyes of the City" at the UABB this year, we at Atelier FCJZ plan to tackle ways of "looking" while living under omnipresent surveillance in contemporary urban life. Instead of being watched passively, we propose a more proactive stance: to look back, not back into the surveillance cameras, but onto the city, sky, space, art… Although we may not have control over how we are being looked at, we shall fight for control over how we look and what we look at.

Perhaps, a new mission of architecture today is to remind us of the tangibility of the tangible world, for instance by inviting us to survey this tactile, earthly landscape with our naked eyes, through the lenses of architecture.

*Yung Ho Chang, FAIA, is a Founding Partner and Principal Architect of Atelier Feichang Jianzhu, Professor and former Head of Architecture Department MIT, Professor of Tongji University and Peking University. Since 1992, Chang has been practicing in China with Lijia Lu. He has won a number of prizes, including First Place in the Shinkenchiku Residential Design Competition in 1986, a Progressive Architecture Citation Award in 1996, the 2000 UNESCO Prize for the Promotion of the Arts, and the Academy Award in Architecture from American Academy of Arts and Letters in 2006, and 2016 China Architecture Media Award Practical Achievement Prize. He has published a number of books and monographs and participated in many international exhibitions of art and architecture. He has taught at various architecture schools in the USA and China and was the Founding Head of Graduate Center of Architecture at Peking University from 1999 to 2005. From 2011 to 2017, he was a Pritzker Prize Jury member. FCJZ was recognized as one of the 100+ Best Architecture Firms 2019 by Domus magazine.*

*Article available at: https://www.archdaily.com/915461/we-are-looking-back-yung-ho-changs-response-to-curatorial-statement-at-shenzhen-biennial-2019*

VENUE DESIGN
Venue Design

VENUE DESIGN
Venue Design

VENUE DESIGN

## AN UNUSUAL EXHIBITION VENUE

Selected by the UABB organizing committee as the main venue for the “Eyes of the City” section, the Futian high-speed railway station might seem at first like a challenging location for a Biennale exhibition. It represents one of China’s leading mobility hubs and it is part of one of the world’s most extensive underground spaces, traversed by hundreds of thousands of people every week. Since September 2018, it is possible to travel southwards from Futian station to Hong Kong in about 15 minutes – in a journey that prefigures the impending fusion of the two cross-border cities.

The exhibition reacts to this unusual setting by pursuing a design strategy that aims to attract an audience not necessarily accustomed – or even interested – in visiting a Biennale about urbanism and architecture. By adopting a zigzagging spatial layout devoid of clear gateways as well as by mimicking the flamboyant visual language of duty-free shops (developed by the Dutch graphic designer Mieke Gerritzen), the exhibition aims to expose station users to the ambiguity of “Eyes of the City” scenarios. The station becomes a space where visitors cannot escape art – and where functions and experiences get hybridized.

Ultimately, this unusual venue stands out as the natural home for the “Eyes of the City”. As digital technology increasingly permeates our cities, railway stations are one of the public spaces that are likely to experience the strongest shift. For a long time, stations have been places where one could experience urban anonymity at its highest form. Already today, they are becoming examples of a built environment that is able to recognize and respond to us in real time. In stations as well as in airports, we can already observe what an “Eyes of the City” scenario might look like and start a critical reflection about it.

# VENUE DESIGN

# A PLATFORM FOR FACIAL RECOGNITION

**MVRDV, "Eyes of the City" team, The Cooper Union**

*"Technology is the answer, but what is the question?"* Cedric Price

"Eyes of the City" can take many forms. Facial recognition is possibly one of the single most controversial aspects. In 2019 alone, from London to Hong Kong to San Francisco, communities and officials have reacted critically and creatively to the increasing use of this technology for surveillance and data-gathering purposes. This technology, now ubiquitous in most cities, raises fundamental issues of consent from those who did not necessarily make the choice to be in a database.

American historian of technology Melvin Kranzberg once stated that "technology is neither good nor bad; nor is it neutral." One of the main objectives of the "Eyes of the City" exhibition is to encourage visitors to take a stance, shunning the dangerous option of neutrality. Using critical design as a tool, it seeks to create experiences that will encourage people to form an opinion.

In this spirit, this year's Biennale is the first public exhibition to incorporate facial recognition on its own premises. A specially-made technological system permeates the space inside the Futian high-speed station. Visitors can be facially scanned upon accessing the exhibition through the two info points designed by MVRDV on opposite ends of the venue. Fundamentally, the system works in a transparent manner and camera locations are highlighted throughout the space. Visitors who wish to opt out can wear a special mark to bypass sensors and become anonymous, signaling their stance to others. Those who accepts to be part of the system receive personalize wayfinding suggestions via a series of digital boards scattered around the venue.

The concept for the info point has been developed in a collaboration between the curatorial team and a team of researchers at The Cooper Union. Simulating an adversarial attack upon a facial recognition system, the installation aims at making people regain their agency and opt out of being recognized by such a system, through something as innocuous as a sticker.

The system is complemented by a series of individual installations tackling the potential of biometrics as well as its contradictions. Overall, the “Eyes of the City” exhibition seeks to compel us to question our role as the watched ones, inviting us to stare back at technology.

DESIGN
MVRDV, Winy MAAS, Sen YANG, Jammi ZHU, Wenchian SHI
CONCEPT
“Eyes of the City” team
In collaboration with “Hiding from the Eyes of the City” class, The Cooper Union
(Instructors: Benjamin Aranda & Sam Keene. Team: Risako ARCARI, Jesse BASSETT, Bo CAI, Natalie DECHIME, Ariana FREITAG, Juan Carlos JAVIER, Raymond LEE, Kayla MONTES DE OCA, Stella Blue PORZUNGOLO, Dhvanil SHAH, Daniel SMITH, CHEUNG Lun Son, Ain SONG, Doosung Shin, Nithilam SUBBAIAN, Qicheng WU)
FACIAL RECOGNITION PLATFORM
Turingviz Technology Co. Ltd.

VENUE DESIGN

## Hiding from the Eyes of the City

**Benjamin ARANDA & Sam KEENE, The Cooper Union**

“Hiding from the Eyes of the City” is a kiosk that implements facial recognition technology in real-time, interacting with people to show them how it does and does not work. While the technology is highly sophisticated, using the latest in machine learning, it also susceptible to error. This installation creates a game from this duality, where a person can explore the various degrees between recognition and anonymity using their face. The kiosk first prompts a person to take a picture of themselves to begin the game and allow the system to learn their face. With the variety of facial recognition systems being used today, there are many ways to challenge these algorithms through the use of physical objects like patches, buttons, make-up, and glasses. After the system learns their face, users can play with different objects in the kiosk and see their effect on the system’s ability to recognize them. By inviting the user to interact with the exhibit, they decide through play which items have the most value. “Hiding” is a game that explores facial recognition techniques in real time and reveals the impact of this technology on people’s behavior in the space of the gallery.

Instructors: Benjamin ARANDA & Sam KEENE. Team: Risako ARCARI, Jesse BASSETT, Bo Cai, Natalie DECHIME, Ariana FREITAG, Juan Carlos JAVIER, Raymond LEE, Kayla Montes DE OCA, Stella Blue PORZUNGOLO, Dhvanil SHAH, Daniel SMITH, CHEUNG Lun Son, Ain SONG, Doosung SHIN, Nithilam SUBBAIAN, Qicheng WU

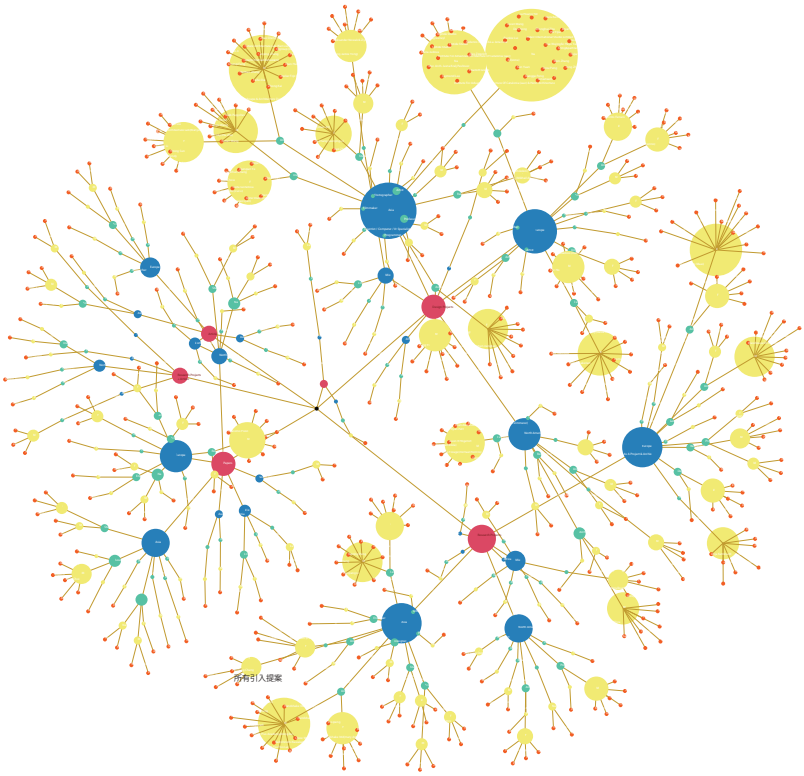
# VENUE DESIGN

VENUE DESIGN

# CURATING CURATION

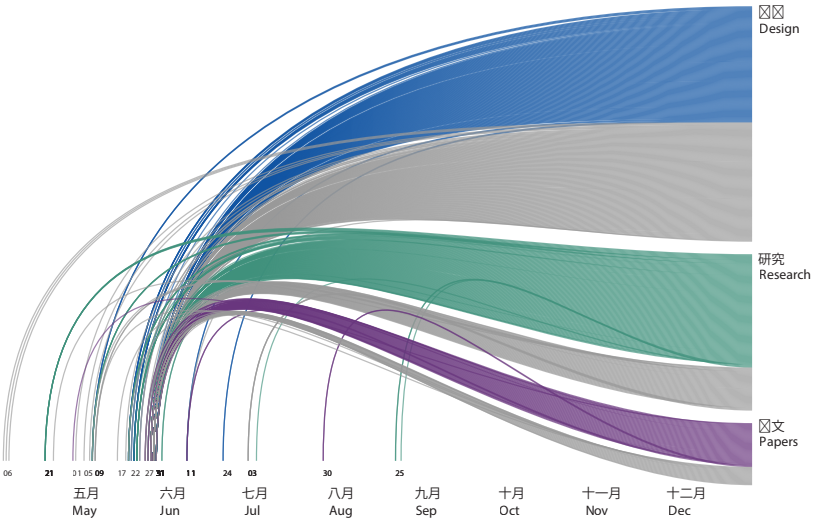
**Paolo CIUCCARELLI, Yinan DONG, YUAN Hua, Todd LINKNER, Yuqing LIU, Nicole ZIZZI**

A visual atlas of the curatorial process behind –and before– the Eyes of the City exhibition. The body of the curatorial process has been dissected into eleven charts that expose the richness of the corpus of metadata and descriptions attached to each and every one of the submitted applications.
The aim is to unfold the complexity of the curatorial process, to make it legible, and to re-constitute the ensemble of all the applications as a (big) picture of the current status of design and research in architecture and urban planning.
Who applied, from where, when, and what do all these proposals have in common in terms of topics and imagery? Navigating the flows and the nets of data you can find the answers and step into the tree of decisions that builds an exhibition, before entering it.

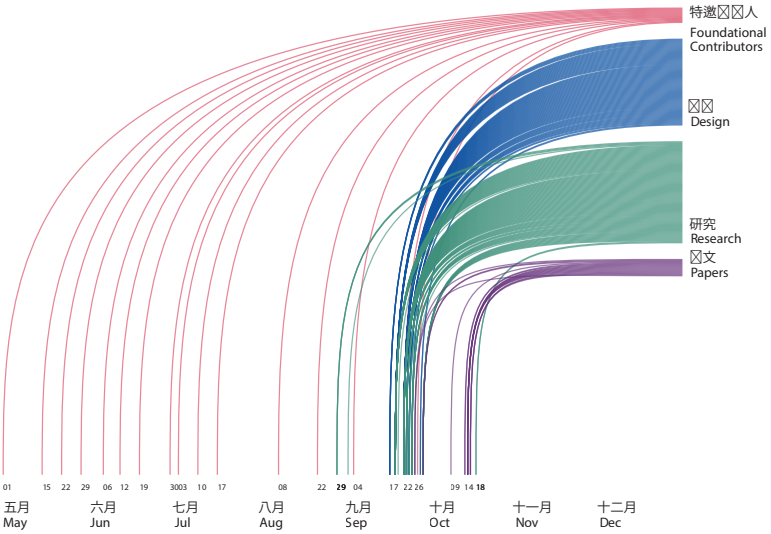


# VENUE DESIGN

## Open submission date

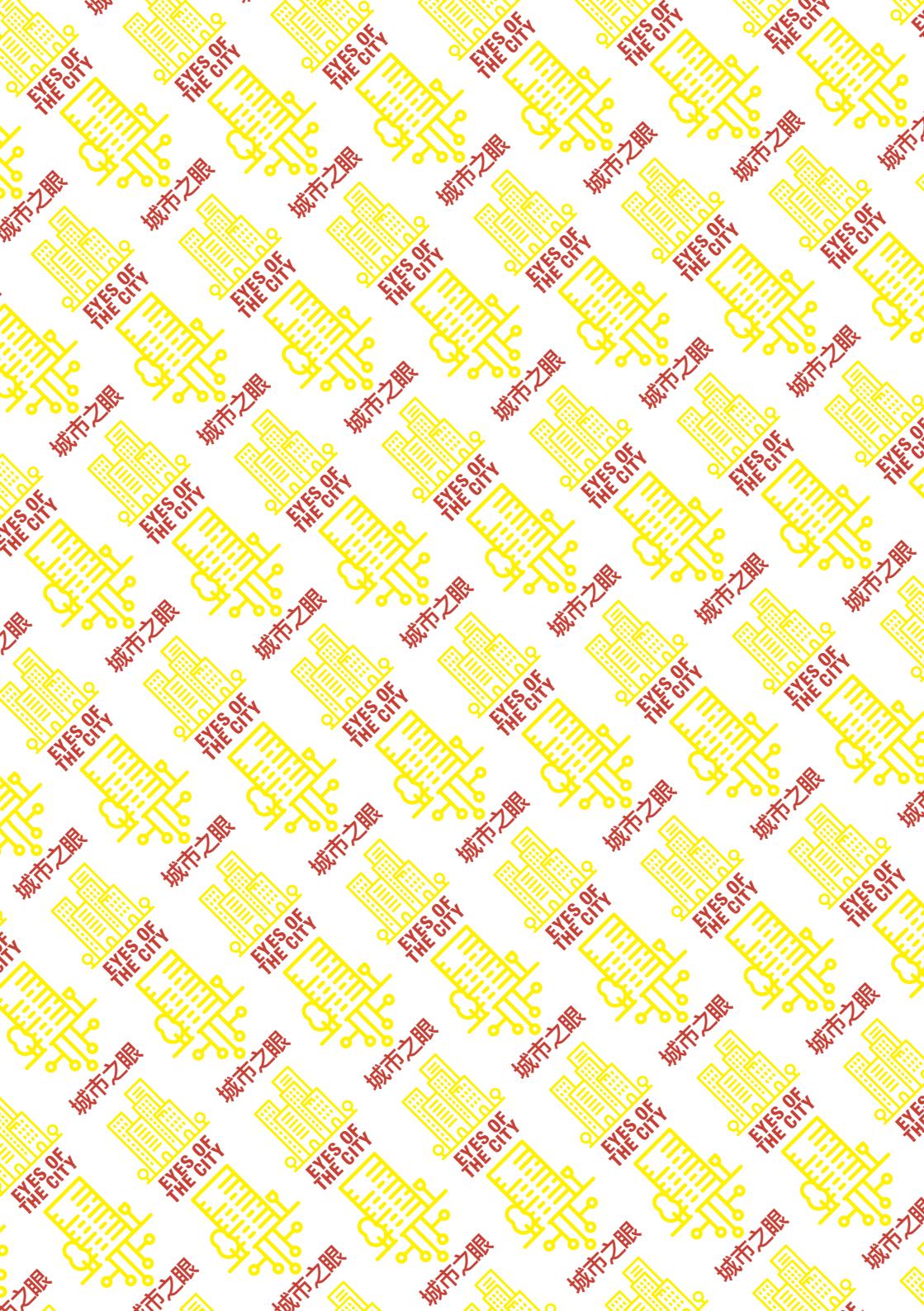



## Final submission date



EXHIBITS & BLUEPRINTS

EXHIBITS & BLUEPRINTS


EYES OF THE CITY
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# Section 1
# The World's Urban Lab

"Instant City". "Miracle City". "Factory of the world". In the last four decades, Shenzhen has earned many labels. Old definitions, however, can hardly grasp the future prospects of this metropolis. Few other places on the planet have been able to attain a similarly fine-grained integration of new technologies with their urban fabric. In light of this experimentation, Shenzhen stands out as one of the sites where it is possible to explore the impact of an "Eyes of the City" scenario on the built environment at its most advanced stage. It is the world's urban lab.

## View of the World from Futian Railway Station

**Xiaohu ZHANG (MIT Senseable City Lab) + "Eyes of the City" Curatorial Team, Guillermo Doreste GAGO**

Where is Shenzhen in relationship to the rest of the world? Developed through a special logarithmic scale, this 3D model of the Greater Bay Area (GBA) focuses on Shenzhen and Hong Kong and gradually expands to include large swaths of the planet, although its scale becomes increasingly smaller and distorted as you move away from the center. This visual approach is inspired by the Romanian-American illustrator Saul Steinberg's drawing "View from 9th Avenue". Since 1976, when it was featured on the cover of The New Yorker magazine, Steinberg's illustration has come to symbolize New York City's self-perceived centrality in world affairs. It is perhaps inevitable that with centrality - new or old - comes a degree of distortion.

Part of a section dedicated to Shenzhen as the "World's Urban Lab", the model plays host to other projects. At its center, which corresponds with Shenzhen and Hong Kong, the model features Future Firm's exploration of the infrastructure used to map the region's unstable climate. Some of the most notable architectural and urban planning designs recently presented in the GBA are also displayed – in cities from Macau to Guangzhou and Foshan. More details about all the host projects can be found in the adjacent tables.

Team Members:

Xiaohu ZHANG (MIT Senseable City Lab), Carlo Ratti Associati, Politecnico di Torino (China Room), South China University of Technology, Guillermo Doreste GAGO

THE WORLD'S URBAN LAB

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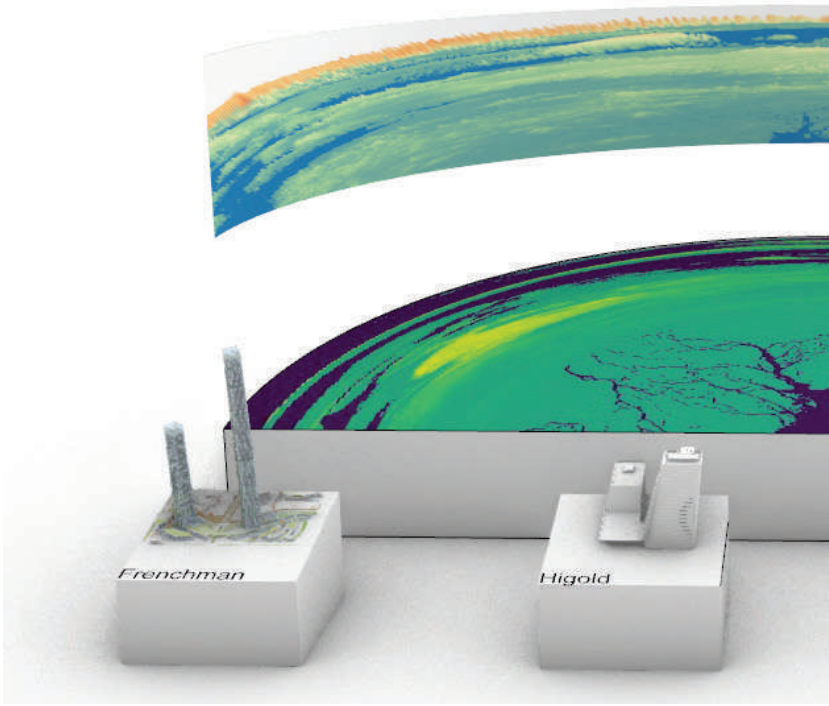


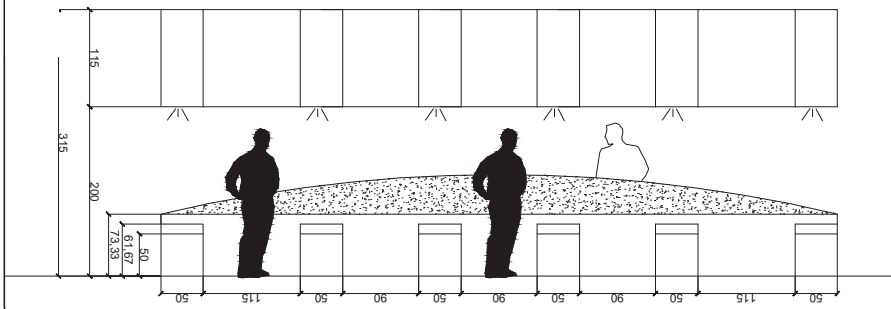


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TEAM MEMBERS: F., Curiél X., Zhang, G. D., Gago

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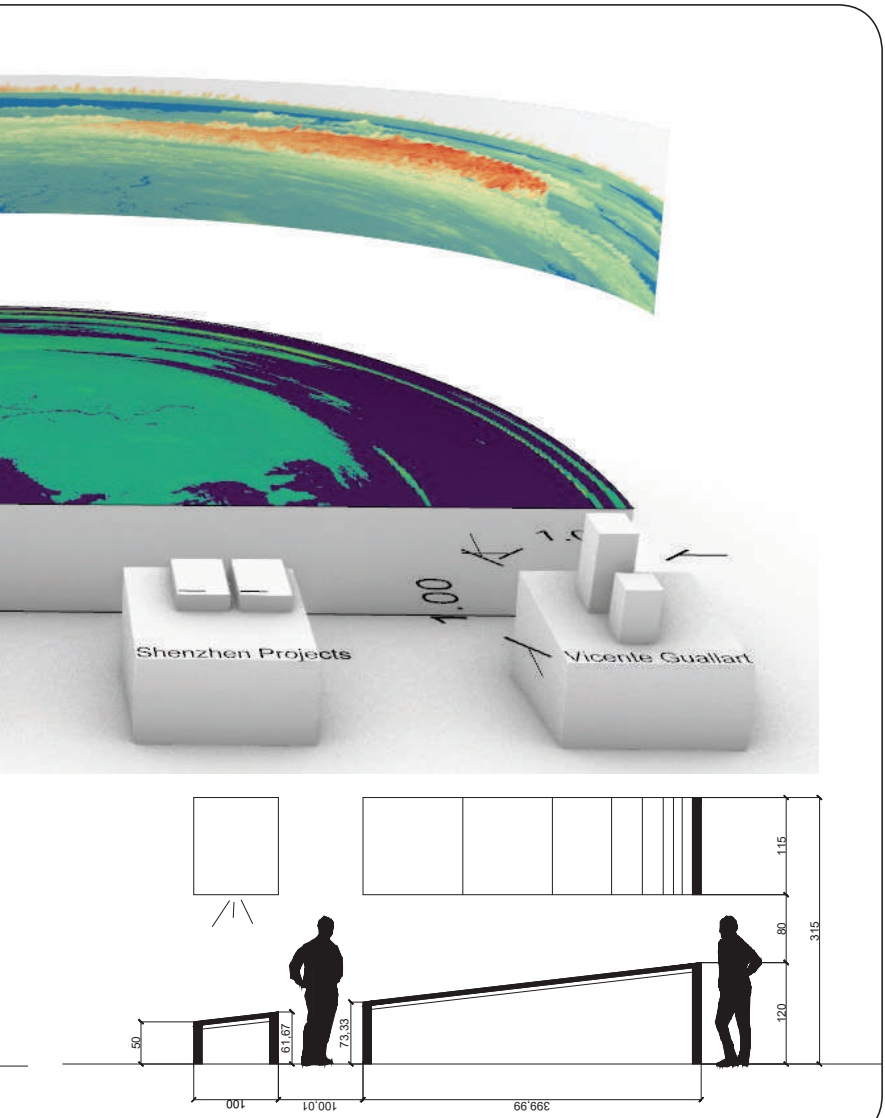


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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
"Eyes of the City" Exhibition

# Storm-Speed City

**Future Firm**

Throughout the 20th century, in addition to observation and collection, the Hong Kong Observatory was responsible for communicating information about impending storms—namely tropical cyclones, or typhoons—to the port city's residents and shipping community. Initially, the signal systems were beacons hoisted at high points around Hong Kong. Over time, the Observatory produced a series of distinct signaling methods: local residents, for example, would await a second gunshot sound in anticipation of an approaching typhoon, while shippers looked out for red symbols turning to black to gauge their next steps. These signaling systems represented a responsive way of living with dynamic weather, in contrast to today's engagement with unpredictable conditions characterized by risk management and control.

How can the Bay Area Region's historic adaptability to diverse climates, emerging from its distinct geographic conditions, become a model for a transformative new form of urbanism and urban life? Storm-Speed City is a vision for a future city which moves at the speed of radar, from the scale of the picnic to the stock exchange. Storm-Speed City proposes a Hong Kong-Shenzen region where weather sensing and signaling become dramatically more distributed: from singular stations to a network of devices. Instead of observing time marked by a bell in the clock tower or the nine-to-five schedule, Storm-Speed City's activities fluctuate around the temporality of shifting local weather and micro-climates.

This speculation is exhibited through a large-scale model and three short films. The topographic model, spanning from harbor-depth to stratosphere, illustrates the changing metabolism of urban activities as weather conditions pass through. The films explore three time-scales: the history of typhoon-signaling (100 years); vignettes from daily life (1 hour); and new temporal and sensorial experiences (1 second). Examples from these films include: a walk to the office which is diverted when a group notice umbrella lights glowing green on the side street indicating a warmer micro-climate; a drone delivery route actively calculates to avoid impending clouds; and a small shop closes early to hedge against rising A/C costs on a hot afternoon.

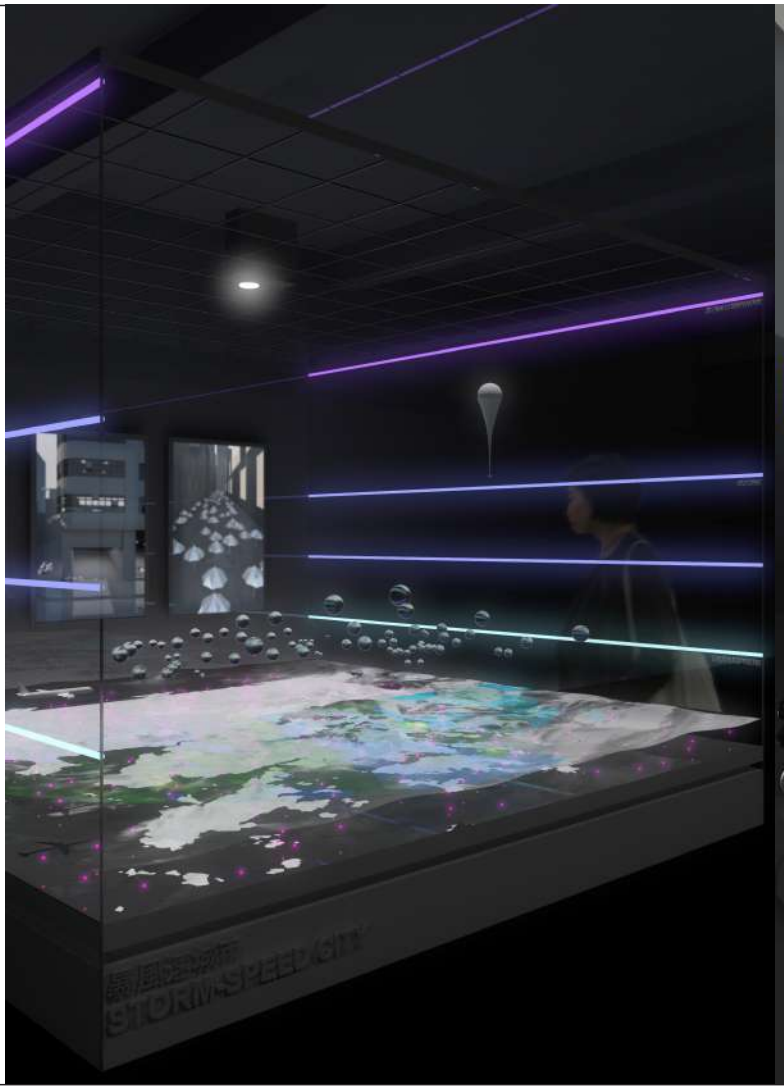
Today, local observatories in the Bay Area Region have assembled diverse forms of meteorological data for public use. Contextualized by the increasing turbulence of climate change, Storm-Speed City explores a future city where new ways of living with unpredictable weather has transformed both the built environment and lived experience in the Bay Area Region. Climate change stresses the importance of exploring new forms of urban life: Storm-Speed City explores a way of life in tempo with the weather's impending volatility.

Team Members: Ann LUI, Craig Reschke
Collaborators: Chloe MUNKENBECK, Olive OUYANG, Paul JASPER

THE WORLD'S URBAN LAB

THE WORLD'S URBAN LAB

THE WORLD'S URBAN LAB

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TEAM MEMBERS: Future Firm

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE 深港城市\建筑双城双年展

# Higold Headquarters

## Pininfarina Architecture

Higold Headquarter, which is rising in Shunde, is an iconic complex where architectural elements, public spaces and interiors are integrated in a unique, strong identity. Pininfarina Architecture has authored the whole architectural project, from facade design to landscape, including interior design both for offices and public spaces.

The building was conceived as a living architecture, creating a seamless interaction between users and space. Thanks to the integration of advanced emerging technologies, a number of location based services allow different access and fruition of the building, activating customized journeys and services, maximizing the users' well-being and the internal comfort.

The project takes its origin from the connection between two buildings – the main one dedicated to the offices and the other one used as a guesthouse. It draws inspiration from a poetic concept: a mother leading the way to her child, supporting him during the first steps of his life. The extension of the mother's arm that reaches the child's hand has been the driving element of the whole project, focused on the creation of a connection bridge. The iconicity of the building is enhanced by curtain walls that create a more shaded effect outwardly, thanks to a glazed double skin, and a more transparent surface internally.

This ensures, not only a better privacy for the executive offices, but also a great energy saving thanks to the air ventilation in the double skin that reduces the heating/cooling demand all year. Nature is a focal point of the project, as demonstrated by an accurate landscape design, that penetrates the building itself. The "green" is a crucial architectural element that plays an important role in the perception of this office complex. The external green boundaries softly introduce visitors to the core areas of the property. Once inside, small suspended gardens, floating on water features, like lotus flowers, lead to the main lobbies that are located underneath the iconic linking element of the project: a glazed cantilever that protects the main entrance and hosts a spectacular outdoor green showroom on the roof.

Head of Architecture: Giovanni DE NIEDERHAUSERN
Chief Architect: Samuele SORDI
Project Lead: Gianni GIUFFRIDA
Visual 3D Artist : Alessandro MIMIOLA
Design Team: Alexandra KRIVOLAPOVA, Giuseppe BOVE, Giovanni PARODI, Antonio RAZZANO, Silvia VASCIAVEO

THE WORLD'S URBAN LAB

THE WORLD'S URBAN LAB

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| TEAM MEMBERS: | Pininfarina | DESIGN CONTENT: | Samp |

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE 深港城市\建筑双城双年展

# New Marine City and HQ Base: Productive Cities for Shenzhen

**Tekuma Frenchman Urban Design LLC**

Productive Urbanism is a human-centered urban design approach that advocates for a productive culture and place. As opposed to the processes of traditional consumption-oriented urban development, Productive Urbanism seeks to design urban spaces as a medium that empowers people's productivity. This approach to urban space provides the optimal place for creativity, innovation and making, and in turn, become spaces of economic, environmental, cultural and social value.

In the 20th Century, Urban design evolved into a specialized discipline integrating planning and architecture. The practice focused on the physical space and shaped the city's characteristics and public realm. As we move further into the 21st century, urbanization is leaping into a new era. With the global expansion of infrastructure, the ubiquity of a digital layer, and the evolving roles of private entities and public institutions, our perception of cities and how we live and work in them is obliged to change. Urban design is now given new opportunities and responsibilities to re-examine the qualities of urban space as a carrier for 21st century productivity of economic, social and cultural goods and services, and as a medium that redefines the relationship between production and living. We believe that today's urban design processes are not only to design the necessary space to live. The more crucial assignment is to create space that is ultimately a reflection of human ingenuity in all aspects of life.

The goal of Productive Urbanism is to guide the practice of urban design towards a reimagined permeable boundary between the public and private realm where planning amenities are a distributed network of highly-integrated production and consumption environments. Productive Urbanism is a movement towards a new cultural shift in the life of cities by orienting the focus of urban life from consumption to creation.

By presenting the urban typologies developed in Shenzhen, namely New Marine City "Ocean Edge", and Shenzhen Bay Headquarter Base "Living Expo", within its 'Productive Cities" model, and deepening its understanding of similar models, Tekuma Frenchman hopes to create a discussion that leads towards an empowered vision of future cities.

Senior Partner: Dennis FRENCHMAN
Managing Partner: Kun QIAN
Partner: Naomi HÉBERT
Partner: Marwan ABOUDIB
Architecture Director: Tengjia LIU
Urban Designer: Jiwon JUN
Landscape Designer: Shu GUO
Associate: Dana SHAIKH

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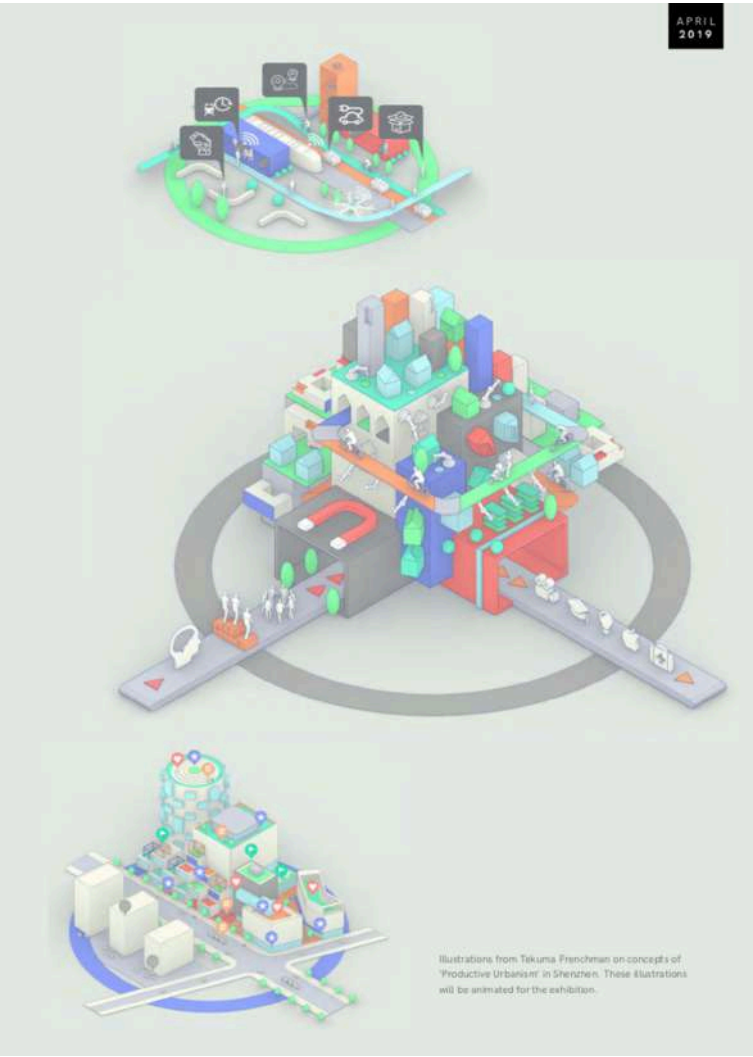


Illustrations from Tekuma Frenchman on concepts of 'Productive Urbanism' in Shenzhen. These illustrations will be animated for the exhibition.



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CODE: 04
PROJECT TITLE: New Marine City
TEAM MEMBERS: LLC

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE
深港城市\建筑双城双年展

## Sensing Cities

**Elaine TSUI, Xinyue ZHANG**

Contemporary technologies are the products of human demands. They are not external elements independent of societies. Through the data they collect and generate, we are able to observe our behaviors and develop a better understanding of ourselves. In this age of the Self, cameras and sensors are no longer pointed to others but are directed back to us in multiple perspectives.

As architects, we see the emerging technological capabilities as powerful tools to improve feedback-research and future urban policy making. We are deeply interested in how cities have evolved through the extended eyes of remote sensing technologies.

The exhibited materials contain a series of territorial satellite analysis, depicting three decades of realized urban expansion of the Pearl River Delta: from the open up in 1980s to 2018. The urban growth is a combination of planned constructions are market-led developments. Ten zoomed in areas are selected for their exceptional scale of land transformation during this period: Qianhai, for instance, has been turned from mixed-use coastland into full urban usage with extensive reclamation activities. Through the processed eyes of satellite imageries, the public can study cities on a different scale and juxtapose their own urban experiences in on the ground level.

While the analysis provides effective data on actual ground happenings, our team also invited cross disciplinary for round table discussions. The scheduled discussions include "On City Sensing: Plan, Detect, Analyze, Plan Again", which looks at how sensing technologies can be linked into existing current planning and feedback systems. "On Design Technologies: Remote Sensing and Data Processing" round table discussion invites practitioners to demonstrate how they use this remote sensing as a tool. We will also run a marathon sharing session "On Shifting Relationship: Urban Dwellers and Built Environment", in which citizens from different backgrounds would share their own city stories and tales. Last but not least, through the discussions "On Urban Strategy: Comparing Past and Future" and " On collaboration: Integrating City Clusters within Pearl River Delta", architects and planners would present recent completed projects in PRD as well as referencing other cities comparing the past, present and looking into future strategies.

The round table discussion topics tie in with the exhibition materials to assist audience's identification of development hotspots, arriving at potential improvements to existing urban policies to cope with the sensed realities beyond the administrative boundaries – future of a better integrated Greater Bay.

THE WORLD'S URBAN LAB

Sensing Cities

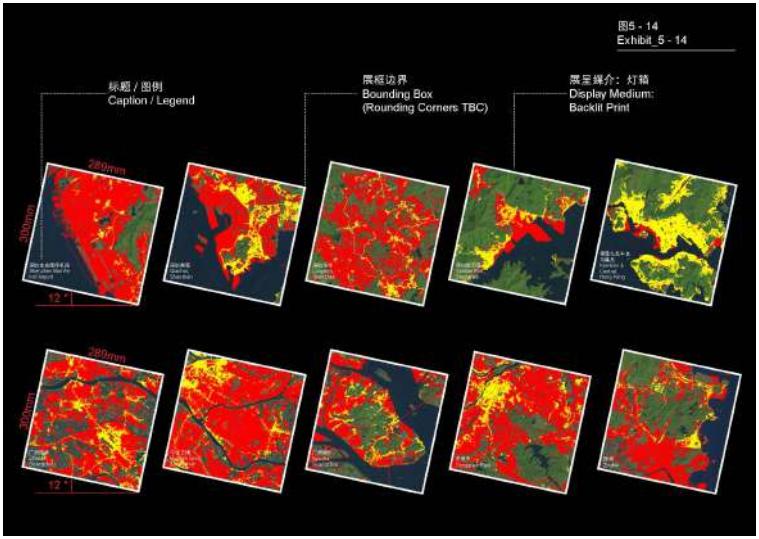
图5 - 14
Exhibit_5 - 14
标题 / 图例
Caption / Legend
展板边界
Bounding Box
(Rounding Corners TBC)
展呈媒介：灯箱
Display Medium:
Backlit Print
280mm
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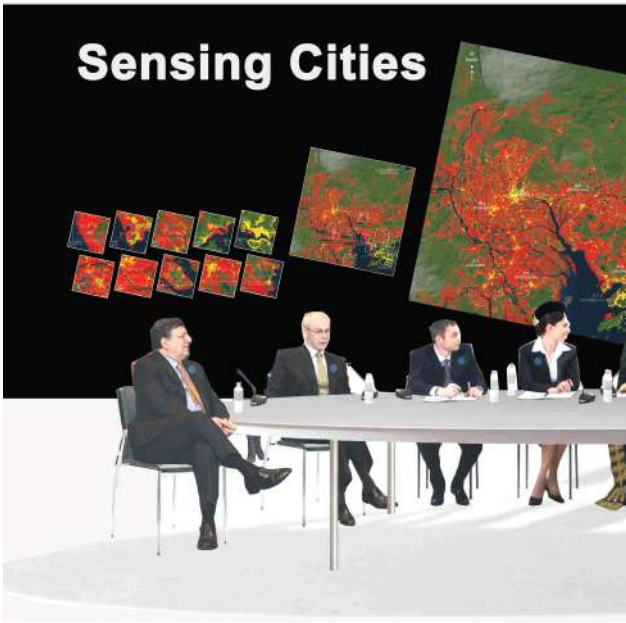
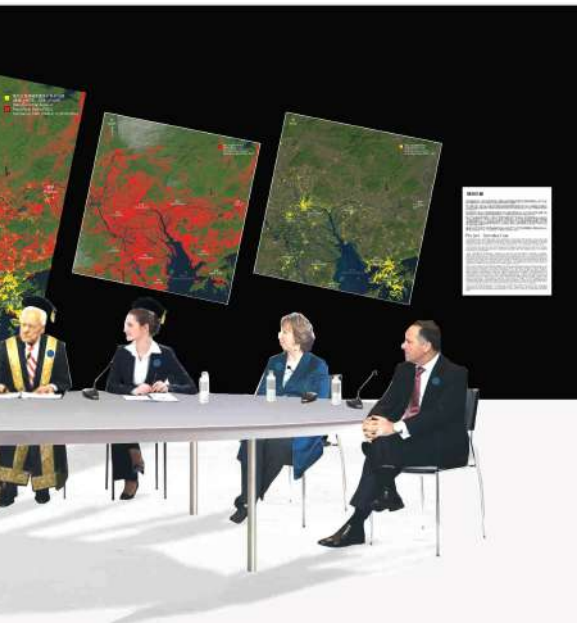



CODE: 05_AerialMaps_TsuiZhang+
PROJECT TITLE: Sensing Cities
TEAM MEMBERS: E., Tsui / N., Zhang

SCALE: N/A
DATE: 2019/
DESIGN CONTENT: Visua



效果图（讨论模式）
Collage (Symposium Mode)

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lized Space

Bi-City Biennale of Urbanism\Architecture (Shenzhen)
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# Urban Witness: The transformation of Shekou Fishing Port

INTACT STUDIO, AI Deng, LI Lipeng

Throughout the history of architecture up until quite recently, the best tools and techniques for perceiving, recording and representing space were oral descriptions, pictures, drawings and videos, amongst others. However, we believe these medium rarely allow us to have an immersive experience of a space and its transformation. In this exhibition, our team strives to expand the perception of urban space through the use of space sensing technologies. We capture the transformation of a specific urban form, while archiving the digitalized data, editing and presenting it as an immersive three dimensional experience. We hope this unconventional presentation offers the public a unique opportunity to witness a transformation, and thus spark a new interest on the issue of urban development.

This project investigates the area of Shekou Fishing Port, which has been experiencing significant transformations recently. In the last few decades, constant policy reform, rapid economic development, massive population migration and emerging technological innovation transformed Shenzhen into the first and most successful special economic zone of China. An international metropolis that emerged from a small fishing village, Shekou Fishing Port illustrates this "over-night success" legend. Known as "the last fishing port in the city," it was officially demolished in 2018 and will be redeveloped as a waterfront commercial complex.

In order to witness this vital transformation in the history of Shenzhen urban development, our team investigates the fishing port, a fishing vessel and locals daily life. Instrumenting advanced space sensing technologies, we digitalized the physical space. Combined with interviews, illustrations, and the simulated immersive space can be presented as multi-dimensional experience giving a richer setting for a discussion in the future.

Our project explores two types of advanced space-sensing technologies: Oblique Aerial Photogrammetry captures series of overlapped images from orthogonal view and at multiple angles through sensors placed on a flying platform, which can then be processed by the computer and transcript into a virtual simulation; LiDAR 3D scanning (or light detection and ranging) is a remote sensing technology which uses the pulse of a laser to measure distances to and from an object, in order to collect three dimensional parameters and create a precise digital model.

Team Members: HUANG Tao, AI Deng, LI Lipeng, CHOW Waitat, WONG Chienbang
Drone Filming: CHEN Qijian

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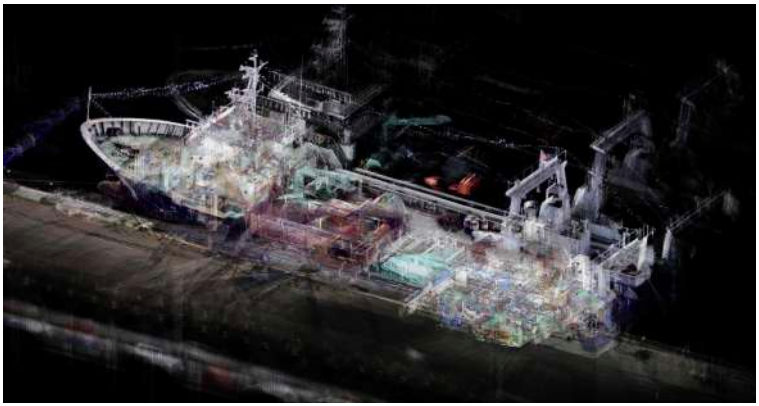

温馨提示
渔港码头是渔业生产
作业区域，任何人不准在
码头上钓鱼，非工作人员
请勿跨越警戒区线，以
免发生危险。

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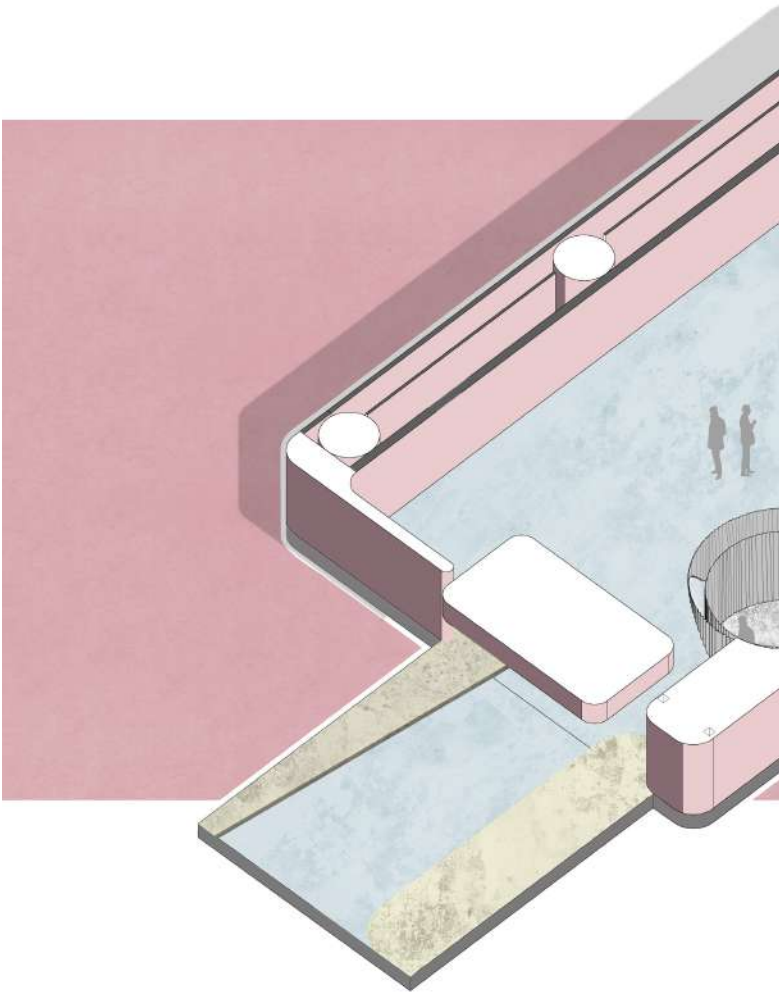

CODE: EYESOTC_06_ShekouPort_TaoHuang_design layout
PROJECT TITLE: ShekouPort
TEAM MEMBERS: Tao, Huang / Deng, Ai / LiPeng, Li / Andrew Chow / Chien Wong

SCALE: 1:100
DATE: 2019/
DESIGN CONTENT: AXON

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
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"Eyes of the City" Exhibition

# CBD Rootboot Project: Xiangmihu CBD

Vicente GUALLART

Shenzhen is the most dynamic node of Pearl Delta Rivera. The city has developed its economic centers in a decentralized manner on a West-East axis. Thus, the natural corridors North-South between Mountain and the Sea has been broken. This project proposes to rebuild the natural corridors, while we implant a strong urban program to activate this central part of the city. The Rootboot project is a foundational process that emerges from the earth as aerial roots and builds the city as a chain of intelligent urban blocks.

In the new Central Business District we created an open and flexible mesh with a central park that allows to build a high-density mixed-use city with housing, offices, commerce and services. On the streets, we propose to separate the private traffic that will be underground, creating more space for the citizen on the surface. The district has already metro stations and bus, but we propose to add a last mille self-driven on-demand transport system with minibuses. Under the city we will build a system of streets and parking lots.

The whole urban complex is transformed into an ecological ecosystem, with Water Recycling, Block chain of energy, Pneumatic waste collection and public Wi-Fi with sensors to create a vibrant and human city. The central park of the Root boot will concentrate buildings for culture, and the advanced economy. The main icon of the district will be an artificial wooden mountain that will host the big convention center and hotel.

The Lake Park will be regenerated as part of the urban Green corridor to create new forms of ecological leisure with eco-gastronomy and urban agriculture, sports with a multifunctional tower, and children and environmental education. The central structure of old roller coaster will be reused to host drone competitions and a Magic show with water, light and sound. The ecological corridor that connects the mountain and the sea will be possible through the construction of light platforms that allow passage over the great avenues and highways of Shenzhen.

On the mountain, an observatory will allow us to verify in a few years, that all this was possible.

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CODE: 09
PROJECT TITLE: Rootboot Project
TEAM MEMBERS: Vicente Guallart

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
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## Affective Balloons

**Helena Hang RONG, Shard Island, CIVIS Design**

More than an infrastructural space of circulation, Futian Station is a social confluence point of repose and destination—a vibrant urban public interface where a myriad of stories and passengers unfolds and forms the collective public conscious. Whether it's joy from reunions, sadness during departures, or anger due to delays, emotions observed in the station are dynamically rich and in constant flux. Affective Balloons addresses the curatorial statement by employing AI technologies as "Eyes of the City", to map and interact with the emotional landscape of the bustling train station.

Affective Balloons envisions a cluster of soft installation in the form of translucent PVC balloons augmented by LED lights. Responding to the emotions detected in space using AI, the installation is a malleable infrastructure that creates calming and stress-relieving environments with occasional moments of surprises in an otherwise bustling and overwhelming transport hub.

The project uses captured image data to run emotion detection algorithm to monitor and track the shifting emotional landscape within Futian Station. Based on categorization of emotions detected and averaged throughout key points in the station, a central cloud controls the balloons' color and light intensity (LED lights), as well as the fullness and volume of the balloons for subtle ambient environmental modifications to reflect the collective emotional consciousness of the station. The balloons contract and dim down to accommodate feelings of sadness and doldrums, and expands and brightens to celebrate a jovial and cheerful crowd.

The installation creates a semi-private space which invites a more personal interaction with the visitor. Underneath the canopy, a webcam and screen allow the visitor to see the visualization of emotional landscape across the station. The visitor can make a facial expression at the webcam and change one of the balloon's form and light, which allows them to recognize the impact of their individual feelings on the collective environment.

The rise of emotion AI detection furthers the viability of accurately assessing human emotions and behaviors. From an architectural design perspective, through the distributed spread of detection and data collection, Futian Station will be able to map out and understand the emotional and behavioral patterns of its visitors in space. Affective Balloons harnesses the power of real-time data by allowing a spatial intervention to respond to people's emotional needs and provide ambient changes based on fluctuations of emotions in space, both at a collective and an individual level.

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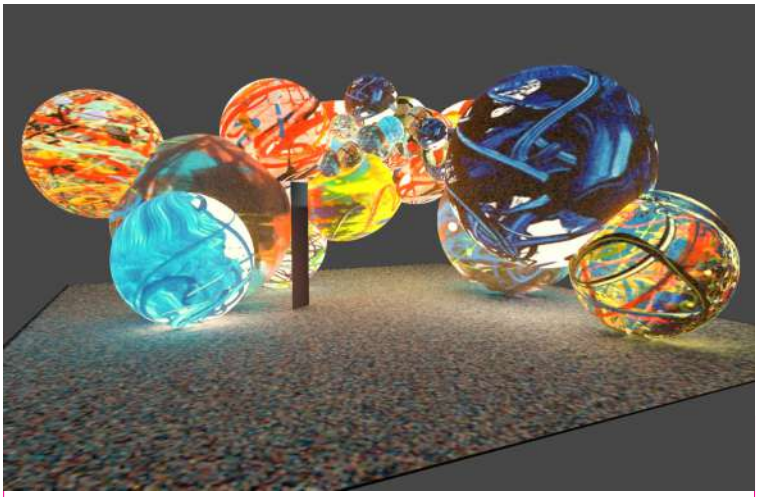
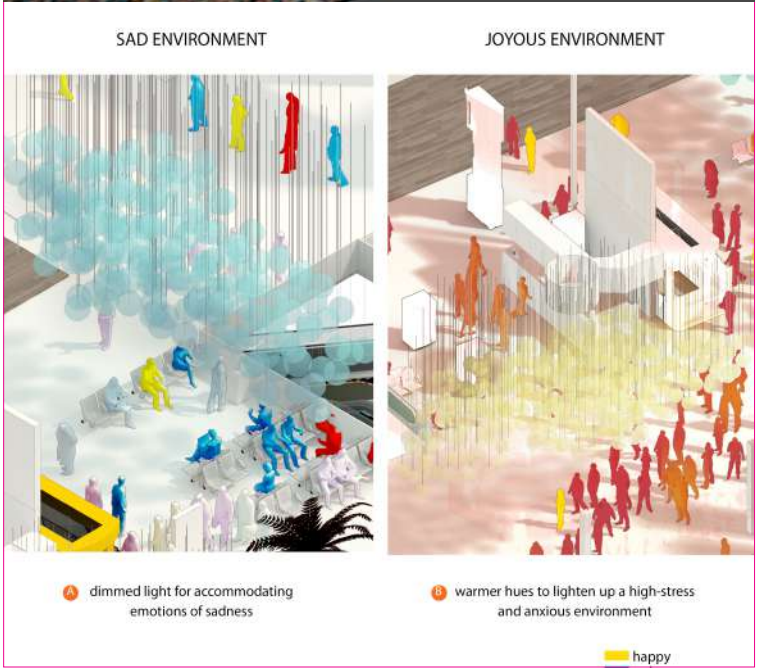
Team Members:
Helena Hang RONG (Project Lead, CIVIS Design Founder and Principal)
LIU Jian (Shard Island Founder and Creative Director)
PAN Jie (Shard Island, Director)
BIAN Haoze (Shard Island, Designer)





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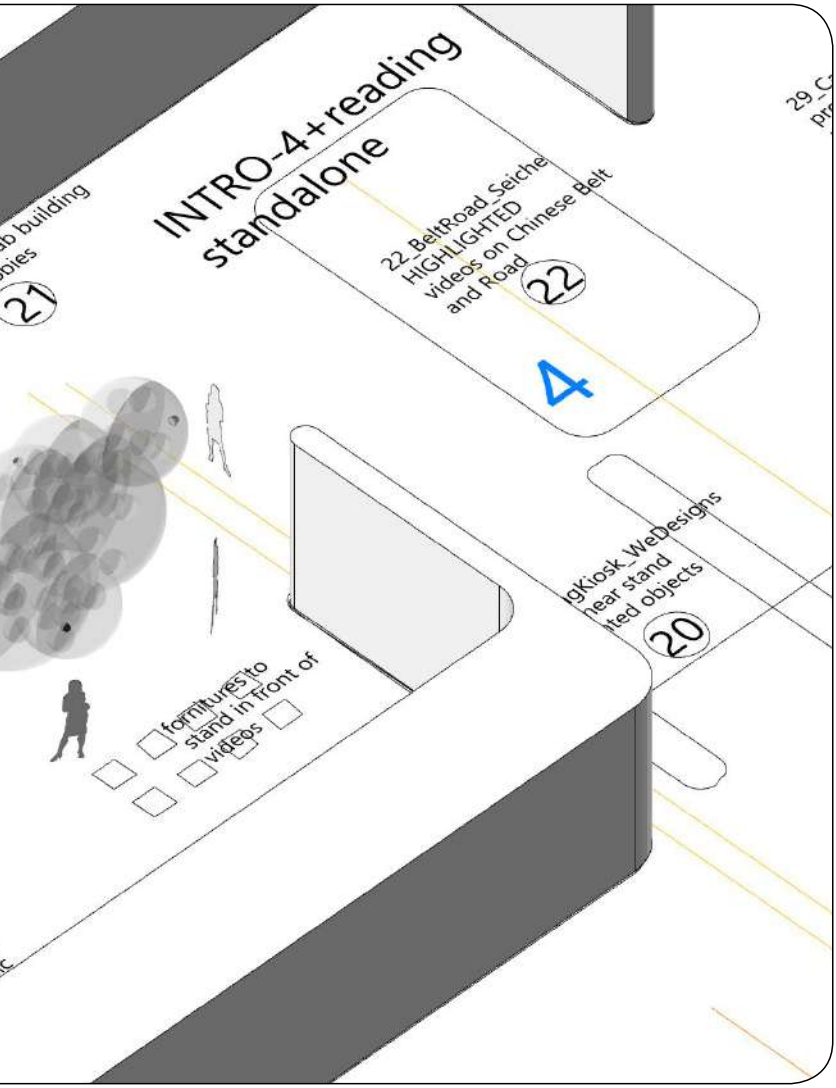
| CODE: | 17A_SensingEmotions_HelenaRong | SCALE: | 1:XX |
| PROJECT TITLE: | Affective Balloons | DATE: | YYYY |
| TEAM MEMBERS: | H.,Rong / J., Jian / R., Wang/ J., Pan | DESIGN CONTENT: | Samp |

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# Plaza Life Revisited: Machine Learning for Public Space Research

**XL Lab (SWA)**

Plaza Life Revisited is a research project by XL Lab, SWA's innovation lab undertaking practice-based research. The project reconsiders the writer William H. Whyte's Street Life Project and seminal study The Social Life of Small Urban Spaces (1980). It seeks to understand how types of new public spaces have shifted some 40 years after he published his book and companion film, what has changed in how people use public realm spaces, and what makes well used spaces. The project looked at 10 plazas in Manhattan by 10 different designers, constructed or renovated in the last 15 years. The sites range from the type of bonus plazas Whyte was observing, to infrastructural leftovers, alleys, transit plazas, private campus spaces, and tactical urbanist interventions. The team used new analytical tools such as a machine learning algorithm (a type of artificial intelligence) that employed object detection and tracking on video footage of peak daytime use. These resulted in heat maps describing dwell time, frequent and infrequent usage, and preliminary pedestrian counts. The team also used some of the same techniques Whyte did—behavioral observations, site measurements, and hand tabulation. The goal was to identify common behavioral patterns, collective activity, programming, physical elements, and understand context across the sites in order to inform future public realm design. Findings and methods were published in a booklet called Field Guide to Life in Urban Plazas.

For the "Eyes of the City" of UABB, the research team is experimenting with an extension of the New York study using a different data input. Infrared video footage registers human and animal body heat instead of light, which allows for both evening site useage to be accurately captured and analyzed, as well as automatic individual anonymization. Two local SWA-designed sites are engaged: Shekou Coastal Promenade in Shenzhen, and Xiqu Centre in Hong Kong.

Team Members:

Director of Research, XL Lab at SWA: Anya DOMLESKY

Research team (SWA/Balsley): Emily SCHLICKMAN, Tom BALSLEY, Chella STRONG, Jen SAURA, Hallie MORRISON

Documentation and distribution (SWA): Bill TATHAM, Julie EAKIN, Paul WEHBY, KUANG Xiaoyin

Collaborators: Wade ZIMMERMAN, Gerdo AQUINO (SWA)

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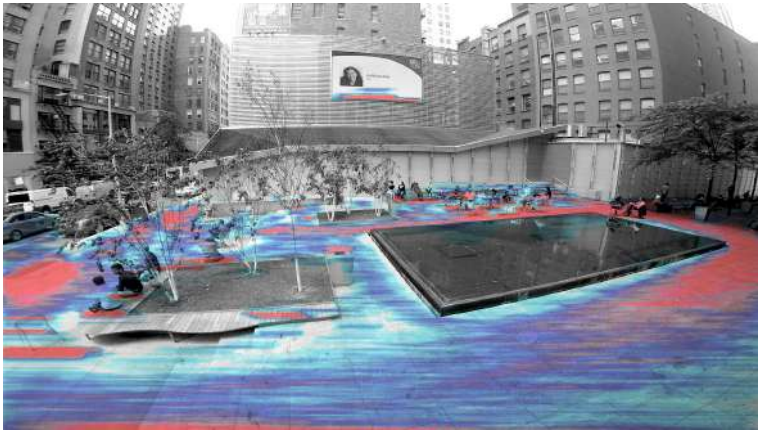



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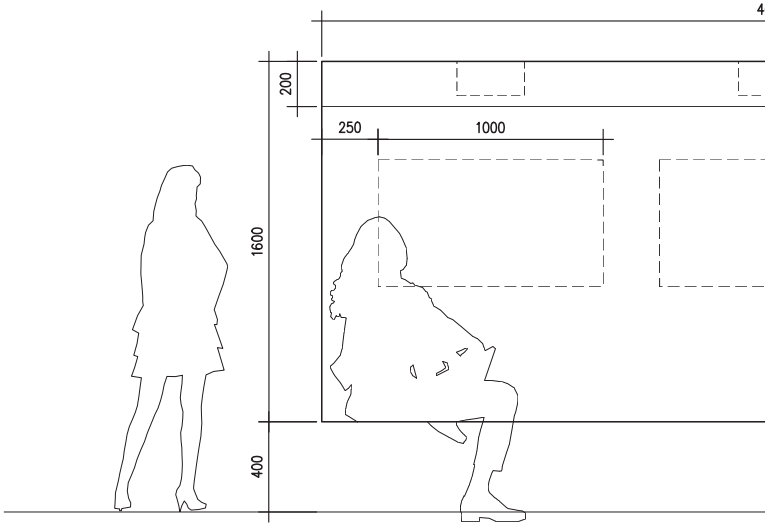
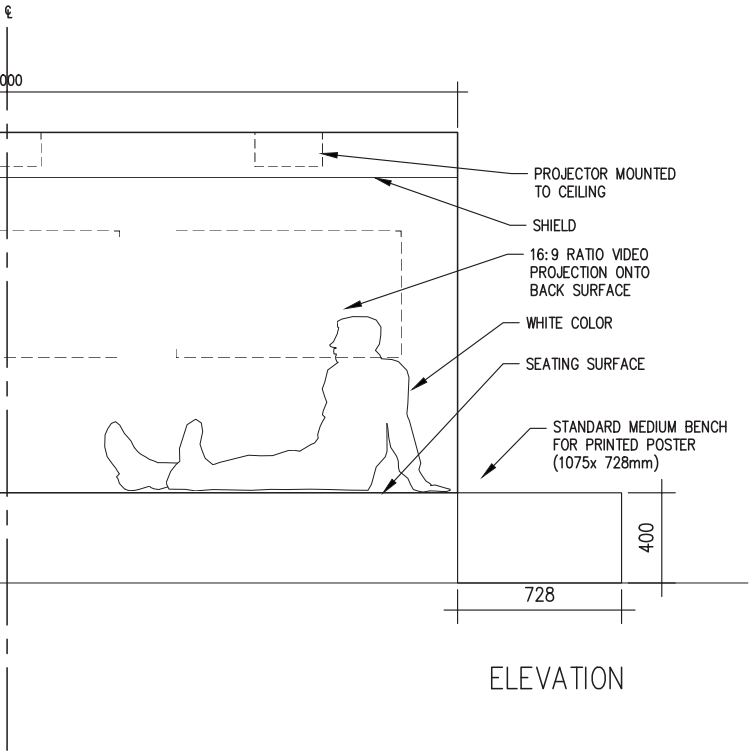



CODE: 19_HeatMaps_SWA
PROJECT TITLE: Plaza Life Revisited
TEAM MEMBERS: Anya Domlesky

SCALE: 1:20
DATE: 2019
DESIGN CONTENT: Eleva


PROJECTOR MOUNTED
TO CEILING
SHIELD
16:9 RATIO VIDEO
PROJECTION ONTO
BACK SURFACE
WHITE COLOR
SEATING SURFACE
STANDARD MEDIUM BENCH
FOR PRINTED POSTER
(1075x 728mm)
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ELEVATION

# Instant Lounge

**UEOdesign**

In the urban context, the flux of people constantly redefines public space throughout the day. How can digital fabrication address this impermanence? What if public space could identify the sitting and lounging needs of pedestrians throughout the day to provide instant furniture? In a train station or airport, for example, the platform should be empty during rush hours, filled with temporary chairs during delays, provide conversation chairs in the evening and finally lounging beds for overnight connections.

Conventionally, digital fabrication is used to construct permanent parts of buildings in a workshop or factory. Instant Lounge uses a digital fabrication method to create temporary furniture for inhabitation in public spaces. The system of construction is a cable machine that is anchored into the ceiling. The machine lays a thick rope into various seating, playing, and sleeping configurations that respond to demand.

Once a seating configuration is no longer needed, the rope is swallowed by the machine and recomposed into a new configuration. Similar to a 3D printer, Instant Lounge layers material to build, but unlike a 3D printer, the machine continually reuses the material. One Ottoman chair will take 10 minutes to make, and an entire installation of furniture will take approximately forty minutes. After the machine has finished making furniture, visitors can use the furniture for forty minutes. The machine is constantly making different furniture configurations. The machine operates at the ceiling level, so it does not interfere with the activity of people below. The rope is made from a continuous cotton tube filled with cherry pits that can decompose and merge with nature after being discarded.

The machine will be fabricated in Zhuhai and Shenzhen. A portion of the fabrication process will be integrated into a workshop at Jilin University to include students.

Team Members: FAN Yaoyi, Gabriel MUNNICH, Pablo TOUBES-RIGER, Leslie DOUGROU

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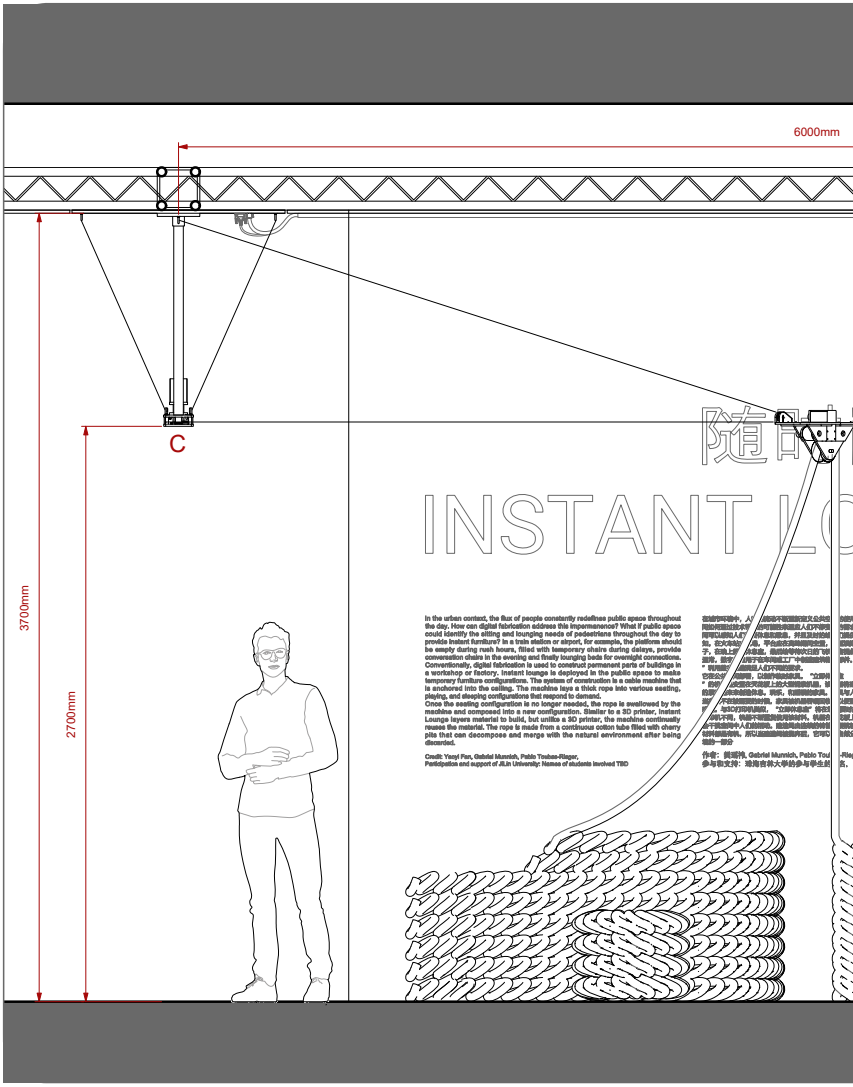
THE WORLD'S URBAN LAB

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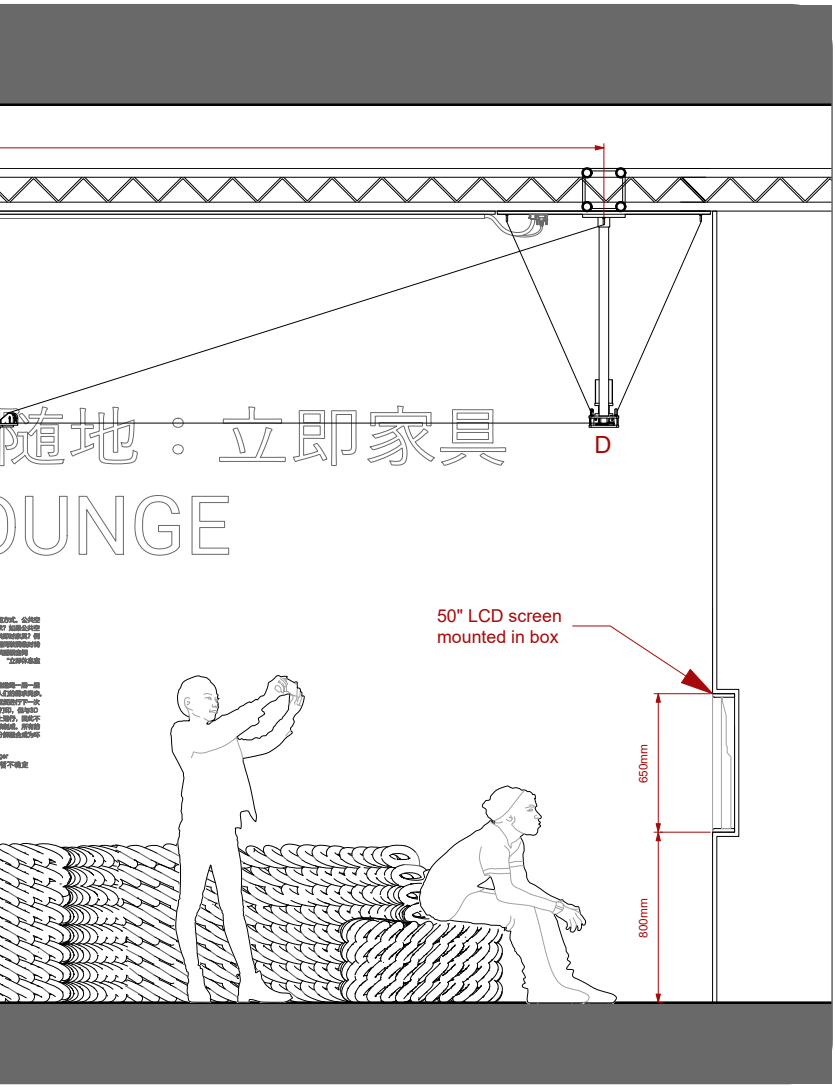
| CODE: | **21_InstantLounge_UEO_DWG 04** | UEO | SCALE: | 1:20 |
| PROJECT TITLE: | **Instant Lounge UEO** | | DATE: | 2019/09 |
| TEAM MEMBERS: | Yaoyi Fan/Gabriel Munnich/Pablo Toubes-Rieger/Leslie Dougrou | | DESIGN CONTENT: | Genera |

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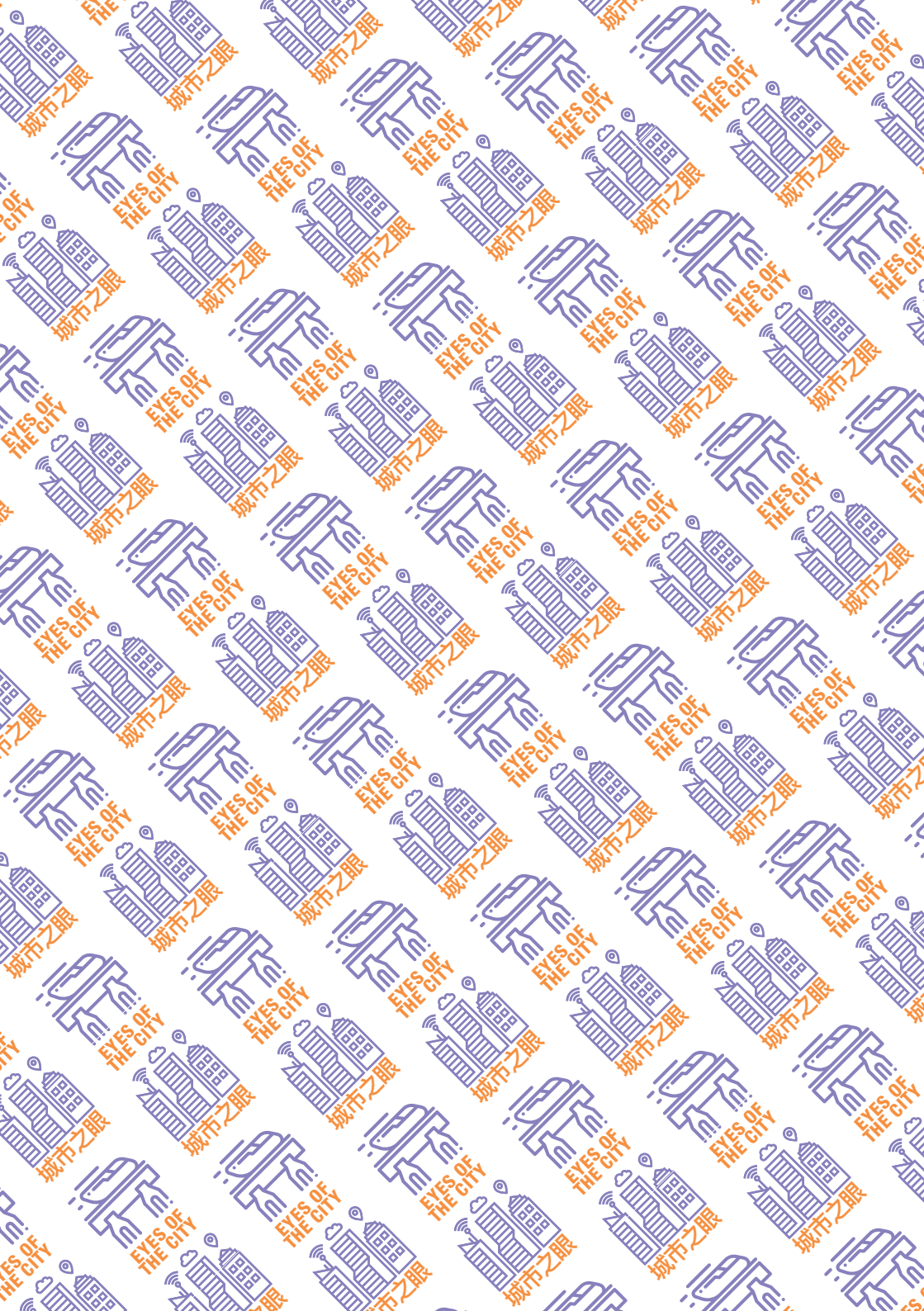
EYES OF
THE CITY
城市之眼

# Section 2
# Mobility Landscapes

Mobility is at a crossroads. The introduction of self-driving technology, Artificial Intelligence and new, shared forms of micro-mobility is diversifying the way we get around cities. Furthermore, real time data allows us to increase utilization of ride-sharing. As vehicles change form and become more like computers on wheels, thanks to thousands of embedded sensors that collect information on users' preferences and the state of the built environment, mobility gives us new instruments to better comprehend our cities - and mold them through data.

## City and the sky above

**MVRDV, Airbus**

By 2030, 60% of the world's population will be urban. To help cities cope with this massive population growth, urban transport solutions need to safely and sustainably improve the way people get from A to B.
This new mobility system, as outlined by Airbus, includes critical pieces such as electric and autonomous air vehicles, on-demand air services, Unmanned Traffic Management solutions and well-integrated transportation infrastructure.
Urban Air Mobility supports the larger mobility system, advancing the shift from individual vehicle ownership towards shared mobility as a service. With important collaborators these systems integrate sustainably and harmoniously into cities, delivering unprecedented and seamless multimodal door-to-door transport.
By asking the right questions, these systems can reach their fullest potential, enhancing urban life:
-How will this new era in urban mobility evolve the field of city planning?
-How will point-to-point connections impact regional economic redistribution?
-What are the first steps that will deliver an initial positive impact?
-Who will use air mobility and what are the most common use cases?
-How can Mobility as a Service enable a more equal access to movement?
-What will change in people's everyday travel experience?
-Are we ready?
The question is no longer if this technology will come; it is flying now. Along with the great potential it offers comes the responsibility to implement it with a view towards the greater good.
Leap with us into a new frontier, between the city and the sky

MOBILITY LANDSCAPES

Team Members:
AIRBUS
Head of Airbus Urban Mobility: Eduardo DOMINGUEZ-PUERTA
Head of Asia-Pacific, Airbus Urban Mobility: Derek CHENG
Director City integration and Infrastructure development, Airbus Urban Mobility: Vincent LOUBIERE
City Integration & Infrastructure Operation Manager, Airbus Urban Mobility: François LE MARÉCHAL
MVRDV
Founding Partner: Winy MAAS
Studio Director: Enno ZUIDEMA
Project leader: Kris SCHAASBERG, Irene LUQUE MARTIN
Design Coordination: Chun Hoi HUI
Design team: Yayun LIU, Boris MAAS, Alexandra FARMAZON, Paul VAN HERK, Leo STUCKARDT, Nika JAZAEI, Chiara TOMASSI
Research & project team: Halina ZARATE, Laura HUERGA, Sophia ARMPARA, Rocio CALZADO LOPEZ, Monika NOVKOVIKJ, Francesco BARONE, Vedran SKANSI
Collaborators
Media designer: Squint Opera
Installation partner: Showtex

MOBILITY LANDSCAPES

# MOBILITY LANDSCAPES

CODE: 10_AirMobility_AirbusMVRDV
PROJECT TITLE: UpLink
TEAM MEMBERS: V. Loubiere/ D. Cheng/ F. Le Maréchal/ W. Mass/ I. Luque Martin/ K. Schaasberg/ C.H. Hui

SCALE: 1:XX
DATE: 2019/
DESIGN CONTENT: Instal

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lation design - renderings

Bi-City Biennale of Urbanism\Architecture (Shenzhen)
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# Transforming the Landscape of Mobility

**Mobility in Chain (MIC), Tiziano CATTANEO, Carmelo IGNACCOLO**

In the last decades, the exponential growth of the population has been mirrored by a restless increase in motorized vehicles. According to the 2018 World Bank report, the number of vehicles on the roads will double in the next 30 years, reaching 2 billion units by 2050. If we extend the western per capita car ownership value to East Asian countries, we can expect the largest wave of motorization ever witnessed by the planet. For this reason, we have to imagine an unprecedented social, technological and economic shift that will fundamentally change the way people and products move.

Thanks to new technology and socio-economic components, we can imagine a systemic change that moves away from the current mobility model and can prevent the already problematic traffic condition from becoming even worse.

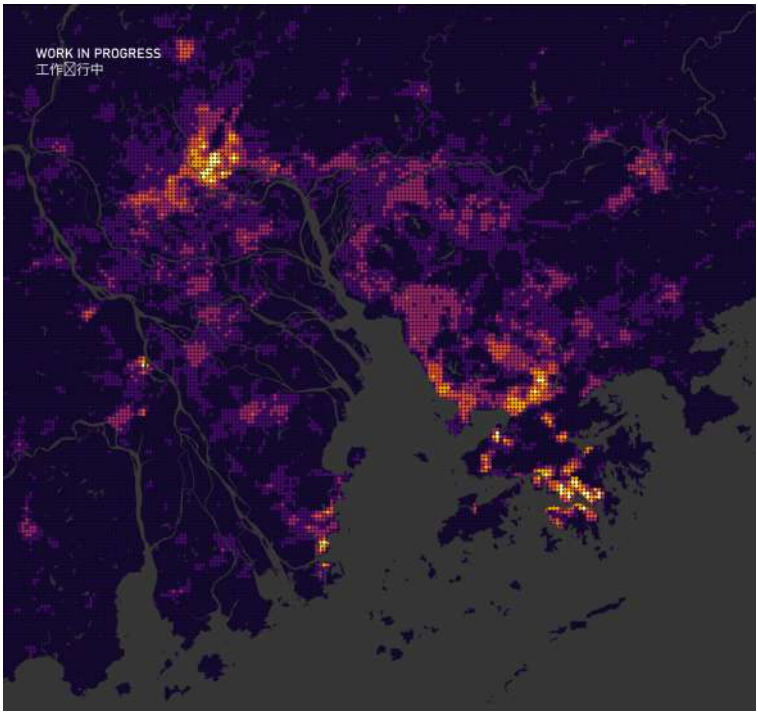
More specifically, the new vision will have to address, above all, the extended Shenzhen metropolitan and rural areas of the Guangdong since it is in these territories – characterized by weak and diffused demand – where most vehicle demand is expected for the lack of alternative transport options.

The proposal consists of two main components: the first one looks at the possibility of utilizing driverless technologies supported by A.I. systems, imagining a new generation of electric vehicles that will exploit the road network to become the backbone of a new mobility that will rapidly move away from fixed guided infrastructures. Traditional public transport has proven to be ineffective in low-density developments, as the low and spread demand does not support a frequent service that is also economically sustainable. To better adapt to this kind of environment, the new transport system should dynamically adapt to user demand, providing the flexibility and the coverage of a private vehicle, but by means of a collective and shared mode. Thanks to artificial intelligence, mobility as a service will provide optimized and tailored transportation services and at the same time algorithms will allow to optimize the service and eventually predicting or adapting to user needs in different contexts.

The second component looks at a new generation of vehicles as an opportunity to reconnect the passenger with the external environment rather than isolate him, as per traditional cars. By sensing both the user and the environment, the new generation of cars will enable contact between the user and the outside world, reconciling the passenger with other road users and the surrounding landscape.

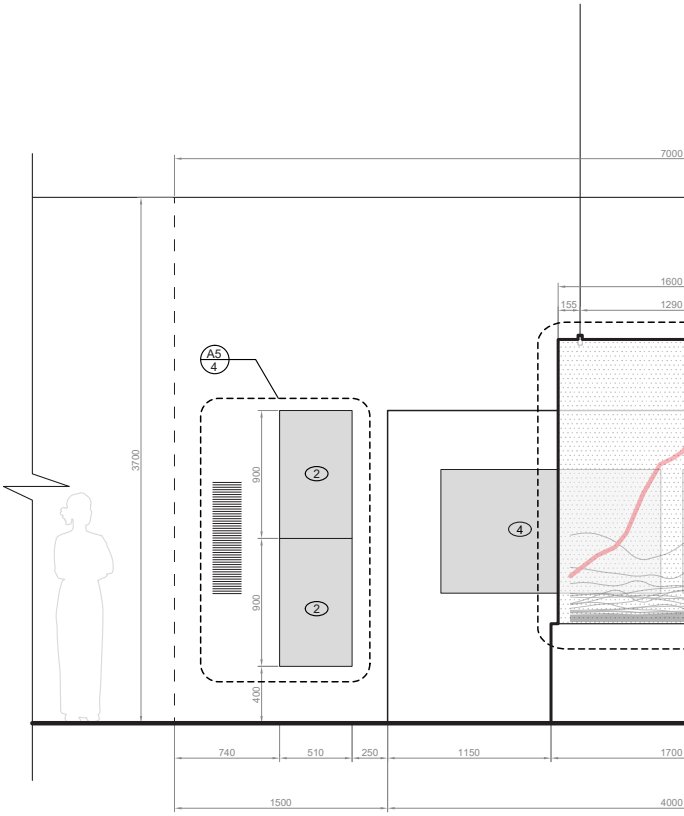
Team Members:
Chief Curator: Federico PAROLOTTO
Co-Curators: Tiziano CATTANEO, Carmelo IGNACCOLO
Research Unit – MIC: Mirko FRANZOI, Francesca ARCURI, Loris SCIACCHITANO, Gloriana BARBOZA, Jing LU
Data Visualization: Shuman WU, Huai Kuan CHUNG

MOBILITY LANDSCAPES




MOBILITY LANDSCAPES

MOBILITY LANDSCAPES

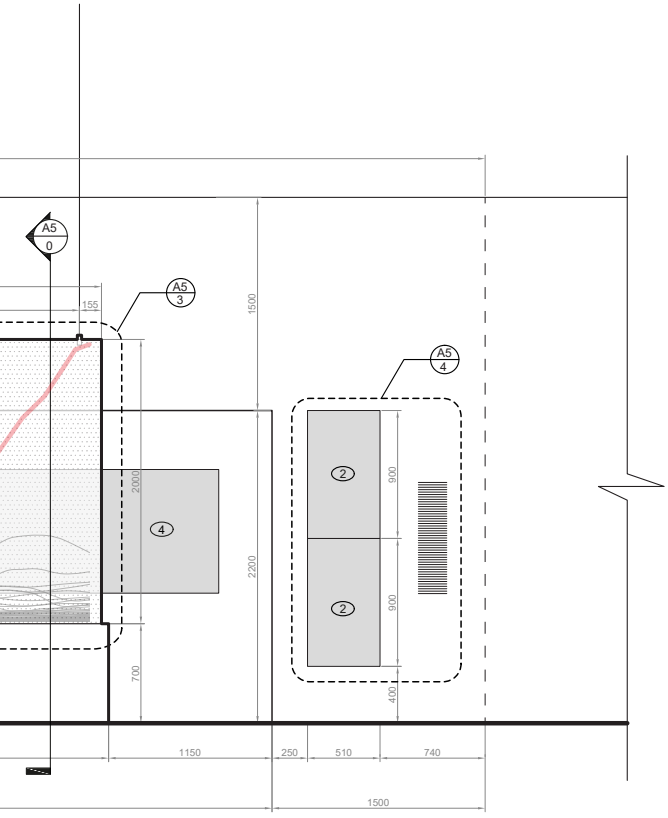



A2.0 | EXTERIOR ELEVATION

EMBEDDED PANEL

CODE: 11_GBA Mobility_Parolotto MIC
PROJECT TITLE: Transforming the Landscape
TEAM MEMBERS: __

SCALE: 1:30
DATE: 2019/
DESIGN CONTENT: A2.0_

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_ Exterior Elevation

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“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE 深港城市\建筑双城双年展

## The Autonomous Street: A Day in the Life of Future Shenzhen

**Kohn Pedersen Fox Associates (KPF)**

Conventional streets are static and rigid, but people's needs change throughout the day. Fortunately, automation technology and the sharing economy allow for a street that is radically different. The Autonomous Street changes its function and configuration on-demand. With the press of a button, mobile stores and health clinics pop-up. Food and beverage carts arrive just when people need a cappuccino or a sandwich. An extra traffic lane avoids congestion during rush hour. Benches arrive when there are not enough places to sit. And when people want to be entertained, a basketball court or performance venue rolls in.

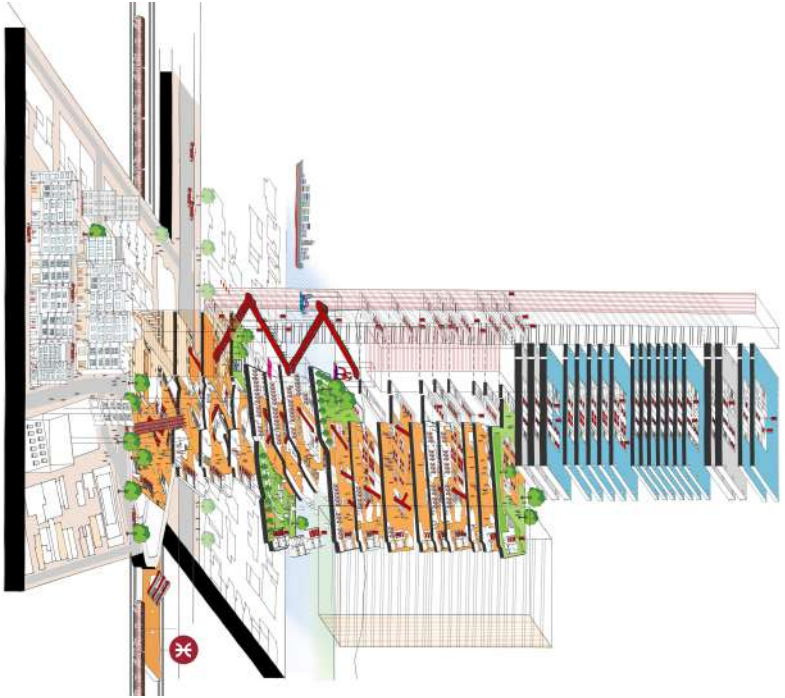
Throughout history, technological breakthroughs have triggered new visions of the future city. Back in the 1920s, Le Corbusier envisioned Ville Radieuse (1924) as a "factory for living" with mass-produced towers and vast green areas inside a Cartesian grid. Fritz Lang depicted Metropolis as a fast-moving industrial society with airplanes and bridges in between skyscrapers, but one that exists above a bleak underworld of exploited workers. During the 1960s, Archigram envisioned a Plug-In City (1964) of cranes reshuffling residents' living pods, inspired by NASA's space capsules. Today, the combined trends of automation and the sharing economy open our world to new possibilities and could change everything on streets that had been fixed, so they now are flexible, on-demand, and in constant flux. Shenzhen, a city known for its rapid pace of change and deep technological expertise, is the most appropriate location for this future vision.

The Autonomous Street: A Day in the Life of Future Shenzhen will give the audience a glimpse of this city. The passerby will see a vast, 1:70-scale model of a multilayered city, evoking Shenzhen's vertical urbanism. Suddenly, the streetscape bursts into life, with colorful moving imagery and sounds. Video projections take people through the motions of an entire day, from a tranquil morning with chirping birds and moving parks, to an exciting evening with performers on a mobile concert stage. Models and panels further explain the project, giving the audience a deeper understanding of the concept. People can use their cellphones to view an augmented reality with additional information, such as new social networks and various street functions. Before they leave, they can even project their own "selfie" portrait on one of the buildings, and literally immerse themselves inside the autonomous future.

Team Members: James VON KLEMPERER, Stefan AL, Rutger HUIBERTS, Michael KOUTSOUBIS, Nicholas DESBIENS, Bernard CHANG, Andrew HAAS, Clifford PEARSON, Brandon PACHUCA, Claire DUB, Asli ONEY, Yee Tak LAU, Alexandra FONG, Darwin DIAZ

MOBILITY LANDSCAPES

# MOBILITY LANDSCAPES



MOBILITY LANDSCAPES

TEXT AND LOGOS TO BE PRINTED ON ADHESIVE PAPER

CODE: 12_AugmentedStreet_KPF
PROJECT TITLE: The Autonomoud Street
TEAM MEMBERS: KPF

DATE: 2019/
DESIGN CONTENT: Mode

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## Driver Less Vision Shenzhen

**University of Technology Sydney - Harbin Institute of Technology, Shenzhen**

Recent developments in driverless technologies are bringing discussions about the urban environment to the forefront. Automotive and technological industries are envisioning the future of our cities and developing the vehicles themselves without establishing a conversation with the architectural discipline. Yet, proposed driverless scenarios appear to emphasize consensual solutions where idealized images of the street seamlessly integrate their technologies. Ignoring the immediate future, these visions focus on a more distant time where technology dominates: driverless cars populate the road, human behavior and city infrastructure remain unchanged, and society has learned to live with autonomous vehicles.

Driver Less Vision Shenzen explores the conflicts unleashed by new technology, how it triggers meaningful transformations in the city, and how these changes might happen in the near future. The fast and disruptive implementation of driverless technology does not foresee an urban solution. However, it does ask us to imagine how the cohabitation of humans and cars might be articulated in the urban environment since this is where the short-term negotiation between them will take place. The differences in the way that cars and humans sense the city will define the terms of the discussion and the design of these spaces.

Driver Less Vision Shenzen presents a 360 degree immersive post-human parliament and a series of 1:1 kerb prototypes. The film is to be displayed onto a series of connected screens in order to make a full circle around a central viewing point. The installations is inherently designed to help us understand that reality is fundamentally linked to the point of view of the actor observing it. The circle of screens are both spectacle and arena. Our collected data is used to create an image heavy experience that creates dissonant perceptions where the limitations of both technical and human means of sensing are brought to the forefront. This new sensorial environment could make citizens aware of the necessity of a sensorial social contract. Through a series of conversation within the installation the project will bring together experts and non-experts, human and non-human actors into the immersive post-human parliament in hopes of envisioning an immediate future where science and culture, governed and governor present their convictions and reservations in an open forum.

Team Members: Guillermo FERNÁNDEZ-ABASCAL, Urtzi GRAU, James MELSOM, SONG Ke

MOBILITY LANDSCAPES

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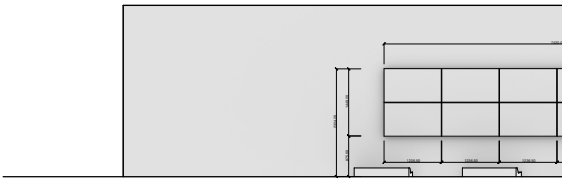
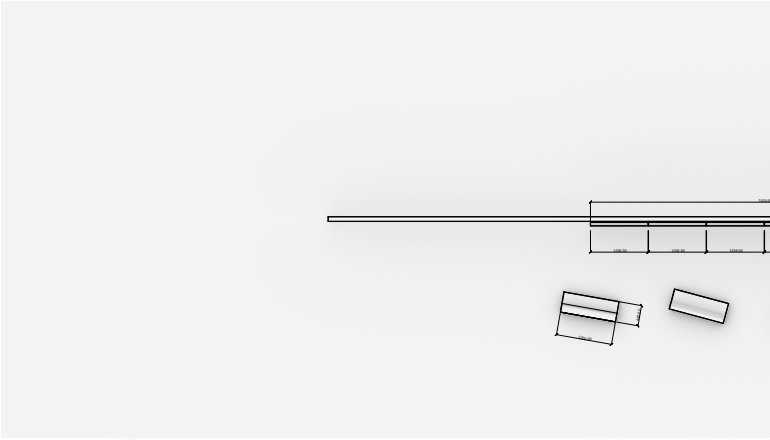
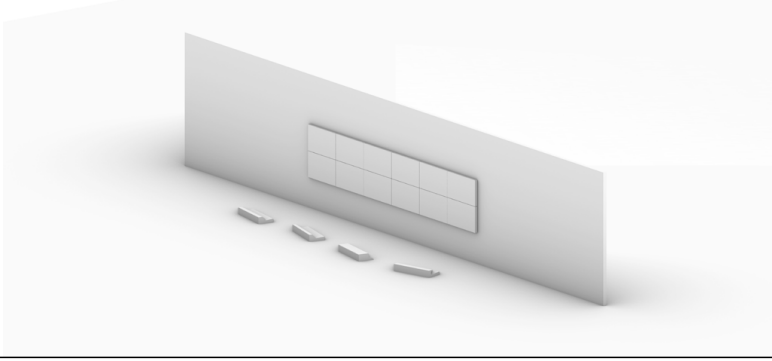
MOBILITY LANDSCAPES

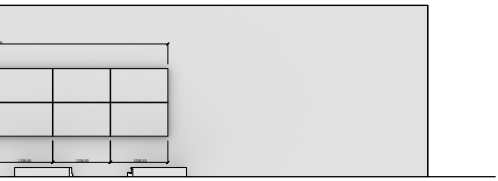


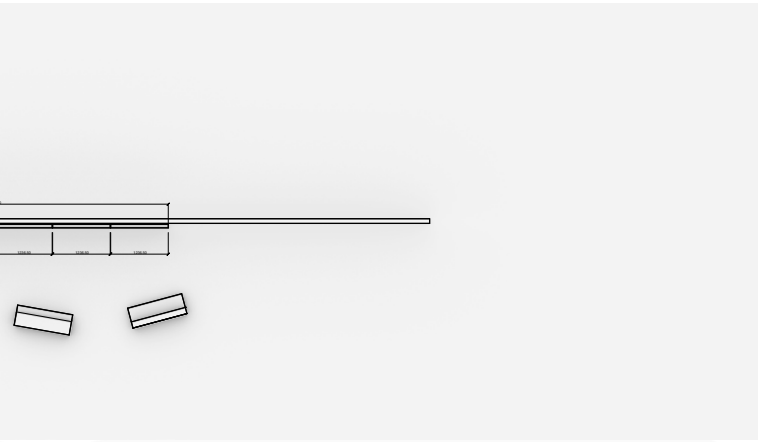


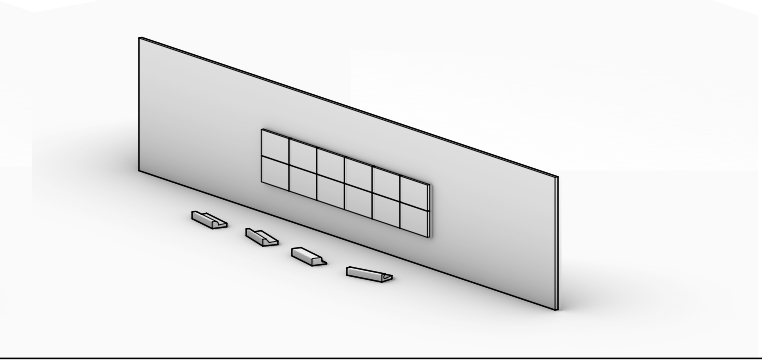


CODE: 13_KerbsView
PROJECT TITLE: Driver Less Vision Shezhen: The Kerb
TEAM MEMBERS: Guillermo Fernández-Abascal / Urtzi Grau /James Melsom / Ke Song

SCALE:
DATE: 2019/
DESIGN CONTENT: Exhib









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## Self-parking Bang

**MOTOElastico**

The development of Shared and Self-driving Vehicles is radically changing our relationship with automobiles. For the new generations of urban citizens, owning a vehicle is not a milestone anymore: cars have lost their aura and this is creating new and unexpected behaviors. We foresee a dual scenario.

In the city, cars will become neutral spaces shared by different people in search of an easy ride or better, a place to rest. Recent statistics on the use of shared cars in Japan show that in 30% of the cases people don't even drive the vehicle: they park it in designated areas and they use it as a personal space to rest, nap, change clothes or have a coffee.

Self-driving vehicles will provide an opportunity that goes well beyond the mere improvement of mobility: they will become a flexible platform customized according to people's needs or desires.
Speculating on current South Korea urban structure, we imagine that these vehicles will be turned into movable Bang, room for rent where you can sing a song, watch a movie, play games, rest, relax in a bath, have a drink, fish and more: you can do it alone or with your friends, while the car moves or it is parked. It is the birth of the Self-parking Bang.

The industry will use the vehicle platform to develop different forms of movable Bang. Customers will be able to book a free unit through an app. The app will take advantage of the city current database and will suggest a time and a behavior, however customers will be able to choose according to their preference: a fixed time, a certain itinerary, a loop, a designated parking and so on.

Functions of the Bang will start from a minimal unit, the Bathroom, offering relax and comfort on the way to an appointment, all the way to classic entertainment, like the norebang (karaoke). Possibilities are endless and the reality will surpass our imagination.

In private, cars will become fantastic objects used as game simulators to enhance the virtual pleasure of driving, an experience almost completely forgotten by self-driving users. These equipped car bodies will be parked in living rooms and not in garages, recreating the intimate relationship between the vehicle and its owner. They will provide a dream like background for a lifestyle that has been radically transformed by the new forms of mobility.

The project, rather than developing a new technology, is aiming to explore new behaviors that will take advantage of the smartness of developing cities.

Team Members: Simone CARENA, Marco BRUNO, Minji KIM

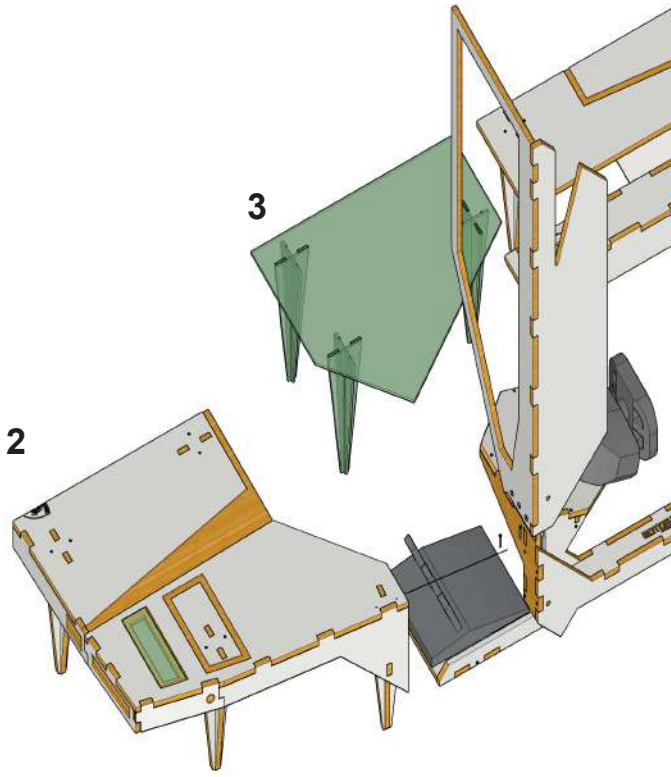
MOBILITY LANDSCAPES

MOBILITY LANDSCAPES

MOBILITY LANDSCAPES

**SELF PARKING LAMBO ASSEMBLED**

Made of 6 indipendent free standing tables.
User will sit inside and play using a game siulator
.

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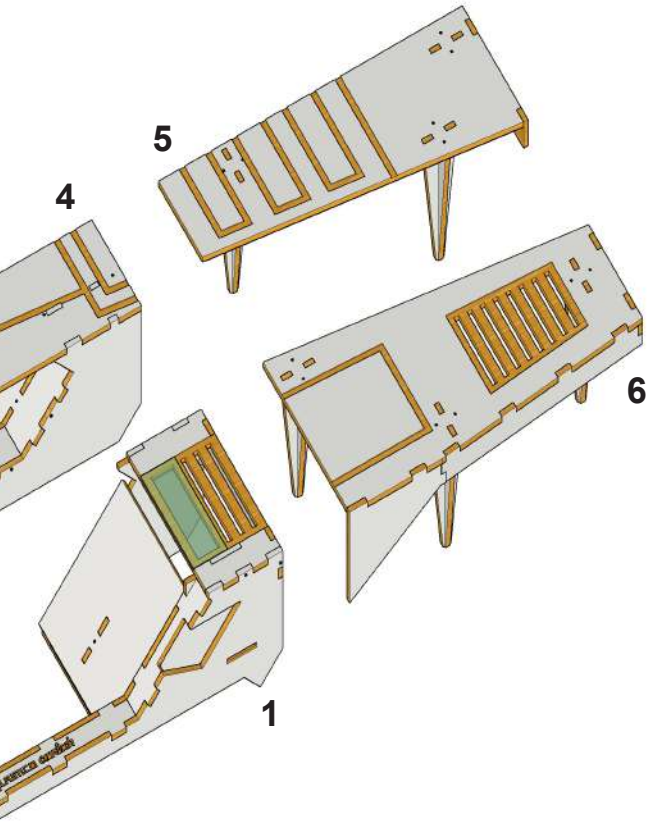
|---|---|---|---|
| CODE: | 14_SelfDriving_Motoelastico | SCALE: | NTS |
| PROJECT TITLE: | Self Parking Car | DATE: | 2019/ |
| TEAM MEMBERS: | MOTOElastico (Simone Carena, Marco Bruno, Minji Kim) | DESIGN CONTENT: | Self P |

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Parking Lambo Units

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## FLOWCITY

**KAAN Architecten, RNDR**

The era of new mobility is coming closer, urban infrastructure faces the challenge of adding both new systems and patches to the existing. The increasing complexity in urban mobility has enhanced the great importance of nodes in urban infrastructure. Time spent in these infrastructural nodes has been stretched and the importance of 'passenger experience' has increased accordingly.

An infrastructural hub, as the node this in new mobility, is like a city of flows. Movements of people are not just determined by destination but also largely influenced by the space embracing them. When do people stop, how do they move; what is the different rhythm between queuing and wandering? As a hub of infrastructure, its ultimate goal is to provide smoothness. To accommodate and facilitate a seamless flow it is not just key to optimize functionality but also to enhance the interactivity of building systems with users. The more intelligent/smart buildings become the less that needs to be expressed in impressive and excessive formal complexity but rather enhanced by clarity and spatial openness in architecture with intelligent use of light and materials.

KAAN Architecten in collaboration with Estudio Lamela, ABT and Ineco, (abbreviated as KLAIR) is designing the new terminal at Amsterdam Airport Schiphol. Central to the design is the urban integration of the new terminal with the rest of Schiphol on both landside and airside to expand and reinforce the ONE Terminal concept. An overlapping area and a diversity of user flows distinguish the reception hall for departing passengers and make a distinctive space for the baggage reclaim hall underneath the raised check-in floor. Furthermore, short and direct routes on the landside, maintaining the efficient connection to train station, bus station and parking area are urban integration elements that contribute to keeping Schiphol a "compact city".

The video installation presented here uses metaphorical impressions to express the notion of seamless flow in an era of new mobility. Through showing the immense density, variety, and seemingly chaotic actions and movements of people in contrast with a background that presents the freedom of running and walking in an abundantly lit open space we express our aim to create the future of mobility nodes – the ultimate fluent experience.

In the installation, a column of screens is located in the middle of the Biennale audience flow. Videos of busy walking movements are to correspond and emphasize the flow in the Biennale. In contrast, the big curved wall projects a movie of running and walking under the bright, spacious ceiling, expressing the sensation of both freedom and calmness such a space can provide.

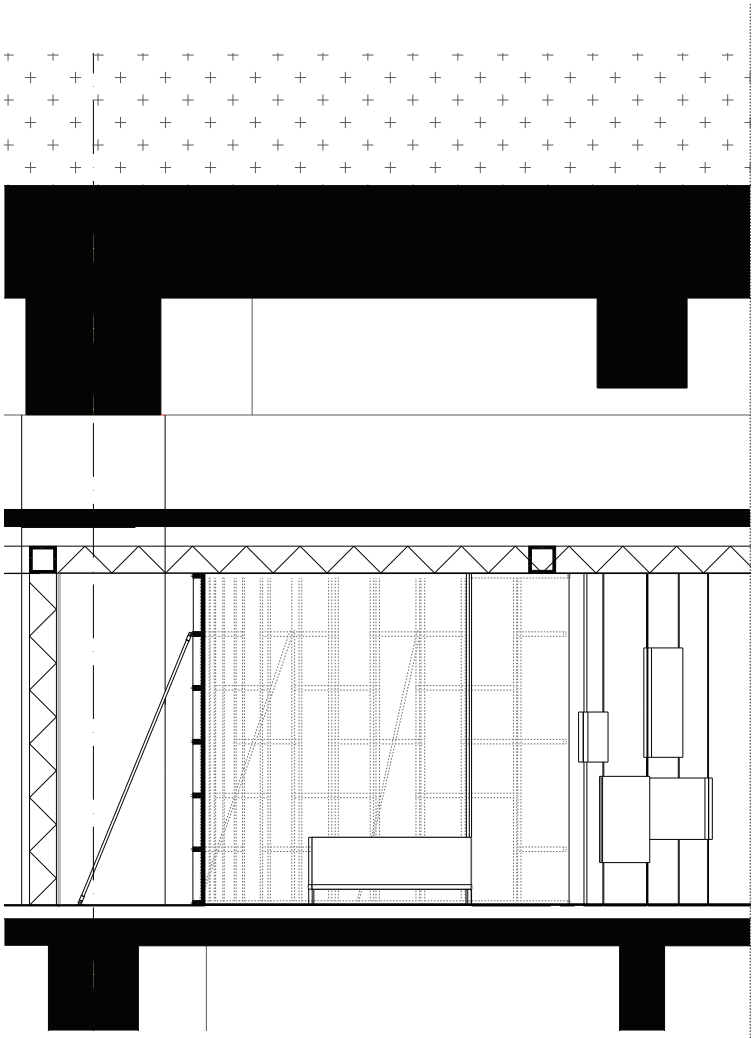
MOBILITY LANDSCAPES

Concept + Design: KAAN Architecten
Kees KAAN, ZHANG Yang, Martina MARGINI, ZHANG Shushen, Hrvoje SMIDIHEN, Michael CARDELLI, Alexis KENG YEE OH, Yagiz SÖYLEV, Valentina BENCIC

Video: RNDR
Jeroen BARENDSE, Boyd ROTGANS, Viola BERNACCHI, Arnd BRÜNINGHAUS

MOBILITY LANDSCAPES

# MOBILITY LANDSCAPES



CODE: 15_FlowsCity_KeesKaan
PROJECT TITLE: Flows City
TEAM MEMBERS: KAAN Architecten: K., Kaan / Y., Zhang / A., Oh / Y., Soylev / S., Zhang /
RNUL Interactive: R., Donkers / A., Muis

SCALE: 1:50
DATE: 2019
DESIGN CONTENT: Cons

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struction of Curved Wall

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7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE
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# Sub–Hubs : A New Breed of Architectural Objects

**Dominique Perrault Architecture, DPA–X**

For the 'Eyes of the City' section, DPA–X presents the Gangnam International Transit Center as a prototype and archetype of a new breed of 21st century architectural objects: the sub–hubs.

DPA–X presents a large model of the GITC project to underline the questions raised by this new type of monumental constructions that are emerging in global city centers today. The model is made to highlight the anti-architectural nature of the project. Invisible and underground by nature, façade-less and exterior-free by design, plugged to transports, towers and malls to maximize the flow of users, commodities and information, these projects defeat many architectural principles. They are more akin to system architecture components than that of usual architecture since their ethos is that of circulation and connectivity rather than accumulation.

The model responds to the curation of the Biennale by proposing that contemporary connectivity is not limited to the digital in the 21st century. Connection and circulation continue to shape our cities through the emergence of unprecedented urban typologies. The model also underline its stance through the literal "mise-en-abîme" of the exhibition space of the Futian Railway Station, the largest underground station in Asia until GITC is built, located in one of the most populated and most future-forward metropolitan areas in the world.

The model of GITC is split through its length in order to allow the visitors and commuters to pass through and appreciate the project from within—that is how it will be experienced. How to show an underground building? How to convey its many connections? How to engage with such a large unprecedented urban form?

Team Members:
Founder & Principal DPA: Dominique PERRAULT
Art Director DPA: Gaëlle LAURIOT-PRÉVOST
Project Lead DPA: Richard NGUYEN
Curator DPA-X: Octave PERRAULT

MOBILITY LANDSCAPES

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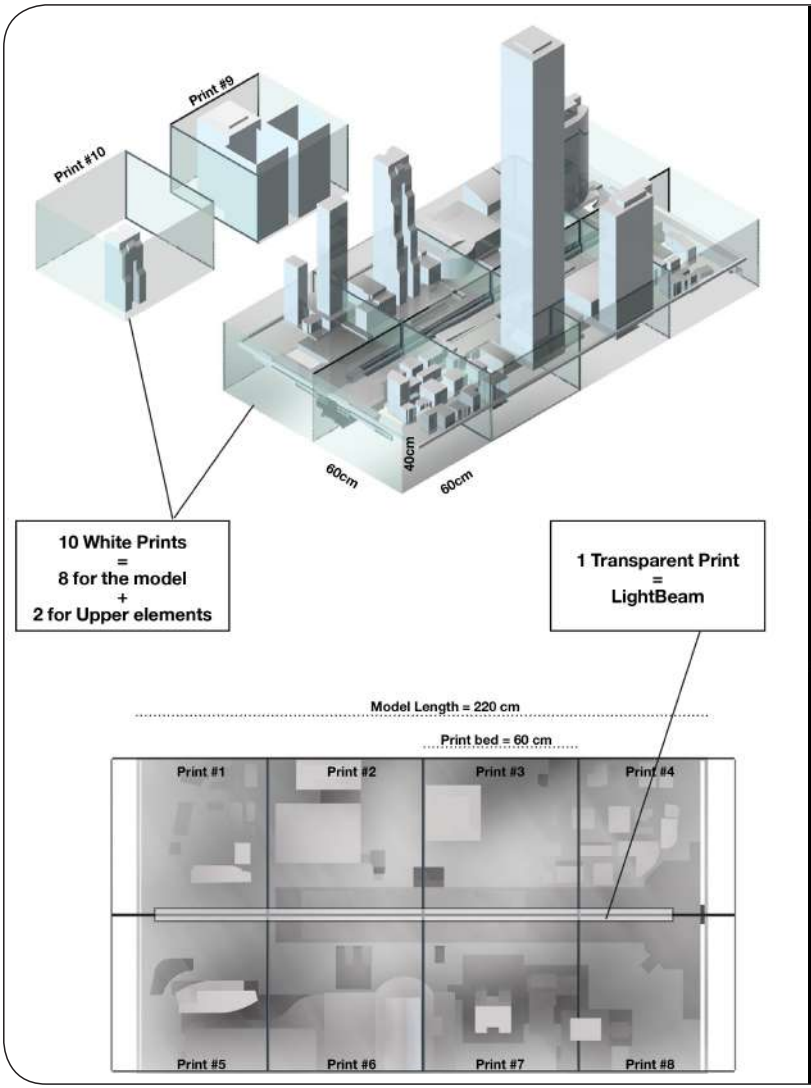
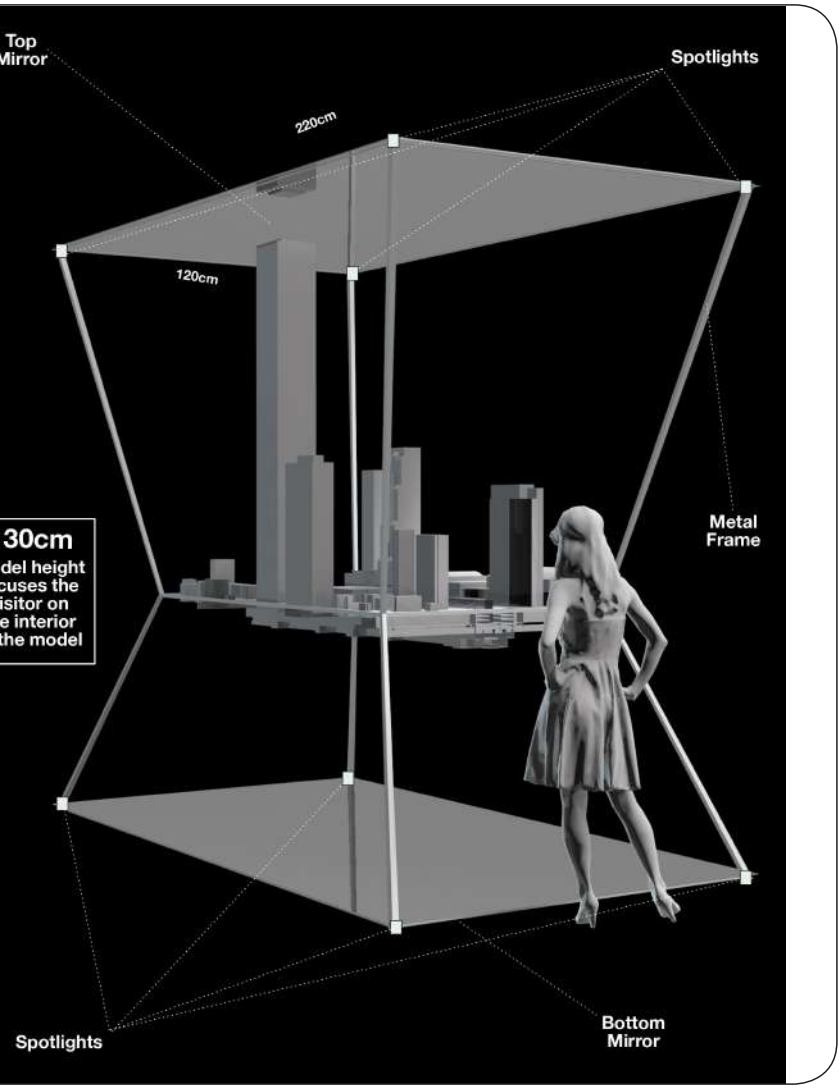



CODE: 16
PROJECT TITLE: Sub Hubs
TEAM MEMBERS: Dominique Perrault Architecture / DPA-X

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp

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7th Edition - 2019
“Eyes of the City” Exhibition

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## Living Shenzhen

**Warehouse of Architecture and Research (WAR), Paolo SANTI**

What role does the citizen play in shaping a city's identity today?

Living Shenzhen's purpose is to provide an innovative tool for the urbanscape planning, a method that uses local observation in order to conceive the authentic identity of a place for the benefit of its community. The aim of the project is to overlay multiple personal perspectives on the planning process to ensure a fitted, well-thought urban environment.

The city will be a social petri dish where life's ritual will diffuse into an innovative representation of the city itself. In this parallel map, the urban reality and the individual/autobiographical perceptive experience dwell in parataxis as in the disjointed dual-vision of Aldo Rossi's La città analoga (1976).

The main component of our proposal is the experimental use of advanced existing technology of eye-tracking.

The research involves multiple participants that will share their daily use of the city and its architecture through wearing a pair of smart-glasses that will allow to record and capture the user's vision.

Relying on footage, from locals and visitors alike, while exploring the city, our system will provide a new method of reading the city. In addition to quantifying attention, interest, and attunement, we assume that the analysis of this collected data can also provide information regarding safety and comfort of the growing city's inhabitants. This approach will permit a top-bottom-top mechanism, which enables a professional initial foundation, following a personal perspective input manifesting into an educated planning output.

Due to the rapid development of the city, there are several open questions concerning the management of Shenzhen, particularly with regard to the urban planning policies of the urban villages. The research aims to explore how the perception of the city changes for an individual that walks in the edges between two morphologically different parts of the city, to explore the transition areas between urban villages and the rest of the city.

Living Shenzhen is a proposal for two outcomes: a method and a map, a dual-faced platform that will represent Shenzhen, which will be the first city to be analyzed in this way. With the help of this device, we will be able to identify what matters to the city's users leading to a potential breakthrough in the urban planning process.

Living the city is now transformed into a tangible information.

MOBILITY LANDSCAPES

Team Members:
Gabriele CORBO, Jacopo COSTANZO, Valeria GUERRISI, Paolo SANTI, Wei TU (SZU)
Collaborators:
Paula CHUNG (WAR), Dor COHEN (WAR), William HACKL (WAR), Anna PAPAGEORGIOU (WAR), Claudia TERSIGNI (WAR), Angela TANZOLA (WAR), YAO Qi (SZU), CAO Jinzhou (SZU), CHEN Dongsheng (SZU), Kenji MATSUSHITA

MOBILITY LANDSCAPES

# MOBILITY LANDSCAPES

CODE: 18_EyesStreet_PaoloSantiWAR
PROJECT TITLE: Living Shenzhen
TEAM MEMBERS: G. Corbo / J. Costanzo / V. Guerrisi / P. Santi

SCALE: -
DATE: 2019/
DESIGN CONTENT: Rend

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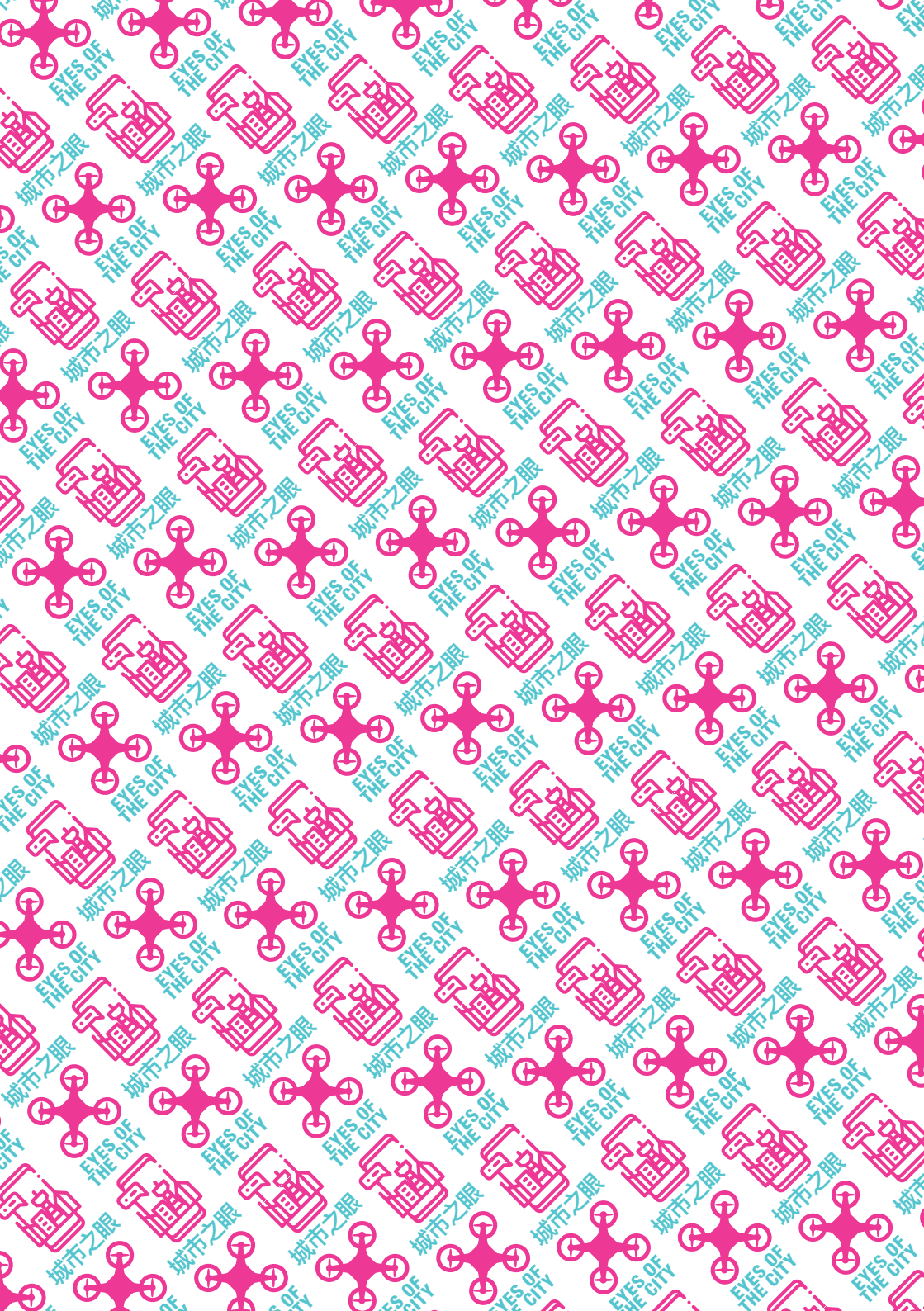
7th Edition - 2019
“Eyes of the City” Exhibition


EYES OF THE CITY
城市之眼

# Section 3
# Silicon Pupils

If technology can reconfigure the built environment to make it capable of seeing, who is supposed to teach the new "Eyes of the City" what to look at? Whom do robots learn from during the process of machine learning? This section focuses on the evolution of artificial vision and people's responses to it. Ultimately, it revolves around the interaction between technology and built infrastructure, observing it from multiple viewpoints – from the redefinition of borders and citizenship to the spatial qualities affecting people's body and mind.

# SEICHE

## SEICHE

Citizenship and sovereignty were traditionally rooted in territorial belonging, but as transnational flows of people, capital, goods and information continue to expand, this conception is undermined. The infrastructural systems that sustain these flows present a network of complex topology. In a landscape of overlapping jurisdictions, the design and mapping of interactions among them is a crucial task.

In order to facilitate bureaucratic automation of those interactions and foster frictionless and controlled flow of people and cargo between different sovereign systems Seiche proposes:
- A tool that enables the design and management of techno-legal procedures of information exchange between the institutions that regulate these systems, and the organizations that operate within them. Assisting independent legal entities to co-design data exchange protocols and infrastructures to implement them in their own terms by interfacing legal and data workflows.
- A platform that allows to manage, map and visualize the implemented exchange protocols among individual entities, associations of entities, and complex organizations of a different nature.

Seiche emerges on the premise that:
The proliferation of sensing infrastructures does not only hold the potential of tracking people and cargo, but also visualizing systems and power structures while moving bureaucracy to the back end.
New levels of control require new rights, and ultimately, new levels of freedom in exchange. Therefore, it is crucial to consider the implications of a system - of these characteristics - growing at scale, and the relationship with final users – i.e. human and non-human entities or associations of entities moving across sovereign spaces.

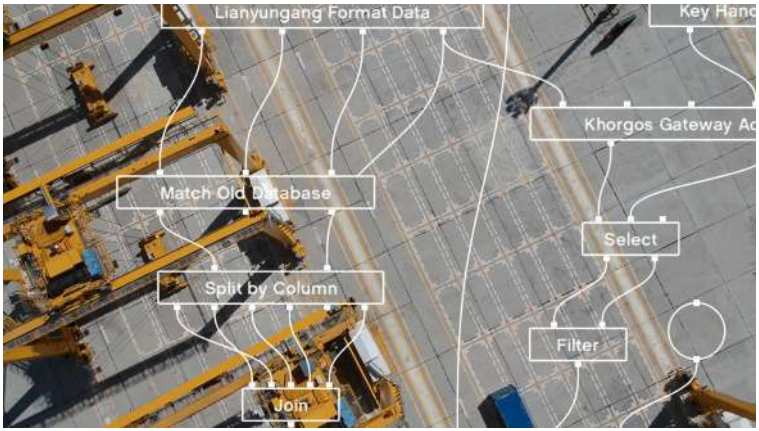
The way different organizations interact is as important as how they behave within the proprietary walls of their respective clusters. However, if Seiche is successful in facilitating interactions, the interstitial space between well-established actors can be used as leverage to grow as a platform.
The ongoing project, conceptualized under the framework of The New Normal urban design think-tank was published in architecture, design and theory journal ARDETH by Politecnico di Torino.

Seiche Movie Description:
The speculative proposal is applied and tested in the form of a cinematic narrative set in Khorgos, Kazakhstan; a logistic enclave in between two infrastructural and political realities that is the cornerstone of China's Belt and Road Initiative. Seiche film consists of five chapters that introduce the platform and Khorgos as the embodiment of the

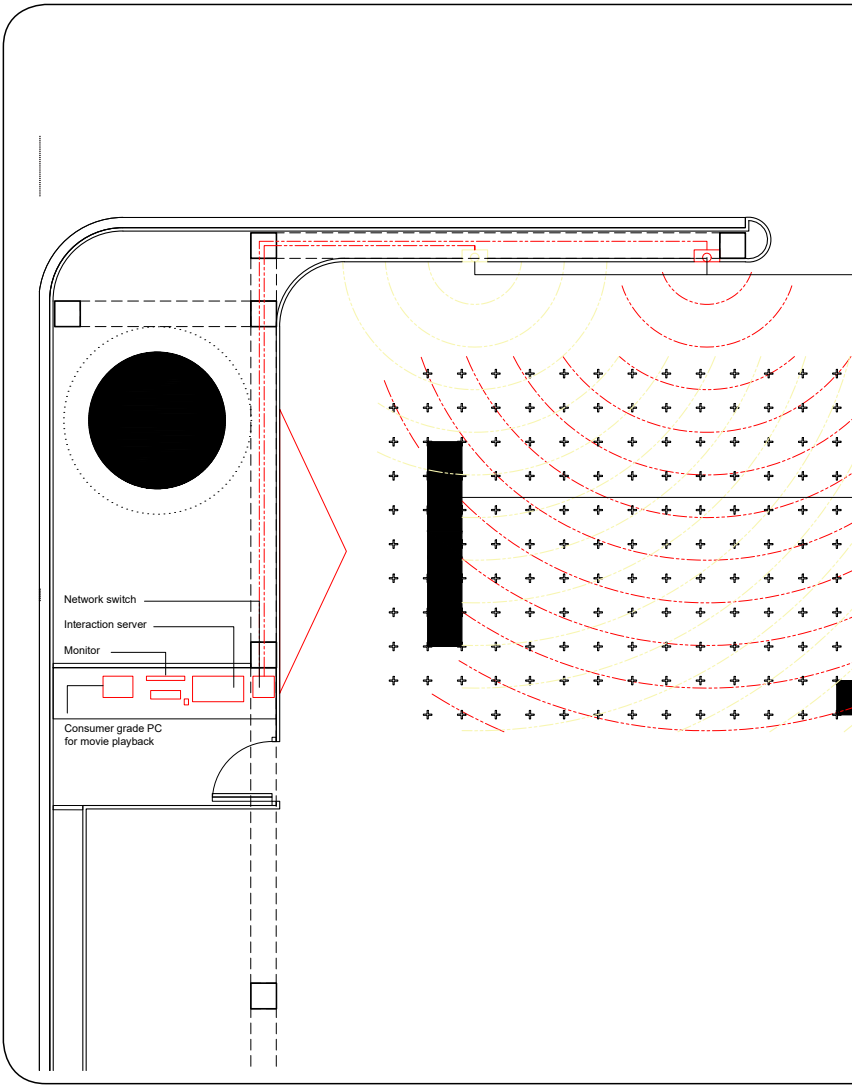
border condition through different perspectives.

Chapter 1 [INTRO] introduces infrastructure as basic condition for the development of urban settlements.
Chapter 2 [BELT] takes a logistics industry perspective and explores transnational movements of cargo through Belt & Road and particularly trough Khorgos Dry Port.
Chapter 3 [BORDER] takes an institutional perspective to look at existing access and exit procedures citizens face in Khorgos ICBC.
Chapter 4 [IDENTITY] takes a human perspective to understand how the cross-border condition generates an identity of its own kind.
Chapter 5 [INTERFACE] introduces SEICHE as a platform to facilitate bureaucratic automation.

Team Members:
Mikhail ANISIMOV, Tomás CLAVIJO, Yulia GROMOVA, Katya SIVERS, Andrei ZHILEIKIN

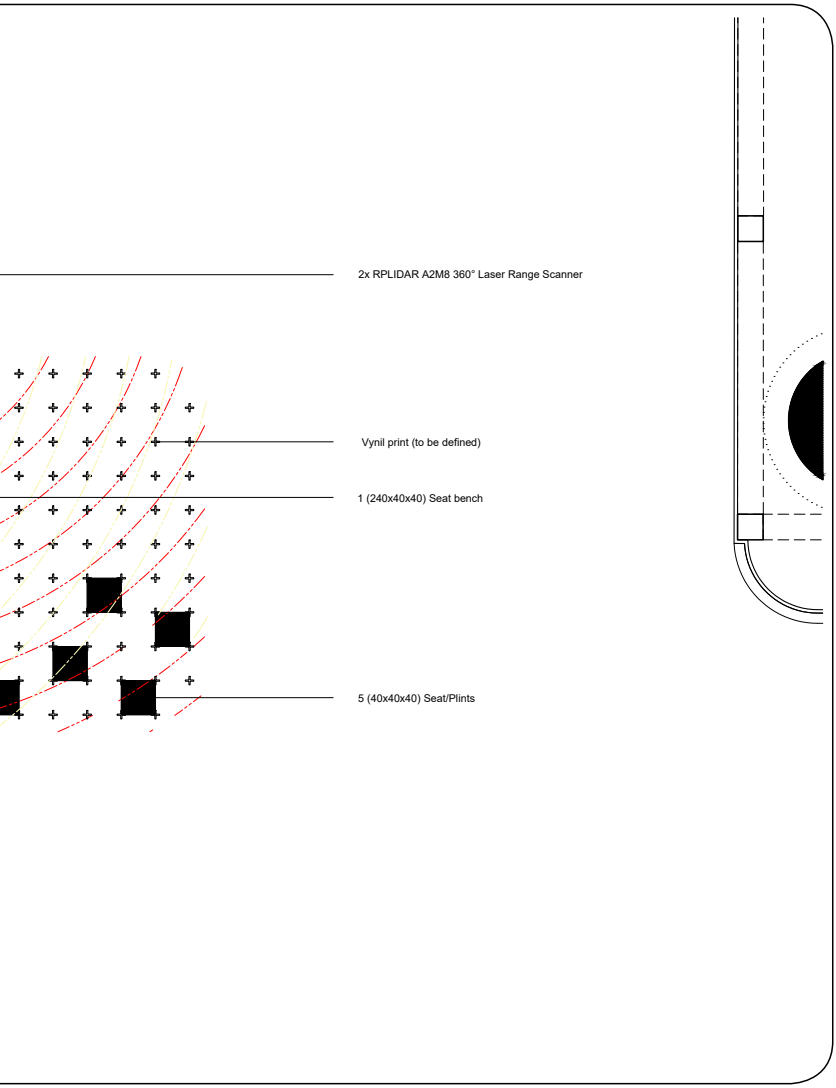


SILICON PUPIL




CODE: 22_BeltRoad
PROJECT TITLE: Seiche
TEAM MEMBERS: Mikhail Anisimov / Tomás Clavijo / Yulia Gromova / Katya Sivers / Andrei Zhileykin

SCALE: 1:50
DATE: 2019/
DESIGN CONTENT: Floor

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Plan

Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE 深港城市\建筑双城双年展

# Architecture Muette

**Baukuh**

As human beings will move inside of the cities of the future guided by technological devices, a possibility for a new innocence appears. Indeed, in cities that are entirely mapped and commented through digital labels, architecture could be liberated from its desire to speak. As nobody will need to recognize the Law Court, the Museum, and the Prison from their exterior appearance, buildings could be reduced to their pure spatial performance and be accumulated without any interest for axes, facades, symbolism. Architecture becomes simple spectacle of space. All misunderstandings about architecture speeches can be over and we could finally move to the uncompromising purity and glorious brutality once proposed by the historian of Indian architecture James Fergusson: Architecture imitates nothing, illustrates nothing, tells no tale; it barely manage to express an emotion of joy or sorrow with the same distinctness with which they can be expressed by unphonetic brutes.

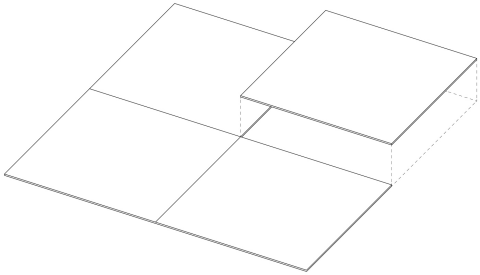
Baukuh presents two square 3-D printed bas-reliefs made of plastic and painted with glossy red lacquer. The first one contains a list of names of hundred buildings, the second one is a model in scale 1:500 of the same buildings arranged on a 3x3m square surface. The models are casts of the interior spaces of the buildings, realized in the manner of Luigi Moretti's models published in "Spazio" in the fifties. As such, the models provide a rough description of the buildings as pure "containers of space". Accordingly, the buildings are selected among the most spatially impressive (both in terms of articulation and sheer scale). As a result they are mainly Roman/Byzantine/ Renaissance and not Gothic/Neoclassical/orthodox Modernist. All buildings belong to a shameless Eurocentric canon – a canon that has been imposed worldwide by Modernism and ended up erasing all other possible repertoires. As much as we might dislike this, this rather reduced canon is what is thought in all contemporary schools of architecture and provides the unavoidable starting point for all possible experiments in future architecture. Anyhow, the canon doesn't really matter, important is to have something to start from and the intelligence of the new operation.

Team Members:

Paolo CARPI, Silvia LUPI, Vittorio PIZZIGONI, Giacomo SUMMA, Pier Paolo TAMBURELLI, Andrea ZANDERIGO

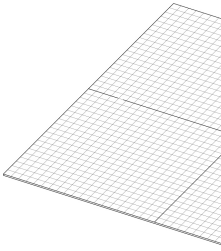
SILICON PUPILS

SILIGON PUPIL



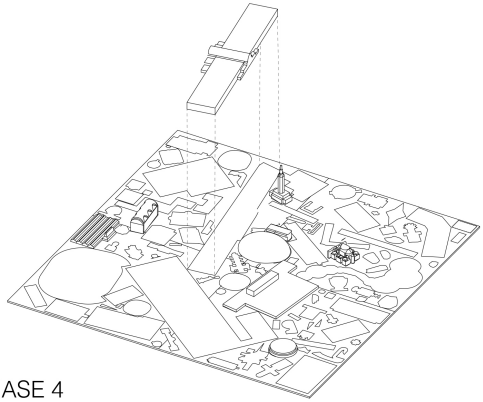
PHASE 1

ASSEMBLE THE 4 PANELS
**ALL OBJECTS SHOULD BE PAINTED RED (RAL 3003) BEFORE ASSEMBLAGE**



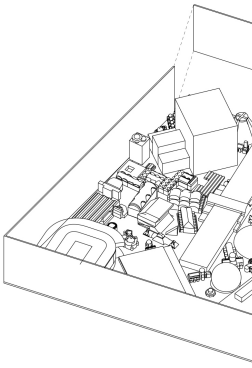
PHASE 2

DRAW GRID 0,05x0,05m
**PLEASE REMIND THAT T**
**BE VISIBLE AT THE END**



PHASE 4

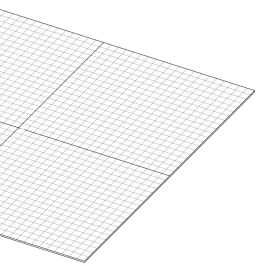
PLACE AND GLUE THE MODELS
**MODELS SHOULD BE PAINTED RED (RAL 3003) BEFORE ASSEMBLAGE**



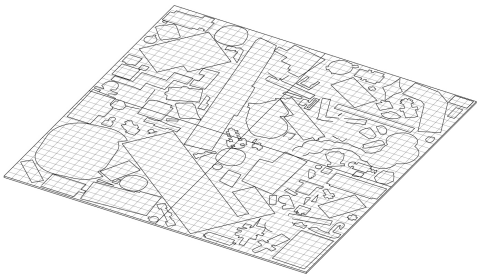
PHASE 5

PHASE 5_ SPRAYPAINT
PAINT RED (RAL 3003) IN
ERYTHING LOOK UNIFO

| | | | |
|---|---|---|---|
| CODE: | 23 | SCALE: | 1:XX |
| PROJECT TITLE: | Architecture Muette | DATE: | YYY |
| TEAM MEMBERS: | Baukuh | DESIGN CONTENT: | Samp |

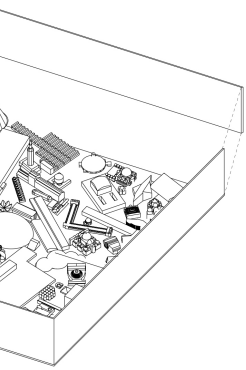


**THE GRID SHOULD NOT**
**OF THE PROCESS**



PHASE 3

DRAW PLANS OF MODELS FOR PLACEMENT
**PLEASE REMIND THAT THESE PLANS SHOULD NOT BE VISIBLE AT THE END OF THE PROCESS**



EVERYTHING WITH
N ORDER TO MAKE EV-
RM

# The Watcher><The Watched

**Dana CUFF, Yang YANG, Kaiho YU**

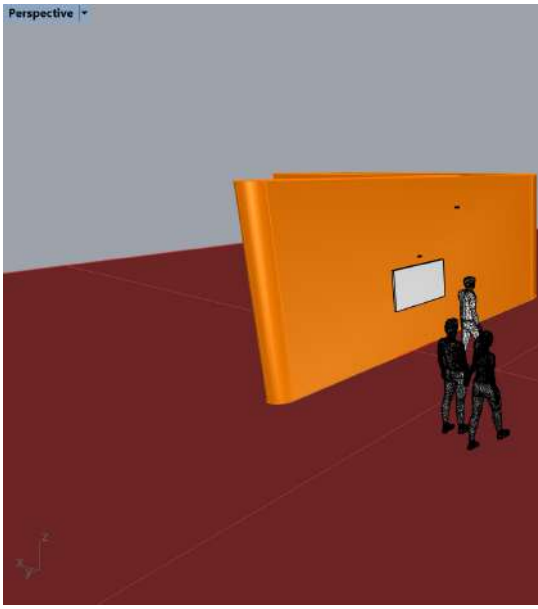
As the city becomes increasingly "intelligent," so grows the imperative to cautiously recognize the technologies that we are relying on for our collective life. Public cameras and the data they collect, for security or traffic coordination, compose an omniscient and predictive sensor network that enables high-precision simulation and feedback control over the everyday environment while allows no return contact. Here, we inquire: What is the role of citizens in a fully tech-equipped city? Is each citizen just one indistinctive pixel on his/her commuting way that could be represented in two dimensions on a monitor? Are they merely sliding into the big data that ultimately make the decisions for themselves? Is there any last battlefield where the politics have not yet ended with the hyperreality?

This project ventures that the relationship between the watcher and the watched is not a closed one but transgressible for cultural debate as indicated by the symbol "><" borrowed from art historian Miwon Kwon to refer to the complex relationship between an artwork and its situated context. "The Watcher><The Watched" suggests that the masses can regain their power under the gaze of the omnipresent camera by interrupting the one-way system. Our installation responds to our inquiries with a heterotopic space on the screen, the emergence and the evolution of which are triggered by the curiosity of human-camera interactions. The looking back to the impersonal gaze by the individuals—intentionally or not—would be caught by the camera and lead to a series of political alternatives on the screen, fictional but pertinent: a flash mob or a tug of war on the platform at the Futian Railway Station, and pop-up ads on the diverse socio-cultural activities in the surrounding area pushed to targeted audience. The on-screen plot will be thickening with the intensity of the gaze back—the amount and length of eye gazing, in which way to critically incorporate the audience in the practice of seeing and to give life the otherwise anonymous living.

Team Members:
Yang YANG, Kaiho YU, Dana CUFF

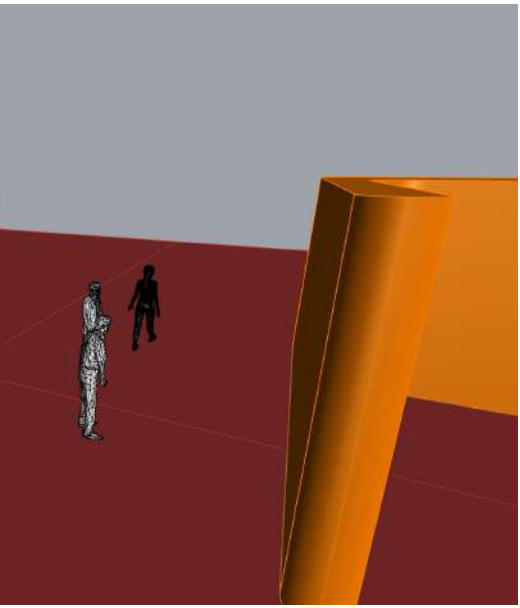
blah blah blah
blah blah blah
blah blah blah
blah blah blah
blah blah blah
...
Hi, you.

SILICON PUPILS




CODE: 24_watchedwatcher_cuff
PROJECT TITLE: The Watcher><The Watched
TEAM MEMBERS: D., Cuff / Y., Yang / J., Yu

SCALE: N/A
DATE: 2019/
DESIGN CONTENT: 3D M



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# The Third Vision

**A-Stra Advisors, Atoms Atelier, Currant.ai**

Measuring the street environment mostly focused on gross quantities of the environment's physical features, without figures describing people's overall perception. Therefore, it is extremely difficult to study the human perception of the street environment. In this case, design and planning is a subjective top-down process and only can be participated and evaluated by experts and architects. Prior research suggests that the enclosure, the human scale, the diversity of a street is directly related to a person's appreciation of that place (Ewing & Clemente, 2013). With the advance of the autonomous vehicle industry, nowadays computer vision and artificial intelligence have been widely applied to monitor road conditions. Using Google street images, it becomes possible for us to access human overall perception of the built environment. This study takes Shenzhen as an example and applies those state-of-the-art technologies to identify street space quality. Big data becomes an efficient audit tool of the street environment. In other words, it becomes the eyes we used to observe the city. It helps us to investigate the mechanism of the city according to the public's image of the city and reveals the relationship between human mental experience and the physical environment.

During the exhibition, watching the projection screen with AR & VR devices, visitors can experience how the machine see the street images. With Google Street images and data collected from an online survey, the correlation between human perception and certain elements (enclosure, human scale and so on in Ewing's theories, for example) of the street can be testified. When the measurement applied in Shenzhen city, people can identify which street is the most walking-friendly street, showing the relationship between physical activity and urban environment. The measurement process is also implemented in 6 global cities. From the result we can study the attractive factor contributes to the high-quality street environment.

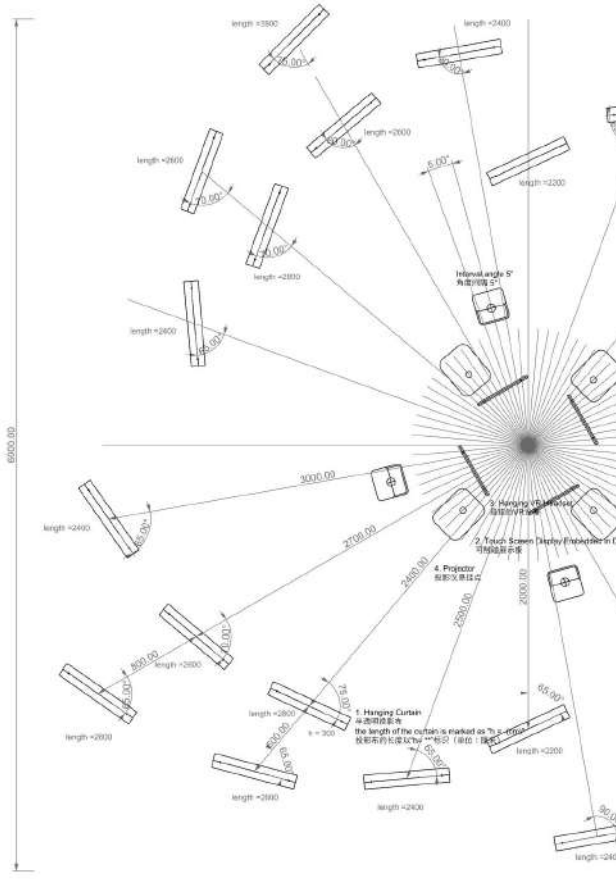
Team Members:

QIU Waishan, HUANG Xiaokai, ZHANG Xu, LIU Xun, LIU Ruijun, PENG Kaining, LI Xiaojiang, GAN Junjiao

SILICON POPULS

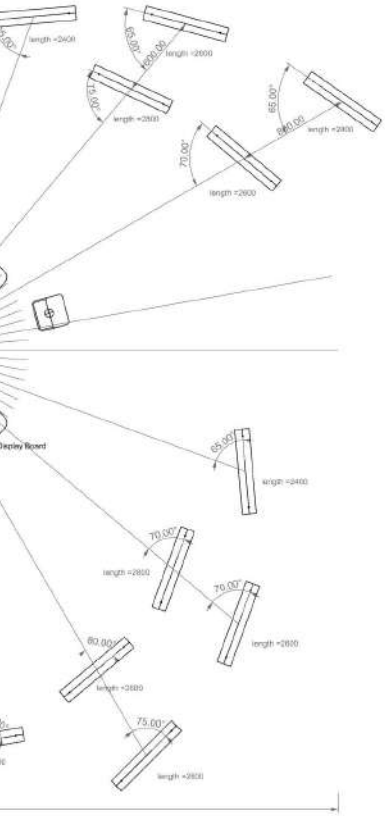
SILICON PUPIL

A3_1:250




# Ceiling Plan View
# 屋顶视图

| | | | |
|---|---|---|---|
| CODE: | 25_StreetQuality_RuijunCurrant__Bill of Quantities | SCALE: | 1:XX |
| PROJECT TITLE: | THE 3RD EYE | DATE: | 2019/ |
| TEAM MEMBERS: | W., QIU / X., LIU/ X., HUANG/ R., LIU/ X., ZHANG | DESIGN CONTENT: | Plan |

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# Image In Place

**CHEN Hui, LIU Qiao, ZHONG Kai**

Augmented Reality (AR) technology can integrate complex professional information into space in form of dynamic graphics. It allows people to see the visualized logical structure and professional discipline achievements, see the covered space, and see the historical and future urban features in the real urban environment. Therefore, people's understanding about the development, the operation logic and the spatial characteristics of the city are improved.

Through AR technology, people have an "eye" for a thorough observation of the city. When the UAV takes this "eye" high into the sky and flies freely, people can transcend their physical smallness and gain a macro perspective that they can control.

This is an eye provided by urban civilization for people to observe the city, and urban civilization also provides rich data information and interpreting paradigms for such observation. Therefore, we think that this eye can be called "the eye of the city".

When people have this eye, they can be regarded as god in a sense. Not only can they achieve a transparent state of being fully aware, but they can also form a virtual image of their ideas and designs about the city , and then convey them to others intuitively and transparently through the "eye of the city". In this way, Communication between people will be more effective than ever.

In this work, we choose Chongqing Hualongqiao area as our experiment site. After using photogrammetry technology to reconstruct the model of this region, and inviting experts from different areas to provide professional information, we have fused UAV aerial pictures and photogrammetry reconstruction 3d scenes with programming dynamic graphics to generate animation of AR, which combines the special topography with the city status of Chongqing in different historical periods to form a series of dynamic, millennial and in-depth digital analysis.

Team Members:
Director, producer: CHEN Hui
Producer: QIAO Liu
Scriptwriter: ZHONG Kai

Collaborators:
Environment design: YU Sen
Site reconstruction: Chongqing Paramland Landscape Design Co., Ltd.
Public space consultant: WAN Ziyu / Chongqing Municipal research institute of design
Image Identification: FANG Erqing

道光癸卯年纂修
重慶府志
閬郡新鐫


770 BC – 467 BC
THE SPRING AND THE AUTUMN PERIOD
1279 AD
YUAN DYNASTY
1644 AD
QING DYNASTY
重慶府志

Design instructions:

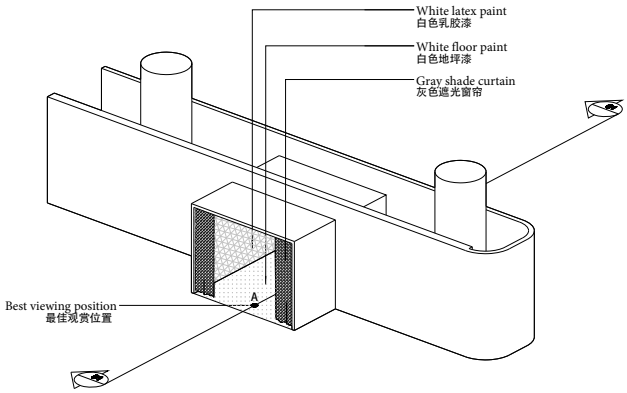
1.According to the "S" niche on page 28 of the Guidline document, we maintained its 4m width, increased its depth to 4.2m through the light steel keel partition and roof, and formed a completely dark internal environment through the shading curtain for immersive projection.

2.Immersive projection service provider: Shenzhen zhongyingzhiYing Technology co., LTD.
The projector model, placement, and wiring may vary depending on site adjustment requirements.

设计说明:

1.根据Guidline文档第28页中的“S”型壁龛，我们保持其4m的面宽，通过轻钢龙骨隔墙与顶板将其进深增大至4.2m，并通过遮光窗帘形成完全黑暗的内部环境以供沉浸式投影。

2.沉浸式投影服务商暂定：深圳市中赢智影科技有限公司。
投影仪型号，布置位置，布线形式可能会根据现场调节需求有所变化。

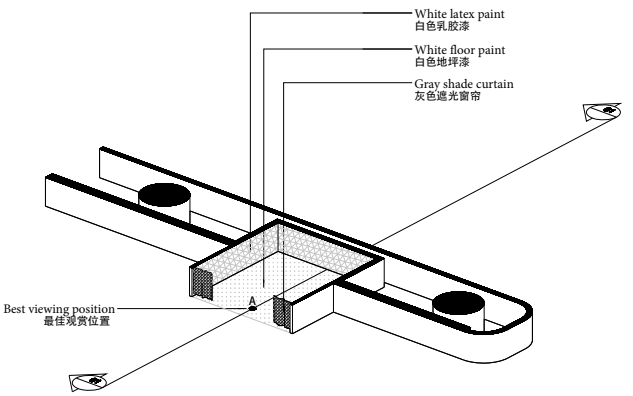



Axonometric Drawing

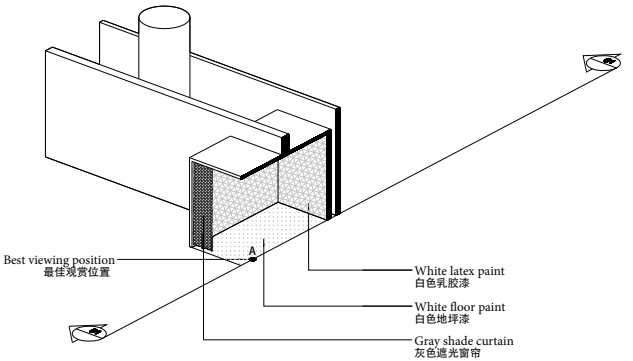
CODE: 26_DroneEyeView_ChenHui
PROJECT TITLE: Image In Place
TEAM MEMBERS: Chenhui / Qiaoliu / Zhongkai

SCALE: -
DATE: 2019/
DESIGN CONTENT: Axon

SLIDE PUPIL




1000m Height Section Axonometric Drawing




1-1 Section Axonometric Drawing

# Photoshop City

## Secretary

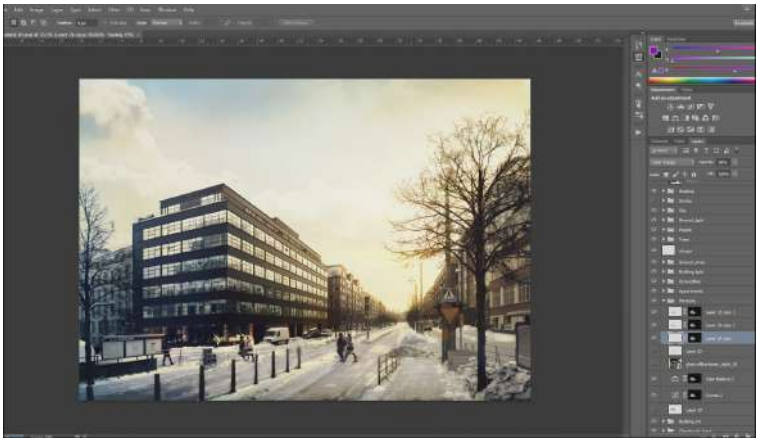
The subject can inhabit spaces the body cannot reach. Visualization is a category of architectural work that aims to induce a desire for architecture so potent that buildings are brought into being. The built environment may provide a shelter for bodies in the present, but it is architectural visualization that allows us to inhabit spaces that do not yet exist. In this they are far from neutral.

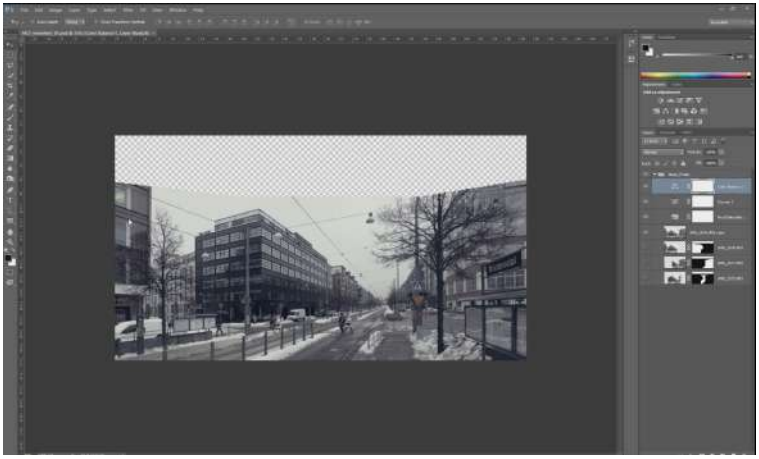
"Photoshop City" is an installation by the Stockholm-based architecture office Secretary, which uses Adobe Photoshop to explore the capacities and potentials of visualization as a tool and object of design research. The work is made up of two sets of videos—Housework (2017) and Spacework (2019). The production of the latter is performed in public over the course of the Bi-City Biennale of Urbanism\Architecture in Shenzhen. Each video documents a photograph of an existing urban setting being manipulated in order to reveal the unbuilt ideals that haunt built form.

The "Housework" series is oriented towards acts of maintenance: these videos show an apartment being tidied and infrastructural surfaces being polished, residential buildings being given more stately proportions, a creek being returned to the wilderness, and a fictional inner-city renewal pushed to a state of hyper-masculine commercialization. In these acts, Secretary aims to make good on the promises of urbanity and sustainability that informed these architectures, exposing the irrational rhythms and subjective preferences that inform acts of visualization.

The "Spacework" series is made in site in Shenzhen, taking the space of Futian High-Speed Railway Station as their point of department. In these videos, Secretary tests a range of visualization techniques with the aim of projecting the corridor of the train station into the distant future (and into deep space). This exercise in speculative fiction experiments with the possibility of projecting beyond the hyper-masculine optics of militarized extraterritorial colonization that have dominated our thinking about the future city in recent centuries.

Team Members:
Helen RUNTING, Rutger SJÖGRIM, Karin MATZ, Hélène FRICHOT

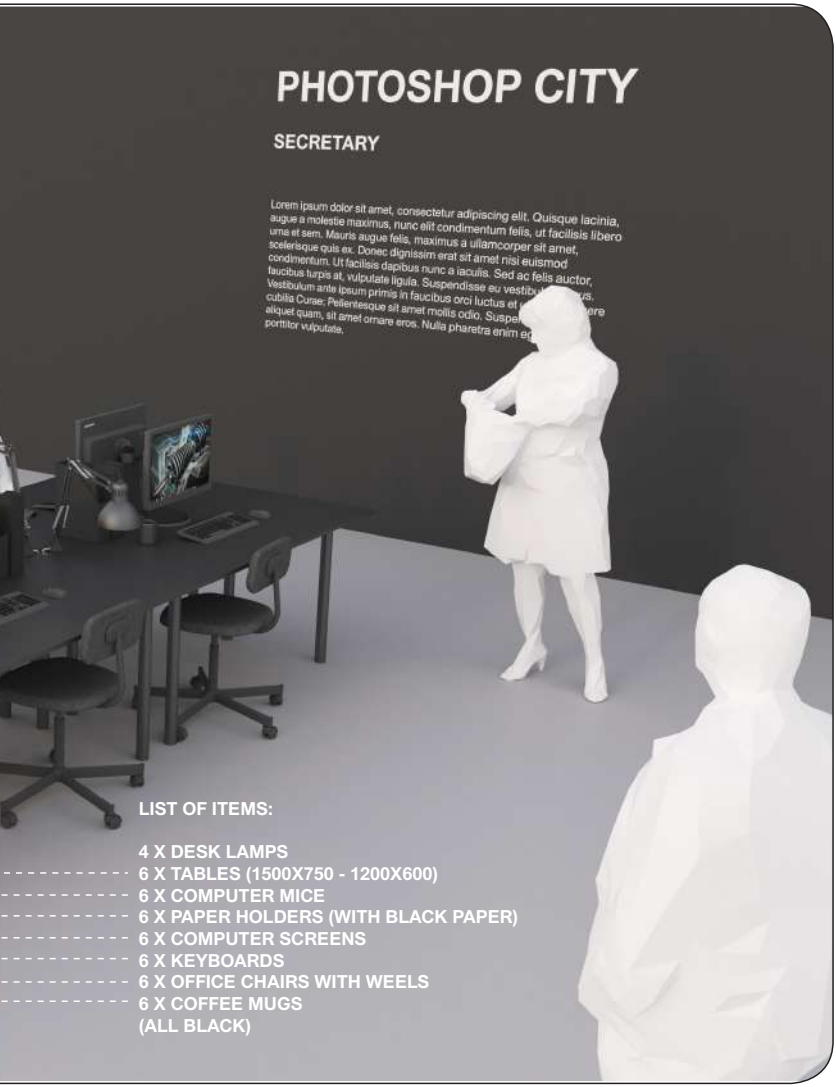




# SILICON PUPILS

CODE: 27
PROJECT TITLE: Photoshop City
TEAM MEMBERS: Sjögrim, R.; Runting, H.; Matz, K.; Frichot, H.

SCALE: N/A
DATE: 2019/
DESIGN CONTENT: Visua

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# Human, Machine, Building, Urban Space Interaction in an IoT era

**ZHANG Qianning, Sunnie Sing Yeung LAU, WANG Jing**

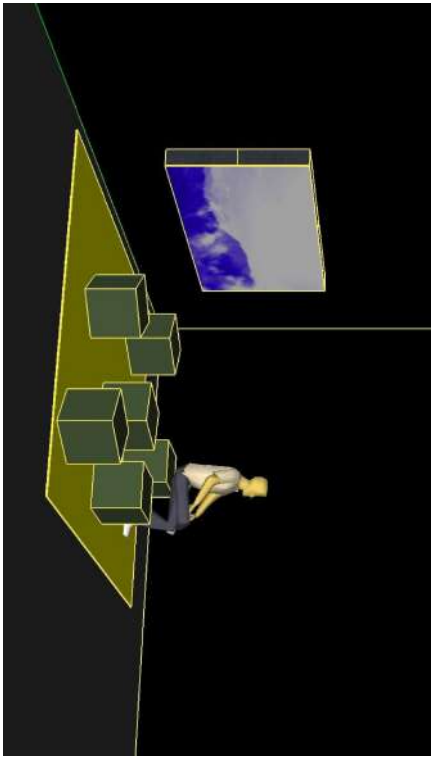
rban space, once designed, is difficult to interact with users and be changed according to different needs. Nowadays, with advanced technologies, situations are changing. The booming Internet-of-Things (IoT) technology connects people and space in a new way, making urban space interactive and responsive. Under these circumstances, people and space can communicate with each other, and urban space can identify individuals and understand their needs.

This research project is to study an individual's preference for space and its surrounding environment through advanced sensing and IoT technologies that interact between participants and space, and the implication of quality of the spatial design on user behavior. The main installation of the project is a 3m x 3m x 3m three-dimensional space. Participants can play with the modules in the space until they find the most wanted layouts. Meanwhile, a digital and interactive panel allows them to change background music and lighting environment to create their own ideal space. Various human behaviors, environment-related factors, locations of each module, and the general information of participants (mood, gender, age group, etc.) are recorded by sensors and IoT devices to promote direct feedbacks of real-time, dynamic participation of participants. For further analysis, machine learning and statistical analysis will be applied as methods. The collected data will be analyzed to explore the spatial and environmental preferences of different groups of participants, and the potential of how advanced technologies could help people interact with the space and environment.

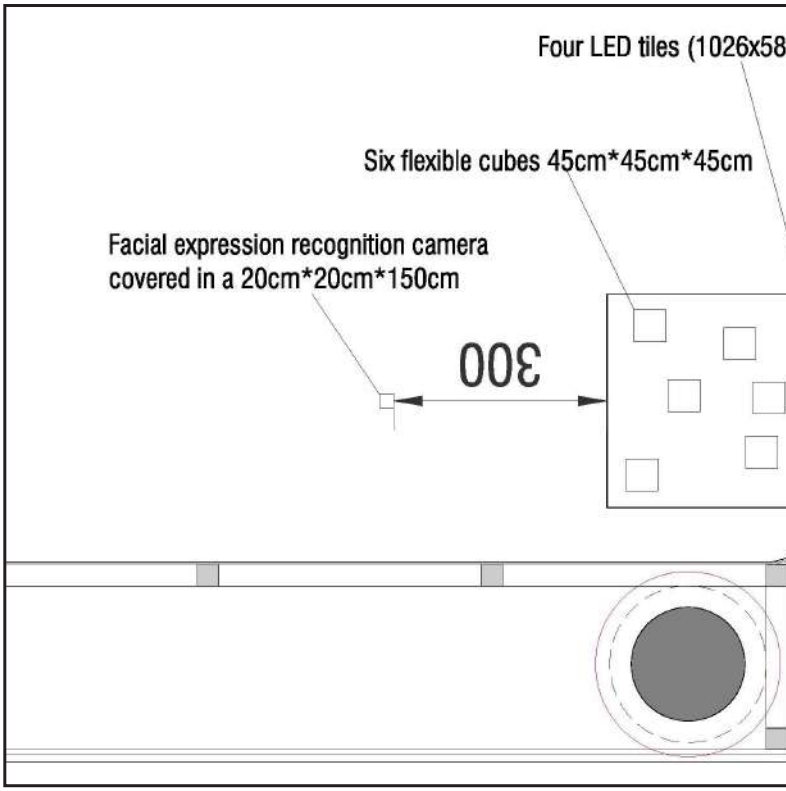
In sum, this project encourages the visitors to create a preferred space of their own while their choices and general information are recorded by advance detecting and analyzing systems. This research project is a testing bed for human-space interactive innovation. This is a new level of citizen participation in public space, and it is enabled by advanced IoT technologies. The urban space could not only change its spatial and environmental settings for individuals, but also predict the preferences of the new visitors.

Team Members:
ZHANG Qianning (Concept / Design / Research, School of Design and Envrionment, National University of Singapore)
Sunnie Sing Yeung LAU (Concept / Design / Research, MITNode)
WANG Jing (Concept / Design / Research, School of Architecture, South China University of Technology)
Stephen Siu Yu LAU (Concept, School of Design and Envrionment, National University of Singapore)

# SILICON PUPILS

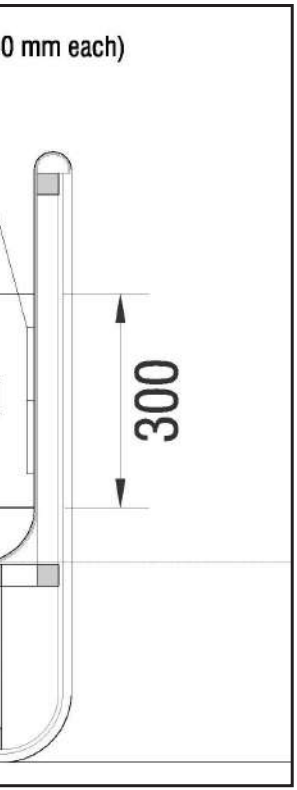


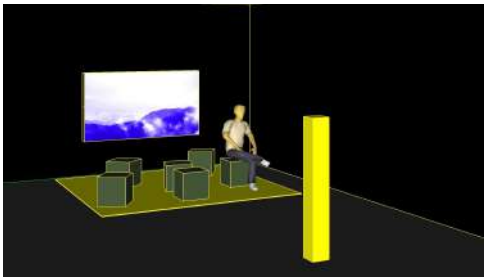
SILICON PUPILS

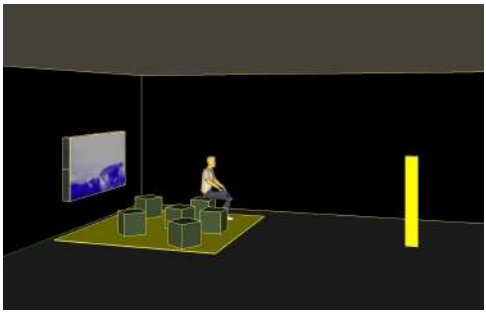


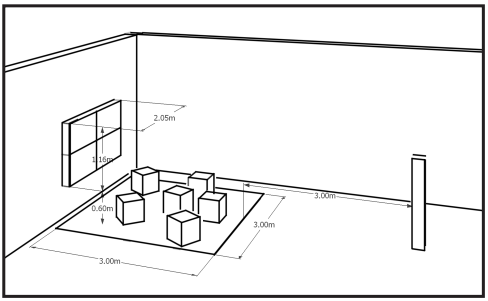

**The IoT system includes a facial expression recognition camera (hidden in the y on the right side of the picture), four LED tiles (hanging on the wall in the lef flexible cubes (40cm*40cm*40cm or 45cm*45cm*45cm, placed in a 3m*3m spa nected to the camera. When the visitors come, they could change the layout of s on it. The camera identifies the expressions of visitors (1-6 persons) when they camera. The images on the LED screens will change according to the differen (the weather, seasons, colors will change on LED screens). Meanwhile, the locat when someone sitting on it.**

| | | | |
|---|---|---|---|
| CODE: | 28_PerfectSpace_Qianning | SCALE: | 1:60 |
| PROJECT TITLE: | Human, Machine, Building, Urban Space Interaction in an IoT era | DATE: | 2019/ |
| TEAM MEMBERS: | Q., Zhang / S. S.Y., Lau/ S.S.Y., Lau / J., Wang | DESIGN CONTENT: | plan, |








**ellow box 20cm*20cm*150cm ft side of the picture) and six ace). LED tiles, boxes are con- six cubes as their wish and sit sit on the cubes and face the nt combination of expressions tion of each boxes is recorded**

09/20
diagrams

Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
"Eyes of the City" Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE
深港城市\建筑双城双年展

# Digital Self, Daily Life and City Space - Using Wearable Cameras for Portraying Our Life

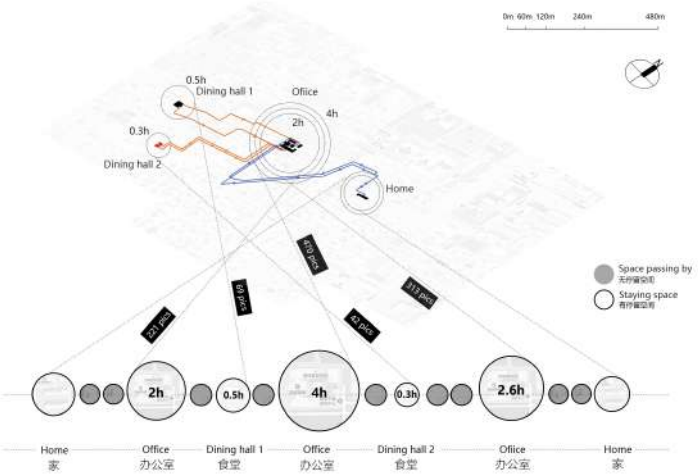
**LONG Ying, LI Pai, ZHANG Zhaoxi**

We live in a world full of electric products, and we have been influenced by them deeply, especially those with digital screens like cell phones, computers and TVs. These electric products bring convenience to our life, while at the same time, the mobile-dependency is letting our times increasingly fragmented.

In this project, we're going to use wearable camera to digital individual daily life, and see how far electric products has changed our life. The wearable camera features a built-in Wi-Fi and GPS, it can clip onto a user's clothing and automatically taking a photo every 30 seconds. We will invite five volunteers of different ages and varying occupations to wear a camera for an entire week, including both work days and weekend days. They will be instructed to remove pictures with privacy before submitting all pictures for our quantitative analysis. After obtaining all the images, we'll use both manual auditing and automatic analysis using API & Matlab color recognition algorithm to identify the major information in each image.

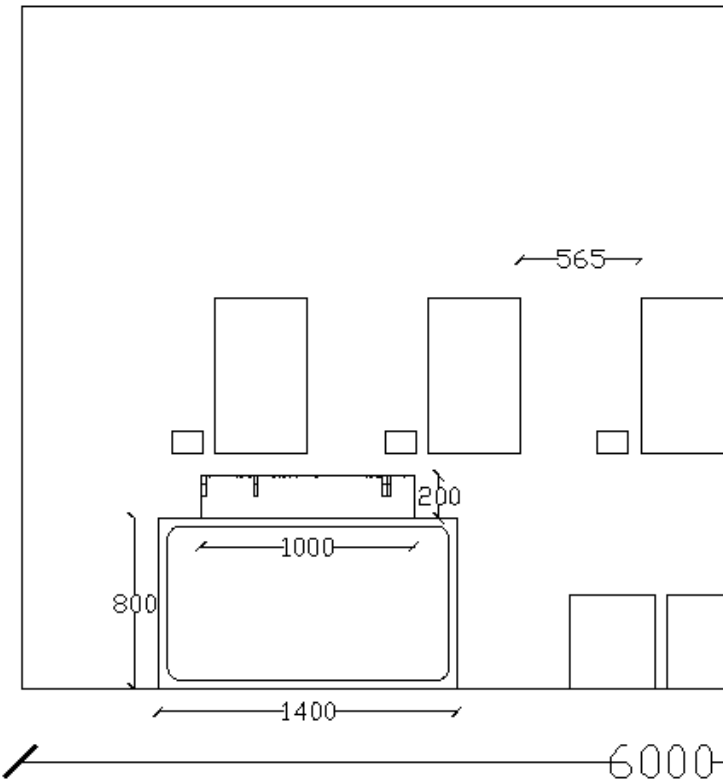
The major elements in the images including: 1)participant's daily activities (work, eat, traffic, social, amusement, etc.) and the time allocation, 2)participant's behavioral characteristics, like how much they eat for a meal, the way they interact with people, how they use their fragmented time, etc. 3) participant's different locations (home, office, restaurant, park, etc.) and spatial transfer, thus we can obtain participant's life radius and how long they spend indoor and outdoor, etc.

The outcome of this project will be as follows:
- Several A1-sized posters. There will be several graphs, maps and typical images in the posters to show this generation's life under the influence of new technologies.
- Models. We will use several physical models to abstractly reflect how people spend their days. We will select one of the five volunteers to show his/her daily activities and time allocations using a model of 1.5m*0.5m*0.5m size. In addition, we will use 25 small models of 0.3m*0.1m*0.1m size to show the time allocation of five types of daily activities (work, commute, dining, social, leisure) of the five volunteers.
- Vedio. We will edit the pictures taken by the volunteers using the wearable camera to form a short film that will be played in the exhibition.


0.5h
Dining hall 1
Office
4h
2h
0.3h
Dining hall 2
Home
0m 60m 120m 240m 480m
Space passing by
Staying space
221 pics
89 pics
539 pics
82 pics
313 pics
2h
0.5h
4h
0.3h
2.6h
Home 家
Office 办公室
Dining hall 1 食堂
Office 办公室
Dining hall 2 食堂
Office 办公室
Home 家

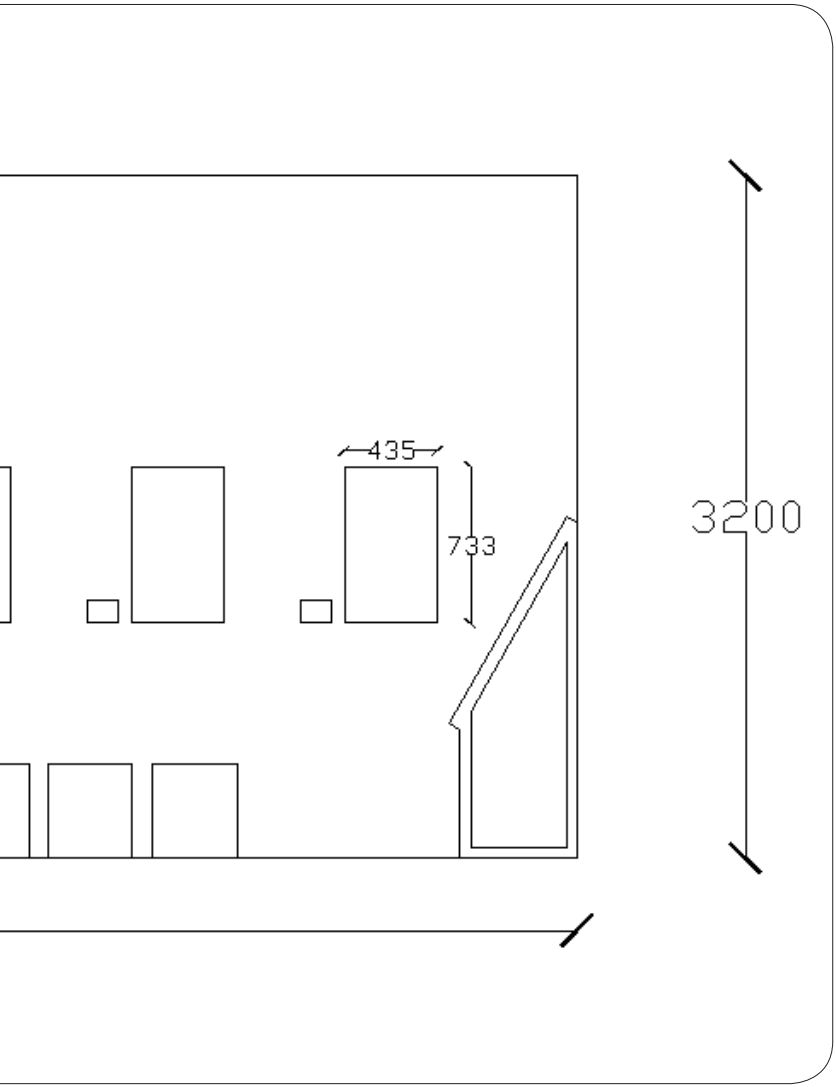
数字自我
日常生活
城市空间
基于可穿戴式相机的
生活日志
In this project, we're going to use wearable camera to digital individual daily life, and see how far electric products has changed our life.
Using wearable cameras for portraying our life
Digital Self
Daily Life
City Space

SILICON PUPIL




CODE: 29_CameraLife_LongYing
PROJECT TITLE: Digital Self, Daily Life and City Space—— Using wearable cameras for portraying our life
TEAM MEMBERS: Ying Long / Pai Li / Zhaoxi Zhang

SCALE: 1:8
DATE: 2019/
DESIGN CONTENT: Front




'09/20
View

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DIGITAL SOCIETY
数字社会

# Section 4
# Digital Society

New technologies are redefining the notion of citizenship. How can we interpret the "Eyes of the City" idea from this perspective? This section revolves around the interaction between people, technology and space. From observing what can be achieved when data is used to better understand society to using virtual platforms as spaces to collect people's input, this section explores new ways in which denizens can get involved in the making of the city.

DIGITAL SOCIETY

# Dalang Fever 3.0: How Data Can Empower A Migrant Society

**Het Nieuwe Instituut, International New Town Institute**

Het Nieuwe Instituut and the International New Town Institute join forces by combining extensive working experience in Shenzhen with knowledge on data and the smart society in a research proposal curated by Linda Vlassenrood. The impact of datafication on society and the human environment is all-pervasive. Yet the threats and opportunities it presents for urban life are still not being sufficiently recognized by design disciplines like architecture and urban planning. We strongly believe that technology should not be an end in itself but should be used to solve locally grounded problems in society. Many cities are, however, still far from using technology in a more inclusive way. We are therefore specifically interested in the fifth research question of the open call presented by the curators: how can designers and citizens harness the power of real-time data in novel ways, especially to foster architecture's ability to respond to people's needs?

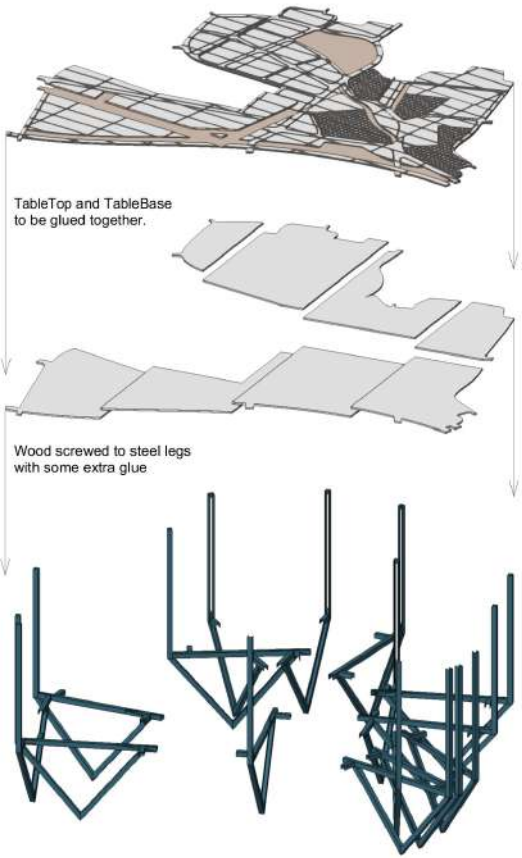
Our research will use a methodology of identifying questions before collecting data at large, starting with the needs of residents in Dalang, a district in the outskirts of Shenzhen in which hardly any generalized data is being gathered. Primarily a dense collection of urban villages and factory compounds, it is hard-to-reach with few public facilities and limited green and public spaces. It is home to approximately 500,000 people, a majority of them young migrants. We will start by identifying the needs and ambitions of the residents and collect formal, informal and qualitative data to provide genuine insights and a richer sense of the human interaction, needs and networking in the area.

Using an application based on blockchain technology, we will gather four layers of information. A multidisciplinary data and design team (data analysts, urban planners, architects, graphic designers, industrial designers, social designers or sociologists) with spatial and social expertise will collaboratively analyze the collected data and use their different lenses to propose solutions to improve living conditions and empower people in Dalang. It is an iterative and open-ended process that will question the use of quantitative and qualitative data in order to incorporate people's needs into the continuous upgrade and transformation of Dalang. How should we collect data? How can we make it accessible? How can we visualize it? Which spatial and organizational transitions should be instigated? What kind of new platforms and working methods will be needed?

Team Members:
Linda VLASSENROOD (Independent Curator)
Tat LAM (Research / Impact Hub Shenzhen)
XU Min (Research / Impact Hub Shenzhen)

DIGITAL SOCIETY

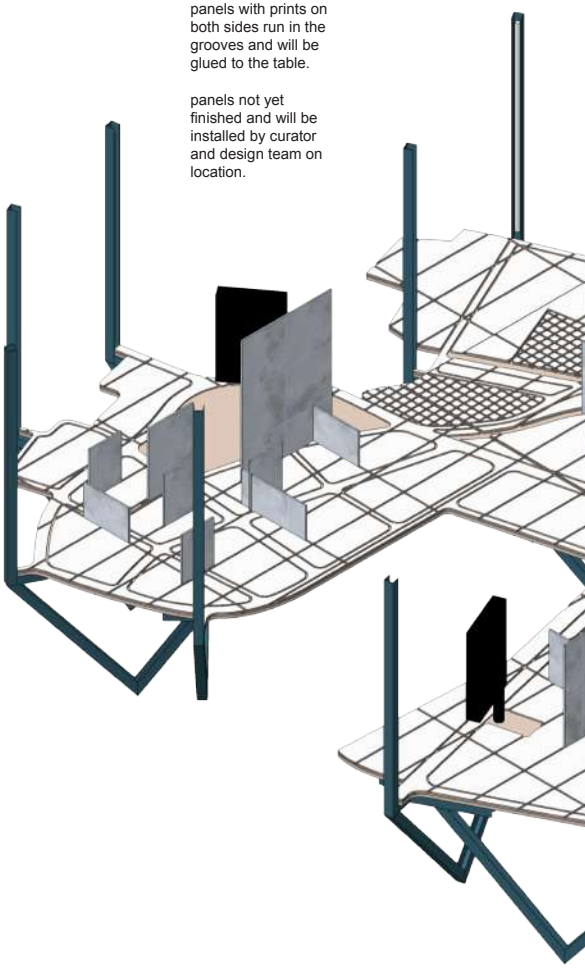
Tim LIN (Research / Impact Hub Shenzhen)
Toon KOEHORST (Design / Koehorst in 't Veld)
Jannetje IN 'T VELD (Design / Koehorst in 't Veld)
Francien VAN WESTRENEN (Het Nieuwe Instituut)
Michelle PROVOOST (International New Town Institute)



DIGITAL SOCIETY

panels with prints on both sides run in the grooves and will be glued to the table.

panels not yet finished and will be installed by curator and design team on location.



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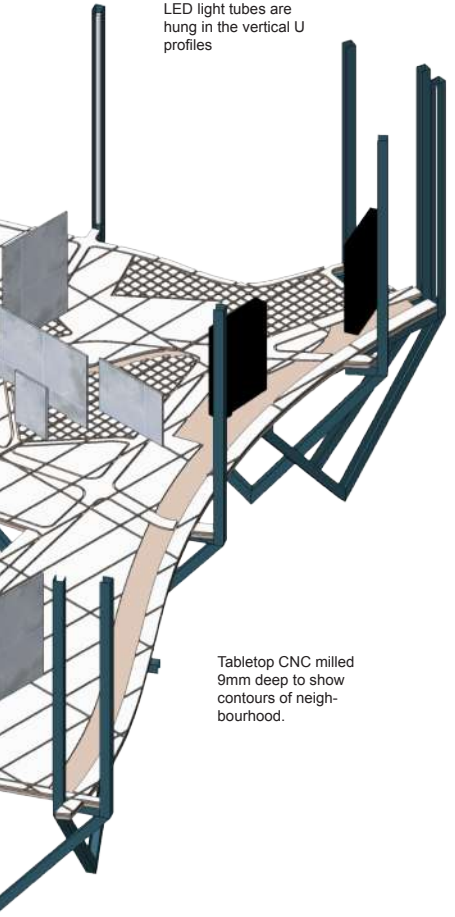
| PROJECT TITLE: | Dalang Fever 3.0 | DATE: | 20/09 |
| TEAM MEMBERS: | L. Vlassenrood, T. Koehorst | DESIGN CONTENT: | Isome |

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DIGITAL SOCIETY

# Inductive Evolution of Modernology: Multiple eyes constructed by citizens as researchers

**Research for the Architectural Domain (RAD)**

In 1927, Wajiro KON, Scholar of folklore and architecture, and his colleagues announced a new study called “Modernology”. They literally collected the records of various objects in the modern city using their own eyes and hands. By being statistically processed and analyzed, those records showed the real figures of the modern city and lives. For technological limitations, the results were also limited. However, now that it may be possible to refine the “Modernology” as an indication of “Eyes of the City”.

We will develop the toolkits to access the various environmental happenings in the city and to collect data. While using the toolkits, we improve and verify the efficacy. This will be a powerful tool for people to understand the city and get involved in the changing urban environments. We will examine what kind of psychological and physical effect this will have on people as refractions.

At the same time, it could also indicate the alternative concept of “Eyes of the City” followed by “eyes on the street” by Jane Jacobs. In other words, we could discover the potential of the “Eyes of the City” which will be diversified by the citizens as researchers? It means that the “Eyes of the City” is not a centralized control by a single subject but “rights to the city” of every citizen. The realization of multiple urban eyes would lead the development of the more attractive urban spaces.

Overlaying the layer of “research” on the daily lives of people, this research will show the possibility of the “citizens as researchers” who actively engage to the urban situation and try to collect various data and information of the city. We aim to realize the possibilities of “citizen as researcher” who have their own physical bodies compared to the static devices such as surveillance cameras.

This research will amplify the potentials of Modernology to the present age and look at the future where AI and citizens as researcher (the same with eyes of the city) work together.

During the exhibition, we will conduct a collection using toolkits developed in Shenzhen and launch results. Through this participatory research, the potential of the citizen as a city researcher will be more visible.

Team Members:
Lead Researcher: Shinichi KAWAKATSU
Researchers: Hiroki HORI, Mari HAMAIE, Yusuke KURAZONO, Masaru IWASAKA, Fumika KITAHARA, Ryohei NOMURA
Technical Support: Masakazu ABE
Design: Takanori SHIMODERA / TAIYA

DIGITAL SOCIETY

RAD XXXXXXXXX
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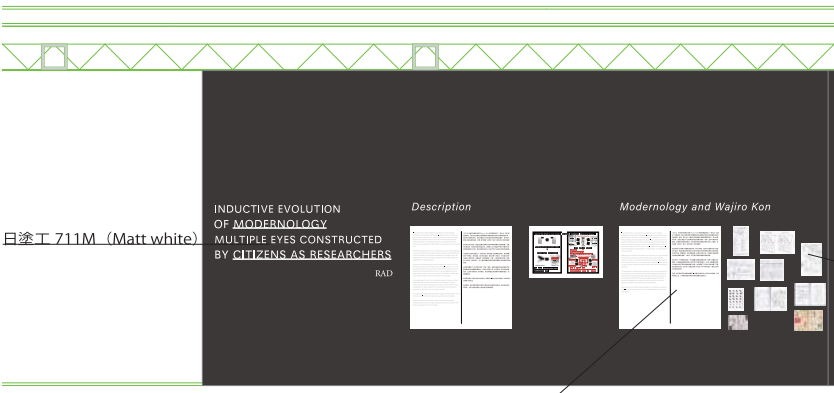
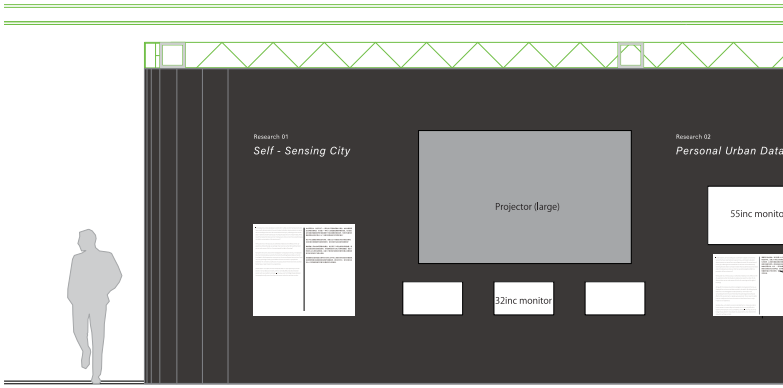
wall no.1




wall no.2

日塗工 711M（Matt white）

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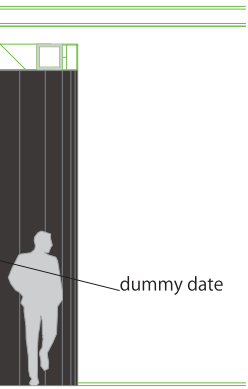
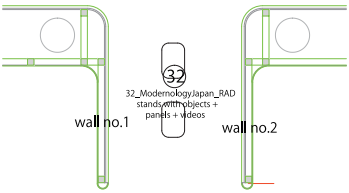
|---|---|---|---|
| CODE: | 32 | SCALE: | 1:50 |
| PROJECT TITLE: | ModernologyJapan | DATE: | 2019/ |
| TEAM MEMBERS: | Y.Kurazono/M.Iwasaka | DESIGN CONTENT: | Wall |



S=1/50

709/20
no.1,no.2 elevation

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## Electronic Lifestyles

### Handshake 302

Legibility is one of the myths of the modern, rational city. We like to think that every object has the same meaning for each of us, across space and time, despite memory and desire, in high end shopping malls and low rent districts. However, everyday encounters on the subway, in a classroom, or at the dinner table teach us differently; objects only are as meaningful as the stories we tell, which is to say, what we see reflects how well we have learned to listen. In Curiosities, Handshake 302 curates a collection of stories about how technology shapes everyday life via the electronic objects that organize work and leisure in the "Silicon Valley of Hardware." We begin by making visible the ruptures between different visions of technology. We aim to foreground the ways in which narrative and the arts of rhetoric and listening frame our interpretation of what is seen. We hope to contribute to more interesting conversations about the myth of legible technologies let alone human actors because sensitivity to lived difference is crucial to creating safe streets and free cities.

Concept + Design: Handshake 302
Project + Research: Handshake 302
Team Members:
Mary Ann O'DONNELL, ZHANG Kaiqin, WU Dan, LEI Sheng, LIU He
Special Guest: Sabrina MUZI
Sharing Guests:
WU Wenyuan, LV Xiaozheng, Arachnia, YANG Guang, HUANG Cheng, FENG Yu, Chris HAMAMOTO & Federico PEREZ VILLORO, ZHAO Juan

DIGITAL SOCIETY

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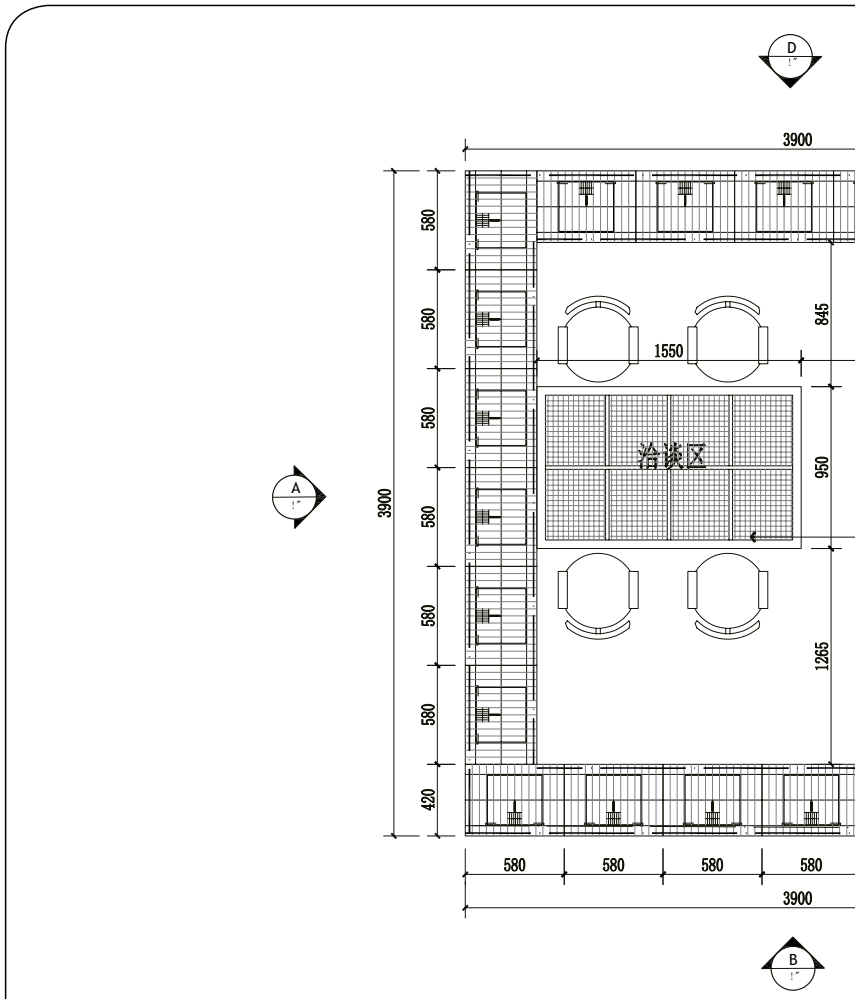
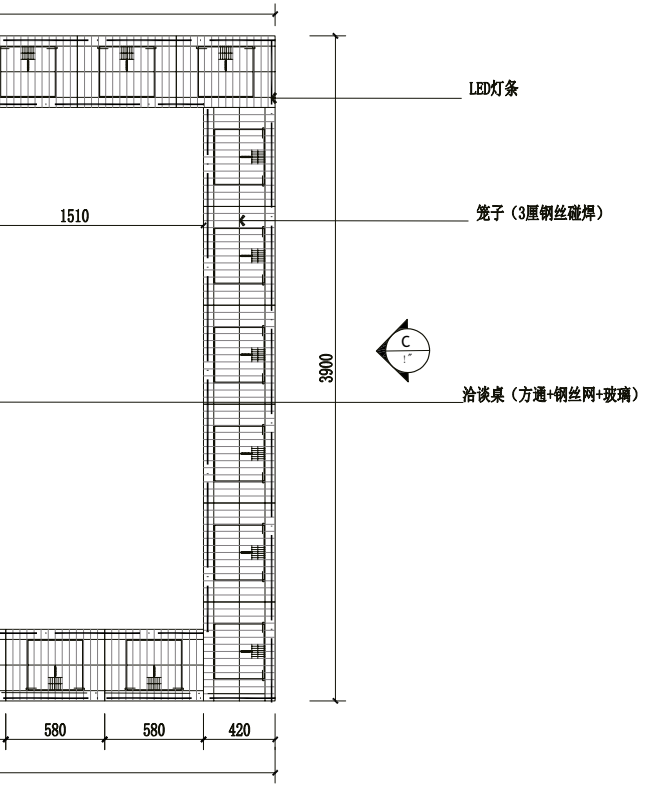



302策展平面图

CODE:
PROJECT TITLE: Curiosities
TEAM MEMBERS: Handshake 302

SCALE: 1:25
DATE: 2019/
DESIGN CONTENT: Samp

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DIGITAL SOCIETY

## Crowdfunding Commons

**IF/THEN**

Crowdfunding Commons imagines the potential of collective, open-source, and locally-specific resources built on the backbone of sharing economy structures. These distributed systems allow new fluid movement of people and capital in the city. They also unlock new potential for collective economies of scale. As our urban interface changes from primarily architectural to increasingly one of protocols and platforms, the project asks which new scales and modes of design have architectural agency in the city. Crowdfunding Commons enacts this research provocation through a real-time prototype and microcosm of the sharing economy over the course of the Biennale.

Crowdfunding Commons considers alternative structures to current "share" models. Instead of housing vulnerable populations in minimal and temporary housing, and co-opting long-term housing for tourists, we flip the script, developing pop-up housing for embedded short-term experiences which over time fund long-term community housing needs. As a model which expands itself by design, the short- term rental of a cabin raises money to build another, and those two to build a third. This exponential economy can redirect funds into community pools to allow communities to adapt to changing contexts. Our system accumulates capital in local, rather than distributed, systems, where the housing is based. As the distributed sharing economy expands around us, we are asking: To what ends? For whom? And with what values and goals?

As an exhibit, the share house takes the qualities of a writers retreat, with a minimal built-in bed, and a desk with a chair. The Biennale is the destination in itself, and our house proliferates on-site, making more houses. The scale of the cabin also echoes the dimensions of a worker's room. The conflation of the minimal migrant quarters and the minimalist destination retreat visually intersects conversations of workers housing and short-term rentals.

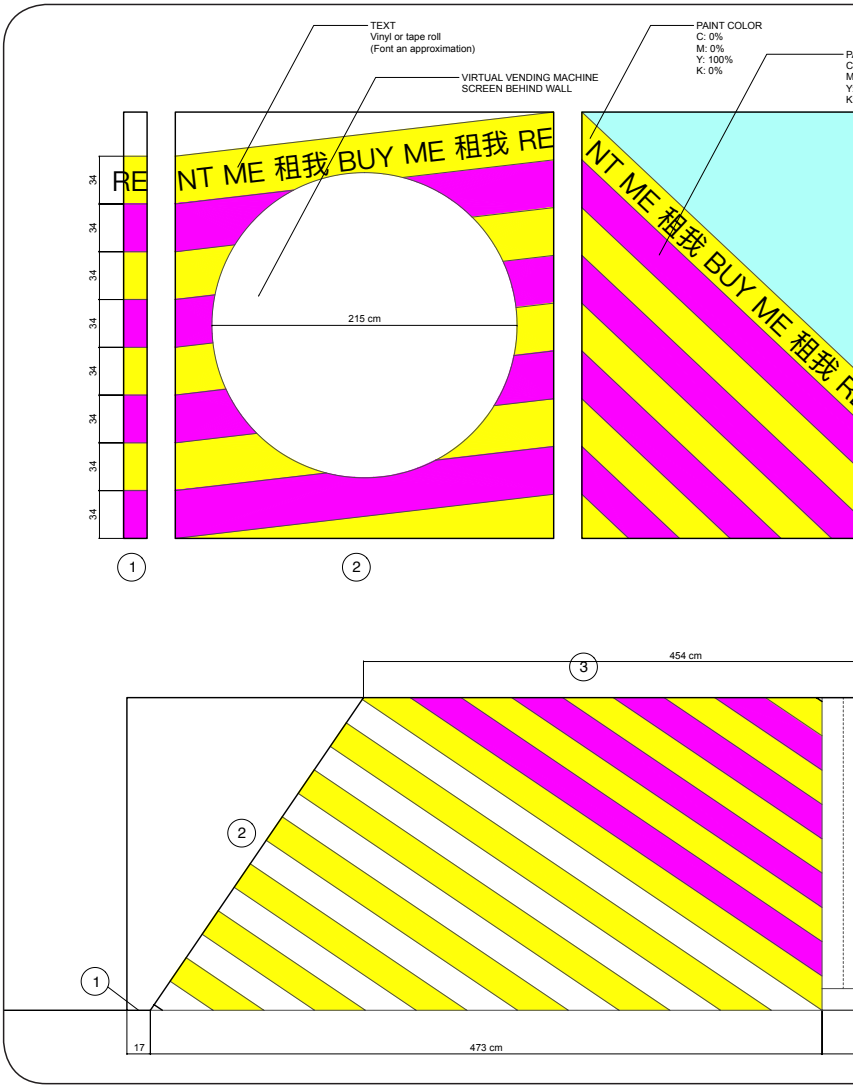
Team Members:
Rafi AJL, Sara DEAN, Cristina GAITÁN, Rachel WEIDINGER
Collaborator:
Ricardo HERNANDEZ-PEREZ

DIGITAL SOCIETY

1 //
2 // SHARE ECONOMIES EXTRACT $ FROM THE
3 // LOCAL COMMUNITY. THEY CHANGE HOUSING
4 // INTO TOURIST INDUSTRY. *COMMONS PLACE*
5 // USES SHARE ROOMS TO COLLECT LOCAL FUNDS.
6 // IT SUPPORTS LOCAL LONG-TERM HOUSING THRU
7 // TOURIST HOUSING $.
8 //
9 //
10 //
11 //
12 //
13 //
14 //
15 //
16 //
17 //
18 //
19 //
20 //
EMPTY LOT
SHARE ROOM
SHARE APT
SHARE ROOM
SHARE ROOM
BACKYARD
EMPTY LOT
SHARE HOUSE


COMING SOON
1 // PLANT CABINS IN CITY:
2 // RENT CABINS TO RAISE $$:
3 // $$ [ MORE CABINS;
4 //  LOCAL HOUSING ];
5 // /* CABINS = $$; $$ = HOUSING */
6//
7//
YARD
COMING SOON
EMPTY LOT
PARKING SPOT
COMING SOON

DIGITAL SOCIETY

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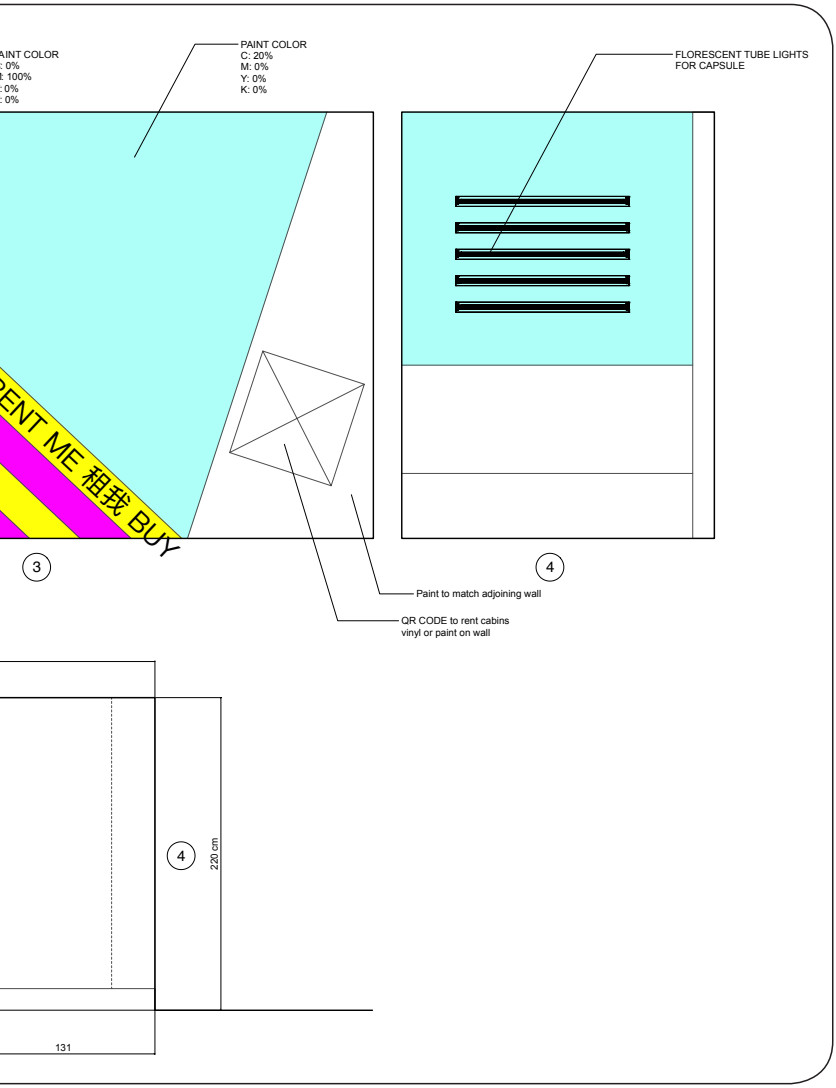
|---|---|---|---|
| CODE: | 34A_CrowdfundingCommons_SaraDean | SCALE: | 1:30 |
| PROJECT TITLE: | Crowdfunding Commons | DATE: | 2019/ |
| TEAM MEMBERS: | R. Ajl / S. Dean / C. Gaitan / R. Weidinger | DESIGN CONTENT: | Instal |


AINT COLOR
: 0%
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PAINT COLOR
C: 20%
M: 0%
Y: 0%
K: 0%
FLORESCENT TUBE LIGHTS
FOR CAPSULE
ENT ME 租我 BUY
3
4
Paint to match adjoining wall
QR CODE to rent cabins
vinyl or paint on wall
4
220 cm
131

DIGITAL SOCIETY

## Palimpsest Shenzhen

**Wee Studio, LOW-REZ**

Urban crowds in train stations are mostly passersby, engaging in small transactions while focusing on getting from point A to B. Amid this movement and flow an ad-hoc collective emerges, one that becomes a representative microcosm of city-dwellers. Oculi-in situ attempts to capitalize on the connectivity brought by the Shenzhen high-speed rail line and the international audience of the biennial to create a participatory design process for realizing architecture in cities.

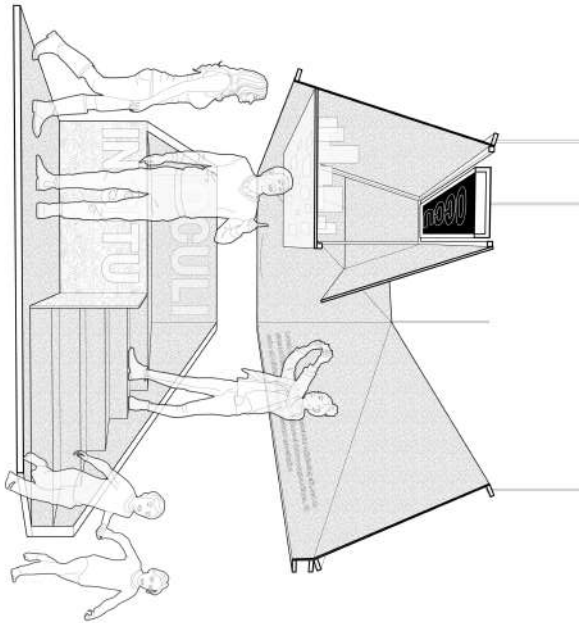
We build off of previous successes with crowdfunding to propose engaging with Biennial visitors who are geographically diverse and represent a wide spectrum of economic capabilities to help us imagine the design of a new dining pavilion. Their participation will give us access to a variety of perspectives foreign to our own and illuminate unseen possibilities. This process will also help us to create a targeted crowdfunding strategy post-Biennial and establish a platform for co-ownership over the city through the realization of the final design, ultimately to be given back to the public.

In our exhibition we present three iterations of our pavilion design, each activating different urban contexts to create different eating rituals: 1- a private dining room at Citizen Center Park; 2- a street food cart at the Urban Village; 3- a night market with multiple vendors in the Dongmen Commercial District. The Biennial visitors have a chance to observe these designs presented in elaborate architectural models on a long dining table. Above the dining table is a floating oculus with an LED display, casting dynamic light onto the white table and models, coloring the space with reflections. The visitors have a chance to sit around the table, contribute to the designs and give feedback. This participatory act invites conversation into the design process and allows visitors to imagine themselves in the yet-to-be realized pavilion. The visitors can leave feedback notes for each design accompanied with their contact information, which will be collected post-Biennial and used to begin the crowdfunding process for the preferred design.

This system transforms the notion of crowdfunding, traditionally a “buy or don’t buy” decision, into a participatory experience where the audience can comment and choose which design option to initiate for their city. Urbanistically-minded but empathetic at its center, Oculi-in situ is an architectural experiment, which turns the digital crowdfunding platform into a participatory process centering on the inherent power of the social.

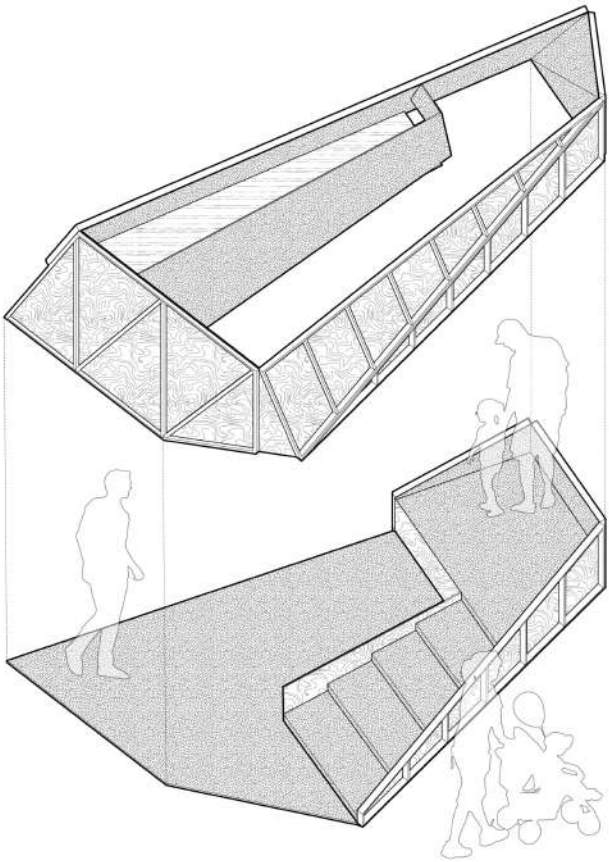
Team Members:
ZHAO Sheng, Rana Irmak AKSOY, Edward WANG, DAI Haifei, ZHANG Yanping
Collaborators:
Field&Flour, KONG LAB, YAN Dong

DIGITAL SOCIETY



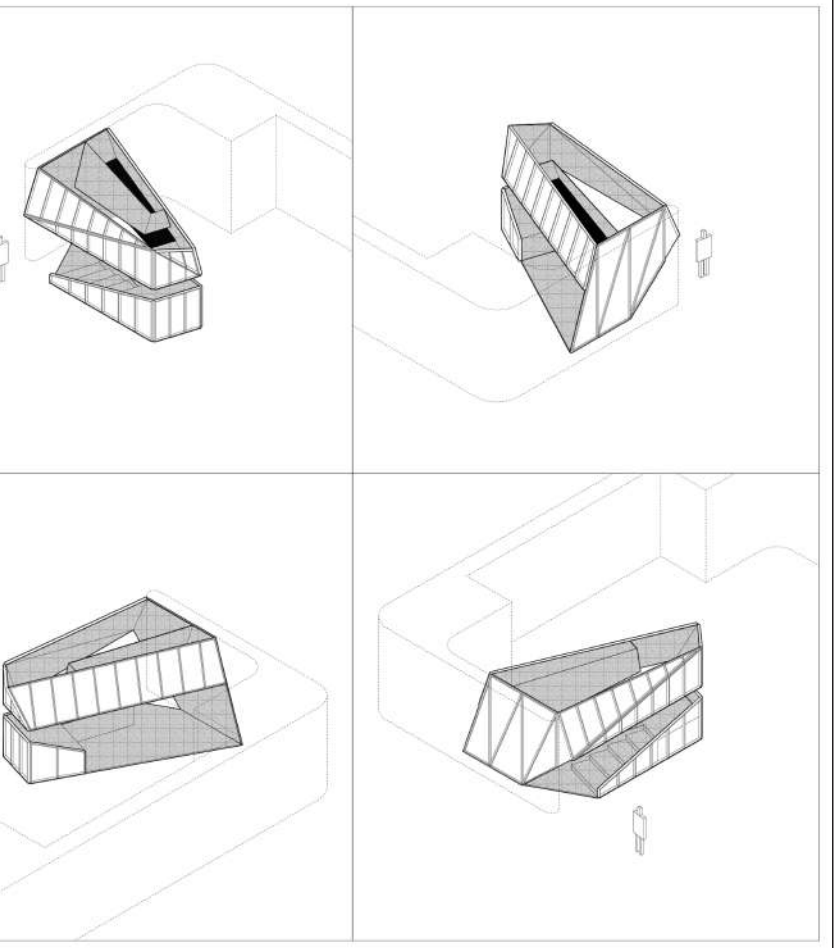
DIGITAL SOCIETY

DIGITAL SOCIETY



CODE: 34b
PROJECT TITLE: Palimpsest Shenzhen
TEAM MEMBERS: Z., Sheng / R., Aksoy / E., Wang

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp



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## DOMA.PLAY

### DOMA

Owning a home has become a luxury that fewer and fewer people can afford. All around the world, an increasing number of city dwellers are resigning themselves to a lifetime of rent. It is time we change this unsustainable mode of urban living. This is why we are developing DOMA.CITY - a blockchain-based, shared ownership platform for equitable housing. Bridging the great divide between renting and owning a home, DOMA leverages the principles of the new token economy to make urban property accessible to all. Designed for a fair distribution of the value generated by urban environments, DOMA works as a platform cooperative, owned and run by its users. A rewarding investment in the sharing economy of tomorrow, DOMA triggers a shift towards affordable, inclusive, and sustainable cities.

To test some of the DOMA logics, we have developed DOMA.PLAY – a multiplayer, persistent world online game. The main goal of the game is to beat housing crisis by adopting collaborative strategies that are in the heart of DOMA platform - crowd buying of properties and equity distribution. DOMA.PLAY simulates the complexity of the real estate market and tests DOMA in a controlled context where users must collaborate to beat the housing crisis. Each player dives into the simulated market, where AI landlords behave in an aggressively extractive mode, making housing less and less affordable for citizens. It is up to them now whether the players will be able to change these urban dynamics. To achieve success in the game, it is essential to collaborate with other players to create the cooperative strategies and enter the housing market altogether. As DOMA does in real life, in the game it enables a multitude of urban dwellers to coordinate their actions at scale. Players can get together to achieve a common goal and share collectively generated profits.

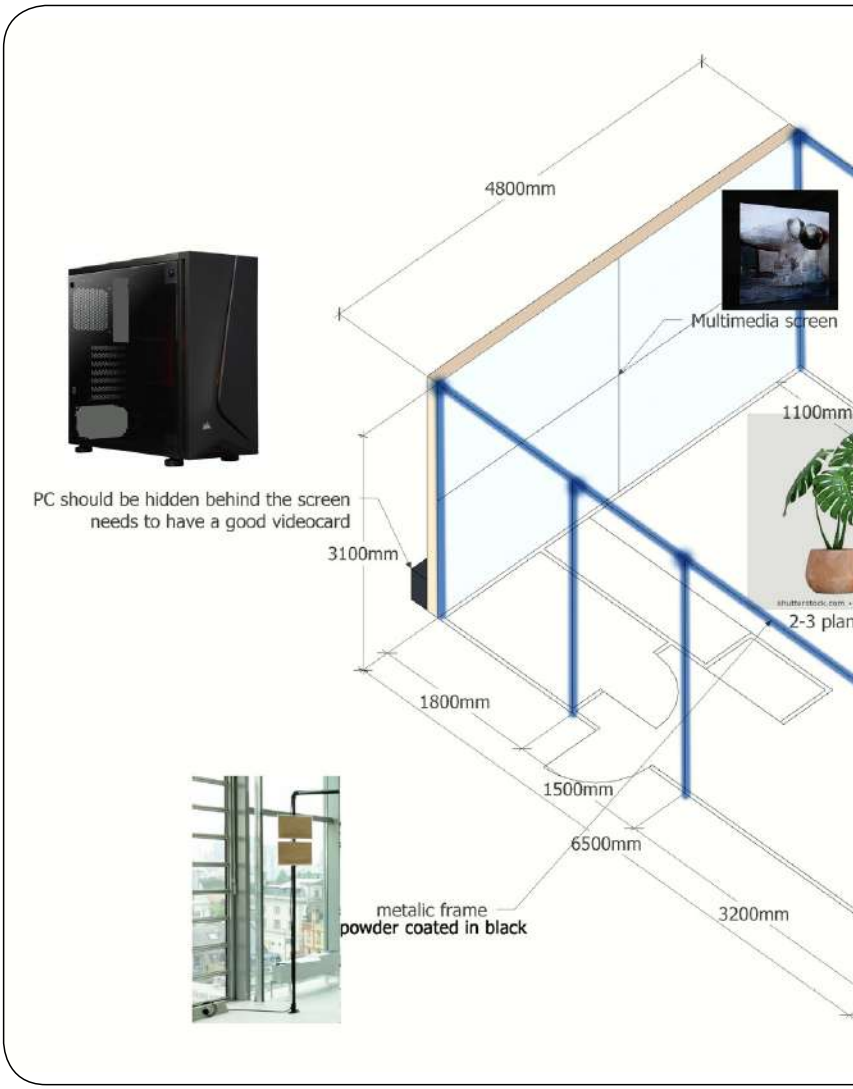
What will you do in the DOMA.PLAY world?

Team Members:
Maksim ROKMANIKO, Francesco SEBREGONDI, Francis TSENG, Olesia KOVALENKO

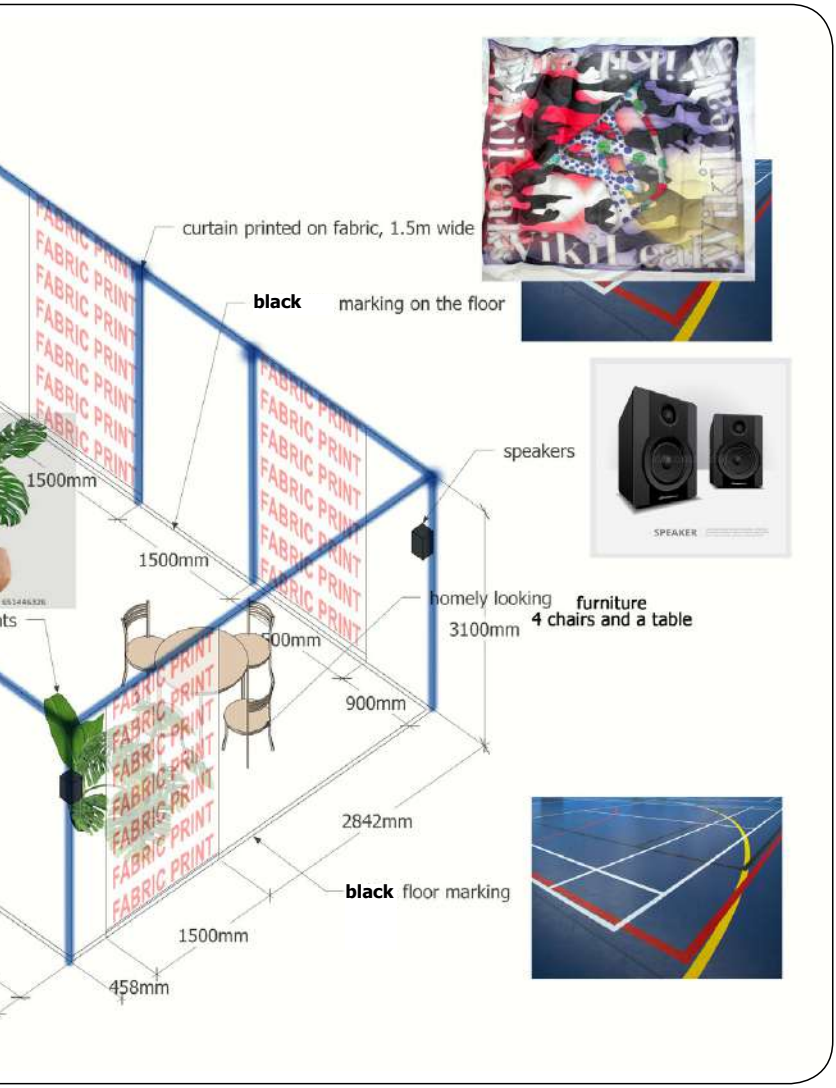
DIGITAL SOCIETY

DIGITAL SOCIETY

DIGITAL SOCIETY




| | | | |
|---|---|---|---|
| CODE: | 35_DomaCity_DOMA | SCALE: | Not to |
| PROJECT TITLE: | Doma.play | DATE: | 2019/ |
| TEAM MEMBERS: | Maksym Rokmaniko, Olesia Kolvalenko, Francis Tseng, Francesco Sebregondi | DESIGN CONTENT: | Axono regar |

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
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DIGITAL SOCIETY

# Strangers' co-habitation: An atlas of collaborative housing typologies at the rise of sharing economy

Jiong Abingo WU

Airbnb, HomeAway, Flippedkey, Couchsurfing, the list continues. The rise of peer-to-peer collaborative housing consumption has reshaped contemporary living landscape. In unraveling this rising housing practice, the current literature mainly focuses on its impingements on tourist industry, rental housing market, and public revenue. Its housing design potentials are largely understudied, especially the design innovations that unleash the surplus residential resources and punctuate the single-family dominant habitation norms. To fill the gap, this research documents and analyzes creative housing typologies formulated by the home sharing hosts and their guests across the world.

Combing online architectural typology case studies and onsite ethnographic investigations, this research examines why and how people appropriate sharing platforms to transform their living spaces and accommodate the "strangers". The investigation consists two components. The first component is an extensive online documentation, which offers diverse and creative collaborative housing cases across the world. The primary sources are collected from various sharing housing platforms, including Airbnb, HomeAway, Flippedkey, Couchsurfing, etc. The second component is an in-depth onsite ethnographic investigation on several selected cases, which offers "thick description". The cases are analyzed under five themes, which speak to five major contemporary housing issues: housing unaffordability, residential segregation, housing surplus, rural settlement decline, and neighborhood gentrification. Complying with these themes, we discuss the implications for new housing typologies, housing policies, and living experiences.

The goal of this research is to reveal both the limits and the potentials of the rising sharing economy brought to the contemporary housing practices. Ultimately, it aims to probe a new housing paradigm – the "peer-to-peer collabrative housing", which potentially goes beyond the existing "public", "collective", and "cooperative" housing models.

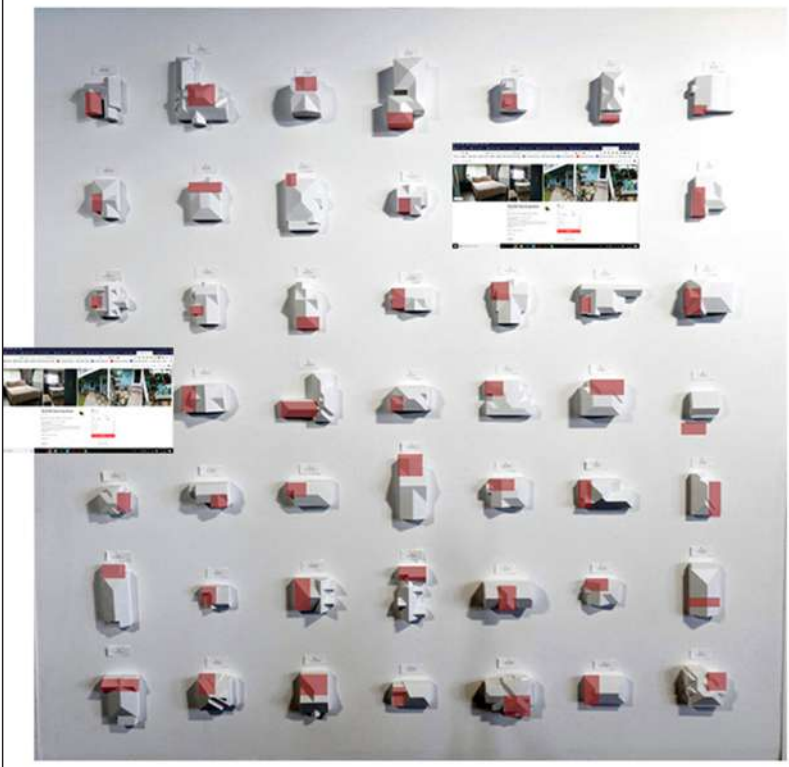
Principle Investigator: WU Jiong (Abingo)
Collaborator: ZHANG Runze
Research Assistant: Ching Huen LEUNG, Bomyeong NOH
Student participants: David Zhi CHEN, Andrew D'ANGELO, Joao Ellery LUSTOSA FURTADO DE OLIV, Andrew TURNER HARPER, Emily R HU, LIU Wentao, Rachel LY, Alaina Ann MARRA, Xinran MIN, Alba IVANIA, Rivera, Roxanne SARRAFZADEH, Jalal Khalidy SAMARALI, Ashley WOO, Xiang XI

DIGITAL SOCIETY

BROOKLYN
NEW YORK CITY
212

DIGITAL SOCIETY

## THEME1



CODE: 36
PROJECT TITLE: Strangers' Co-habitation
TEAM MEMBERS: J. A., Wu

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp

THEME2

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DIGITAL SOCIETY

## Domestic Datascapes

**The Center for Spatial Technologies**

In 2018, Property Tech companies raised over $9.7B in funding, which is almost a 500 times of what the sector was worth back in 2008. Increasingly, technological transformations are getting to affect one of the most conservative and slow-moving industries in the world - real estate. From listings and property management to algorithmic value assessment and trickier debt-production mechanisms — these companies are changing the way we experience domesticity. If such change is coming we should try to understand its implications.

The video work is based on our yearlong Domestic Datascapes project, in which we use design tools to study the impact of proptech on domesticity. We taught design studios at AOS in Kyiv and Architectural Association in London as a part of the project and some of the materials used in the video are done by the students.

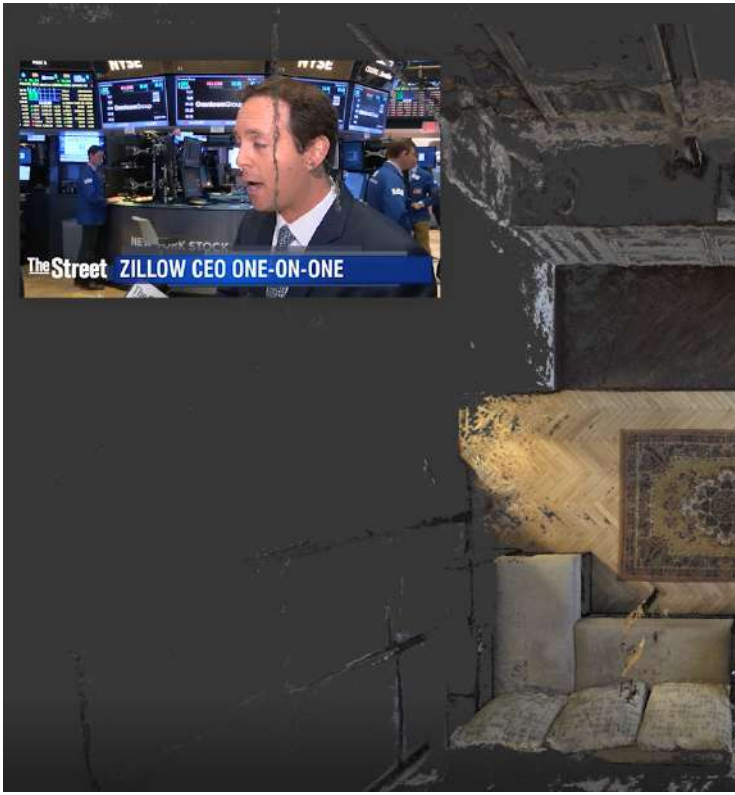
This video installation looks at our very personal and most intimate spaces through a speculative eye of property technology platforms.

Team Members:
Maksim ROKMANIKO, Mykola HOLOVKO, Desiree FIELDS

DIGITAL SOCIETY

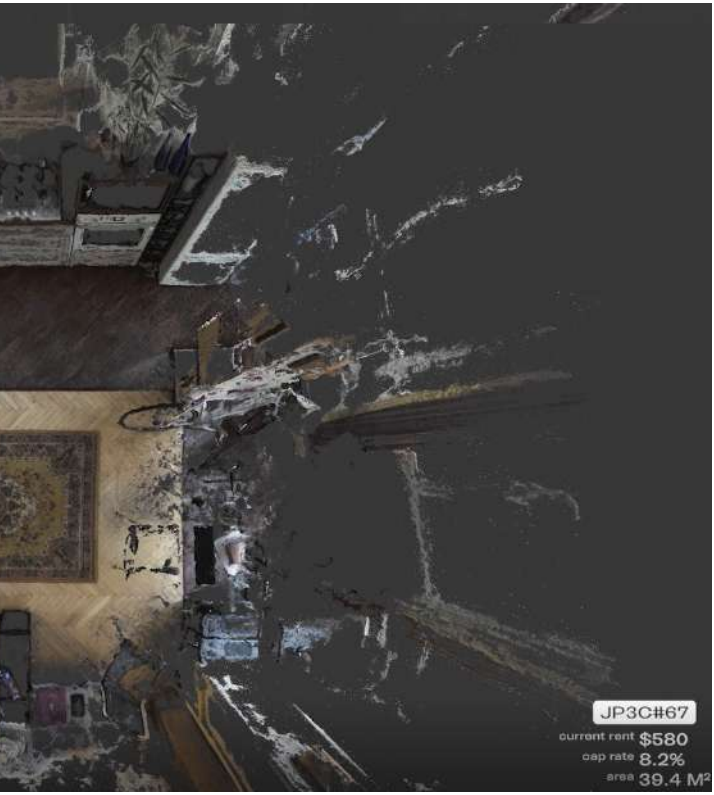
DIGITAL SOCIETY

DIGITAL SOCIETY




CODE: 37
PROJECT TITLE: Domestic Datascapes
TEAM MEMBERS: The Center for Spatial Technologies

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp

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DIGITAL SOCIETY

## Online/On-site

### EXTENTS

This project studies the digital divide in Detroit, focusing on Internet access in the city's most disenfranchised neighborhoods. As investment is poured into development downtown, residents in marginalized neighborhoods lack access to digital infrastructure and the necessary skills to use information effectively once connected. Indeed, Detroit has the lowest rate of Internet connectivity in the United States, excluding thousands of people from the opportunities for education, employment, and belonging afforded to those with the ability to get online. This condition is exacerbated by the economic precarity of many Detroiters, the high costs of residentially-based internet access, and uneven broadband internet service provision. Referred to as "digital redlining," some view disinvestment in digital infrastructure for less affluent, non-white communities as commensurate to discrimination. Many of those affected are school-aged youths who need the Internet to complete their homework, submit job applications, or socialize with their classmates. While most teens have access to the Internet via schools, libraries, or public Wi-Fi connections, they remain at a severe disadvantage if their households are not online. As various grassroots organizations work to build a robust digital ecosystem, and urban development is increasingly influenced by internet accessibility, what kinds of spaces emerge under this evolving techno-infrastructure? If the Internet fosters a more complex sense of belonging, how might the built environment reconfigure to promote inclusion? How does internet access challenge conventional understandings of public and private space? How do teenagers in the iGeneration occupy or navigate a metropolis that is significantly offline? If citizens are emboldened by digital technologies, how might a community-driven network erode hierarchies commonly found in the city?

To address these questions, this project combines publicly available data with interviews of high school students to map digital access and exclusion across Detroit's neighborhoods, identifying sites for urban design scenarios that propose innovative ways to connect physically and virtually. The project results in detailed strategies through which urban design might aid in the development of strong community mesh networks across Detroit for internet access. Those same strategies are then applied to three sites within Shenzhen, chosen because the pervasiveness of digital technology and mobile internet access could strengthen each location's cultural and economic infrastructure.

Team Members:
McLain CLUTTER, Cyrus PEÑARROYO

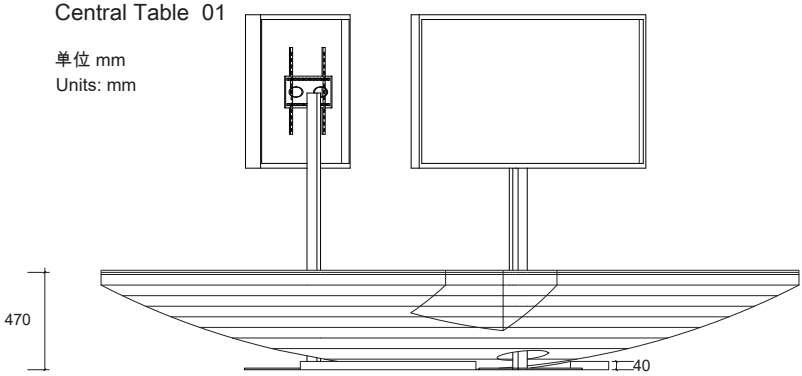
DIGITAL SOCIETY

Number of Internet Service Providers
5 Providers
4 Providers
3 Providers
2 Providers
1 Provider
Maximum Residential Broadband Download Speed

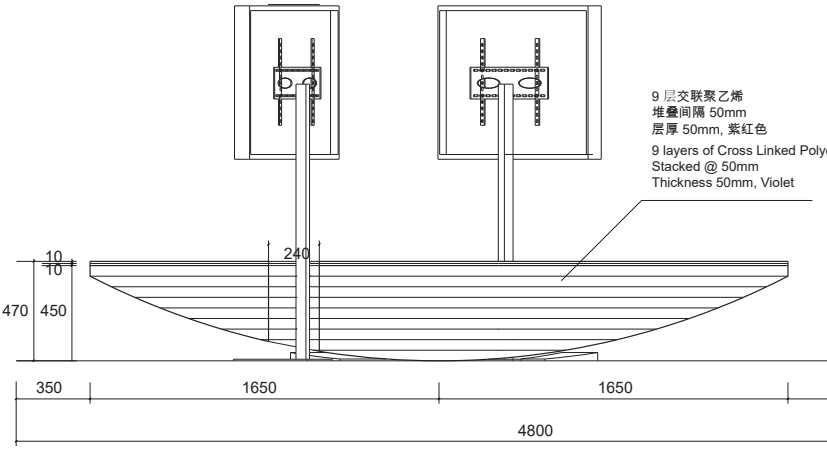
DIGITAL SOCIETY

## 中央圆桌 01
## Central Table 01

单位 mm
Units: mm

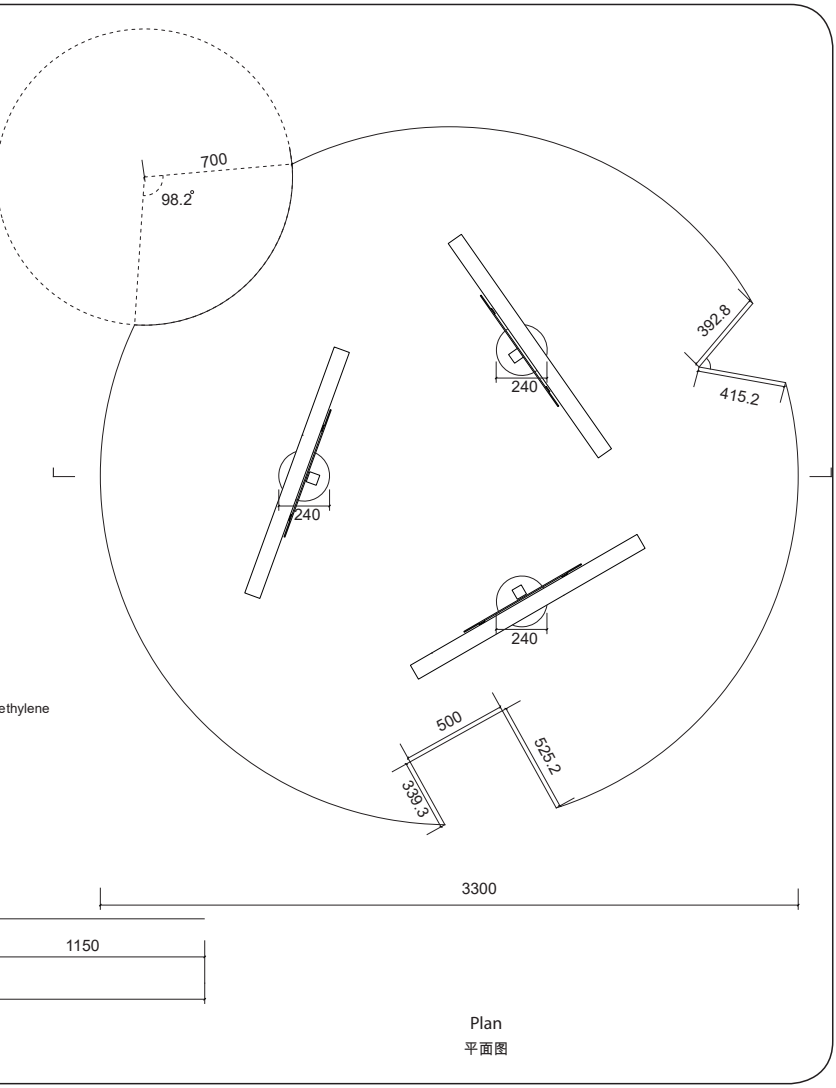



**Section**
**剖面图**




**Elevation**
**立面图**

| | | | |
|---|---|---|---|
| CODE: | 39_DetroitDivide_McLainClutter | SCALE: | 1:20 |
| PROJECT TITLE: | Online/ On-site | DATE: | 2019/ |
| TEAM MEMBERS: | McLain, Clutter / Cyrus, Peñarroyo / Jinghua, Tang | DESIGN CONTENT: | Const |

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Plan
平面图

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truction Drawings

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# Quanzhou Nan'An Cultural Center: the Making of a City's Core

CUI Kai

Located on the southeast coast of Fujian Province, Nan'an City is across the sea from Taiwan Island. It is the starting point of the world-famous "Maritime Silk Road" and the hometown of national hero Zheng Chenggong.The Three Kingdoms Dongwu County has a history of more than 1,700 years. In 1993, with the approval of the State Council, the county was set aside. The city has a land area of 2,036 square kilometers and administers 23 townships, 3 streets, and an economic development zone with a population of 1.59 million. The civic center project area is east to Meilin Liucheng junction Longfengling, west to Fuxin Road, south to Jiangbei Avenue, north to Fenghuang Mountain, with a planned area of 143.63 hectares. The area is adjacent to the Convention and Exhibition Center, Science and Education Center, Xilian Business Center and Sports Center. It is the central hub between the group and the axis of future urban development. It is also the main node and important component of Xixi Riverside City Development and Landscape Leisure Belt. The civic center area is surrounded by mountains and waters, the north side is Fenghuang Mountain, the east side and the south side are Xixi and Jiangbin Park. It has unique natural scenery and mountain form, and will be built into administrative office, commercial finance, culture and leisure in the future. A comprehensive urban center complex with complete functions.

Nan'an has a long history and outstanding people. Zhi County in the Three Kingdoms East Wu Yongan three years (AD 260), named "Dongan County." After the dynasty changed, he used Jinan, Liang An and so on. In the 9th year of Emperor Kaihuang (AD 589), it was called Nan'an County, and Tang Yusheng (684) was placed in Wurong Prefecture. Therefore, Nan'an City is also called Wu Rong.The history of Nan'an City was once the political, economic and cultural center of Hokkien. It is known as the "Zoulu of the seashore". The Jinji Ancient Port of Fengzhou was the starting point of the ancient "Maritime Silk Road". Ouyang Zhan, the pioneer of the Hokkien Culture in the Tang Dynasty, Li Yi, an outstanding thinker of the Ming Dynasty, Zheng Chenggong, a national hero, Ye Fei, a famous patriotic overseas Chinese, and Huang Zhongxian, a well-known patriotic overseas Chinese, are all in Nan'an.There are many famous scenic spots in Nan'an, and there are a number of well-known historical relics and historical sites. There are 5 national-level cultural relics protection units, 14 provincial cultural relics protection units, and 60 municipal cultural relics protection units. Zheng Chenggong Mausoleum, Jiuri Mountain Cliff Stone Carvings, Anping Bridge and Cai's Ancient Dwelling Buildings are known as "The Bridge Without Bridges in the World"; Xuefeng Temple, Fengshan Temple, Lingying Temple, Wuta Temple, Tianxin Cave and many other temples It constitutes a magical religious and cultural landscape; Tianzhu Mountain, Huangchao Mountain and Dagu Island are eco-tourism and sightseeing spots.

DIGITAL SOCIETY

DIGITAL SOCIETY

CODE: 61b
PROJECT TITLE: Quanzhou Nan'An Cultural Center
TEAM MEMBERS: C., Kai

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp

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DIGITAL SOCIETY

## Vend-O-Kiosk

**WE-DESIGNS**

215 BC Roman Egypt, a scientist in Alexandria invents a way for a machine to accept a coin and dispense a fixed amount of holy water correlating to the weight of the coin. In iterations both past and contemporary, vending machines chart the history of our economic behaviors and reflect an underlying playful element in the zeitgeists of urban consumerism and consumer experience, from postal office stamp dispensers and mechanical cigarette kiosks to mid-century automat diner restaurants and the classic children's gumball candy machines. The automated vending machine is an idiosyncratic symbol of the role design technology can occupy as an intermediary between two sides of exchange interactions, and how it can define the very experience and relationship of those exchanges.

Challenging the future of the next economy, how might new technological scenarios in the future of consumption affect the relationship between the human and urban terrains? WE-DESIGNS proposes our "Vend-O-Kiosks" that will be exhibited at UABB in Shenzhen, China, as part of a "tri-city" proposal. The WE-DESIGNS team will also design and facilitate a series of programs and workshops to supplement the exhibitions in Shenzhen, China, with a satellite and parallel exhibition at the A/D/O headquarters in Brooklyn, NY.

In 2019 UABB (Shenzhen), in collaboration with A/D/O Mini (BMW Group) as our programming and research partners and UABB in China as our fabrication partner, we envision this "tri-city" proposal will activate a larger discussion surrounding the ways communities can interact with and re-appropriate new technologies. Connecting cities around the world, this project will initiate a united, global conversation surrounding the future of the next economy.

Our "Vend-O-Kiosks" will also be replicated and populated in various parts of the UABB (Shenzhen) grounds to initiate a novel discussion about the relationship of the man vs the machine. This project will question how the adoption of new technologies will affect the spatial, social, and ethical repercussions of innovation driven by AI. All data collected by the "Vend-O-Kiosks" will be published and publicly available as open-sourced data. Users will learn about the "manual" and the "automated" next to one other, allowing them to witness the machine operated "digital," while still being able to "physically" interact with the objects of "labor."

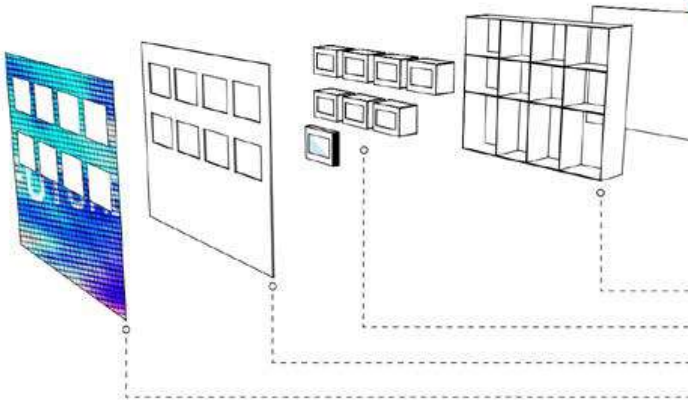
The active discussion with this proposal is to offer these global communities a realistic look at the machines that operate behind the scenes of our daily-lives and to allow them to individually interact with the often unseen and invisibly operating technologies that power our cities. Our "Vend-O-Kiosks" encourage visitors to reconsider the notion that "machines are taking over their jobs," and instead evoke a discussion surrounding the evolution of design practices in our future economy.

DIGITAL SOCIETY

Design Director: Wendy W FOK
Head of Communications: Kristina SORIANO-JACOBS
Head of Strategic Curator: Lillian HE
Design and Research Team: Erin Lee CARMAN, Camila Varon JARAMILLO, Logan LARKIN, Eugene ONG

DIGITAL SOCIETY

This production package designed by **WE-DESIGNS** is to offer a diagrammatic explanation of the steps required to construct our **Vend-O-Kiosk** machine.

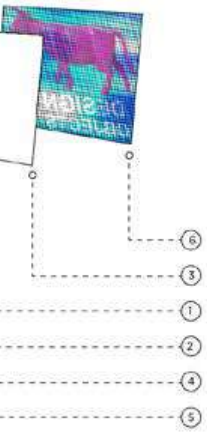


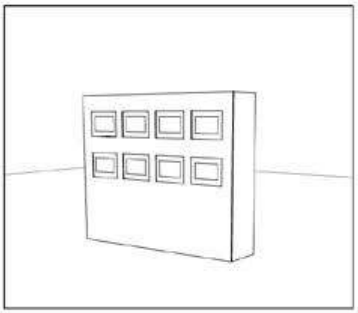
WE DESIGNS

CODE: 20_VendOKiosk_WE-DESIGNS
PROJECT TITLE: Vend-O-Kiosk
TEAM MEMBERS: Wendy W Fok, Lillian He, Kristina Soriano-Jacobs, Erin Lee Carman, Logan Larkin

SCALE: N/A
DATE: 2019/
DESIGN CONTENT: Asser

PRODUCTION DECK - SHENZHEN BIENNALE OF ARCHITECTURE & URBANISM 2019



1) Build Frame

2) Install the a) Display Cases/Screens, & b) 15-inch Touch Screen display

3) Install the Electric Outlets and hook-ups, and MDF back panel

4) Install the MDF front panel, with custom cut holes for display screens

5) Apply Front Vinyl

6) Apply Back and Side Vinyls

REFERENCE: ASSEMBLED DESIGN

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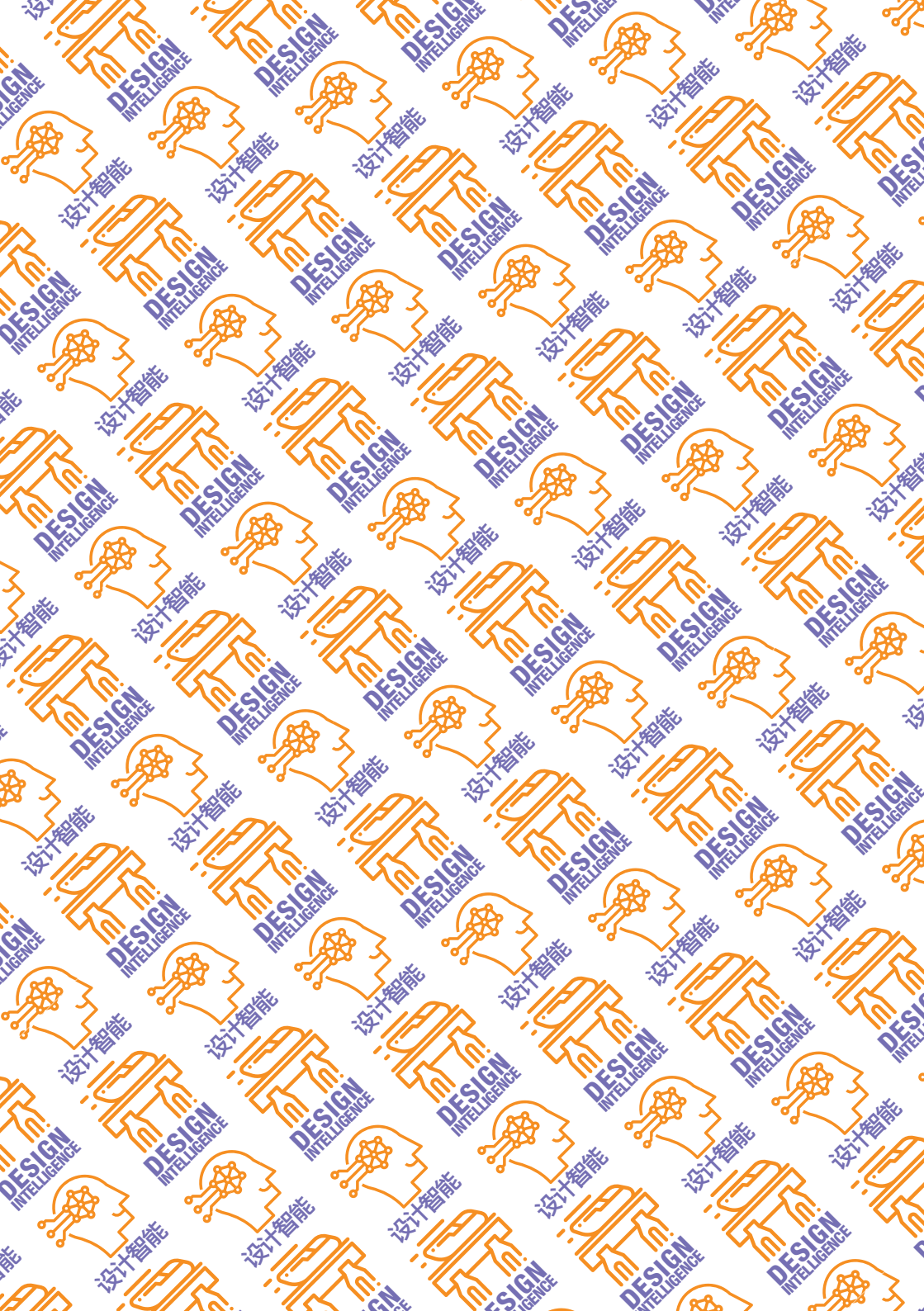

DESIGN
INTELLIGENCE
设计智能

# Section 5
# Design Intelligence

The latest advances in Artificial Intelligence pose many ethical questions. How should machines behave? How should buildings imbued with Artificial Intelligence respond to their occupants? This section explores how the quintessential human prerogatives of “téchne” and “logos” can be hybridized with automatisms and algorithms. Ultimately, it showcases how new technologies are reshaping the ways in which we plan, design and build our cities, and new practices are emerging at the intersection of “bits and atoms”.

## Nomadic Wood (Looking)

Philip F. YUAN

Nomadic Wood (Looking) is a reflection of the dynamic human perception in contemporary city, with the development of digital technology.

The installation is composed of spirally staggered and curved wooden components. Each component functions as a twisted “digital periscope”. Both ends of the wooden component are installed with a screen and a camera. Through one of the screens, the visitor is able to see the scene of the exhibition space captured by the camera at the other end. Meanwhile, the visitor and her surrounding will also be recorded by a camera and transmitted to another screen to be viewed by other visitors. Here, the digital information flow replaces the real senses, and becomes a new medium, through which human perceptions could be extended across time and space.

Meanwhile, with robotic timber construction technology, each component of the installation is fabricated with three-dimensional curvature to simulate the digital information flow. The curved wooden space stimulates real bodily behaviors such as sitting and crossing, and cultivates dynamic social interactions among the visitors. This construction technology breaks through the traditional linear fabrication method of wood material. By using curved laminated timber technology to shape the raw material, and then by using robotic band saw to cut the material in three-dimensional space, it realizes the high-efficient and precise numerical control of free-form wooden construction, presenting the potentiality of robotic technology in shaping contemporary living environment.

Extending the real senses with digital technology, while using actual material to simulate virtual information flow in return, the installation provides the spatial experience of both “dwelling” and “nomadic”, offering the visitors an opportunity to rethink their perceptions in contemporary urban life.

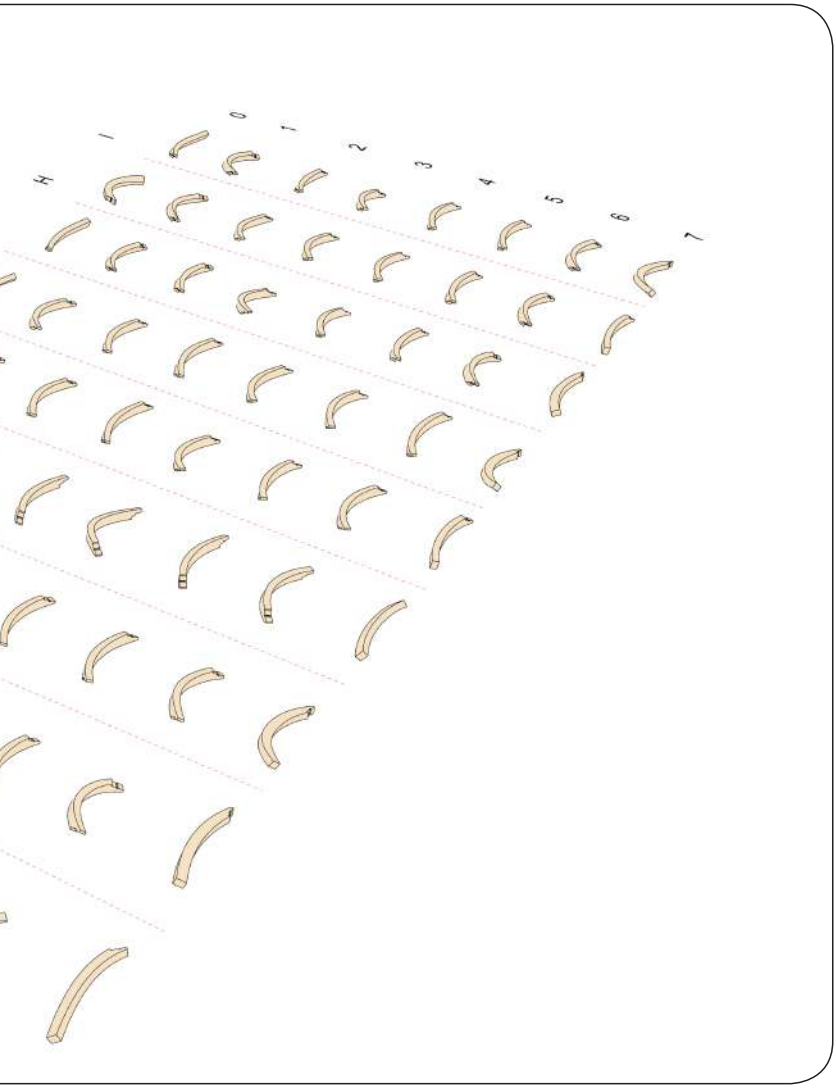
DESIGN INTELLIGENCE

DESIGN INTELLIGENCE

DESIGN INTELLIGENCE

CODE: 40
PROJECT TITLE: Nomadic Wood (Looking)
TEAM MEMBERS: P., Yuan

SCALE: 1:XX
DATE: YYYY
DESIGN CONTENT: Samp

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# AI-chitect

**Future Architecture Lab (FALab)**

Artificial intelligence technology nowadays such as Generative Adversarial Neural Networks (GAN) is able to achieve human's creativity to generate anything based on mechanism that set by human. The model mechanism consists of one "generator" that synthesizes "fake" samples from scratch, and a "discriminator" that evaluates the generated fake samples if they are "real (similar to a real sample)" or "fake (does not fit to any real sample)". Generator and discriminator learn from each other, hence higher discrimination level ensures higher quality of generation. Such mechanism makes machine capable to synthesis images that are almost similar to what you can found in real world.

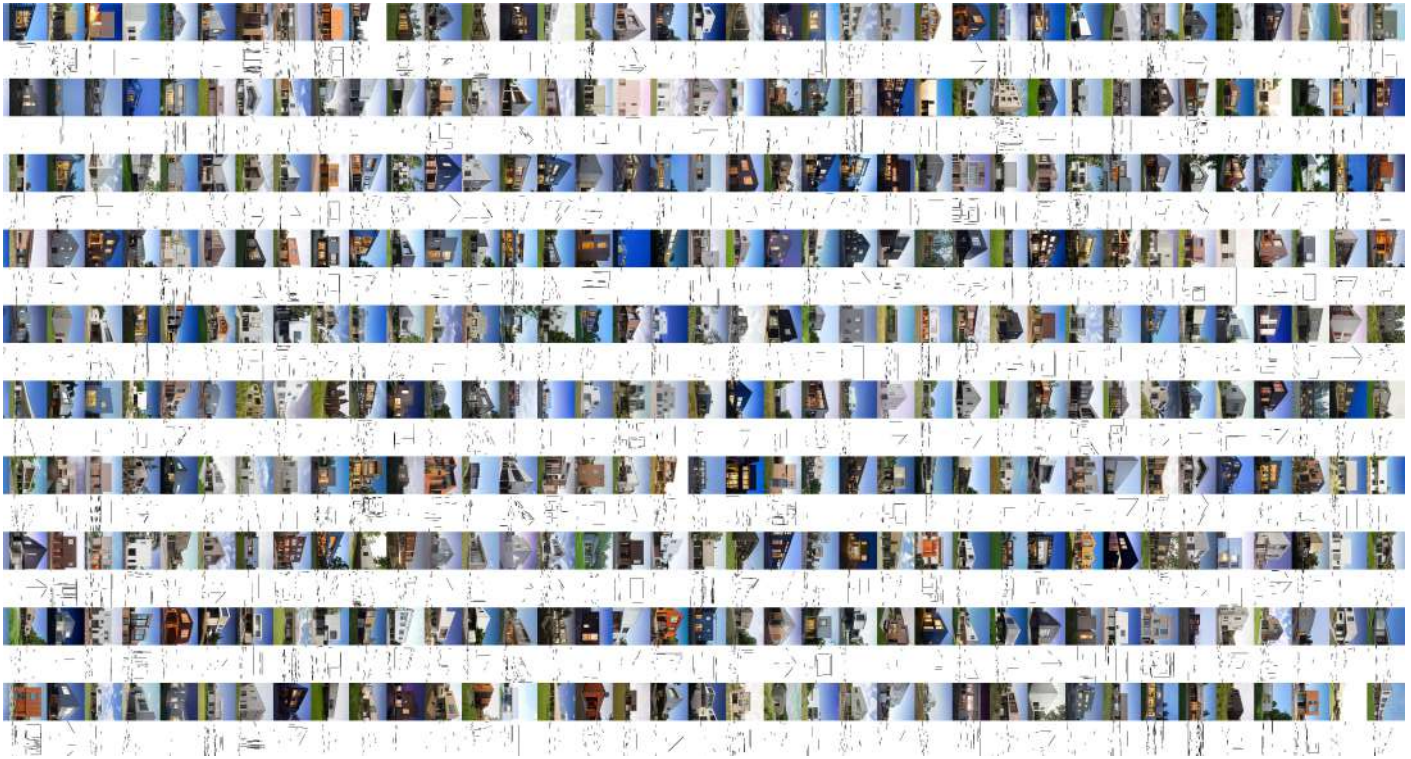
We need real sample dataset to train GAN model. Human needs to control the quality of samples as to ensure the generated output could be reflect on those real sample in some extent. This exhibition's output is a new kind of "architectural representation". Trained model needs new input as trigger to carry out generation. Input here normally is digital image, in this exhibition input will be a roughly sketch silhouette that drawn by human on a sketchpad. Based on input, machine could start its generation without human intervention. Hence, it is only machine itself to be participated in the most "creative" generation part, and human will not know what the outcome will be.

Uncertainty exists in generation phases; the unpredictable generated images might inspire one's imagination or to provoke extensive thinking. Human do not limit themselves in interpretation from these generated images. Such process could analogous to sketching, where one could keep developing his or her design from the sketches on paper. Sketching involves communication between eyes, hand and brain, allowing design idea develops either from narrow to broad, or inversely. The installation is taken part in diverging one's thinking. Hence, this indicates that, by integration of GAN, machine could assist human to broaden creative thinking. Besides, this interactive human-machine installation might also could "reconstruct" the design method or workflow that architects have been practiced for several centuries.

Team Members:
HE Wanyu, LI Chun, Jackie YOUNG, YANG Xiaodi, LIU Kan

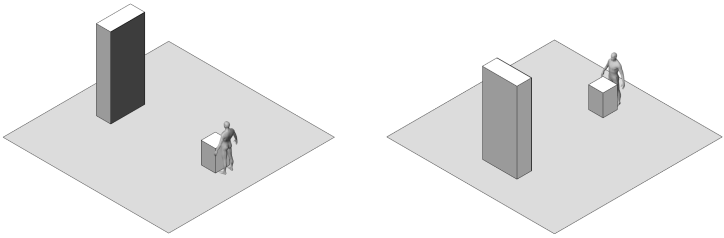
DESIGN INTELLIGENCE

# DESIGN INTELLIGENCE

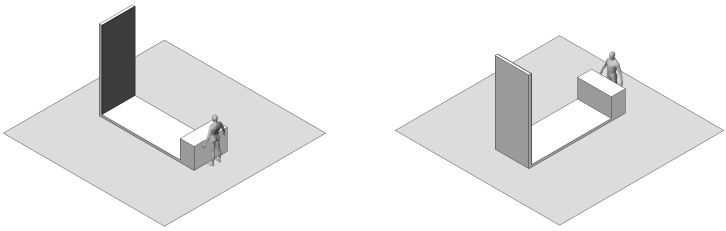


DESIGN INTELLIGENCE

DESIGN INTELLIGENCE



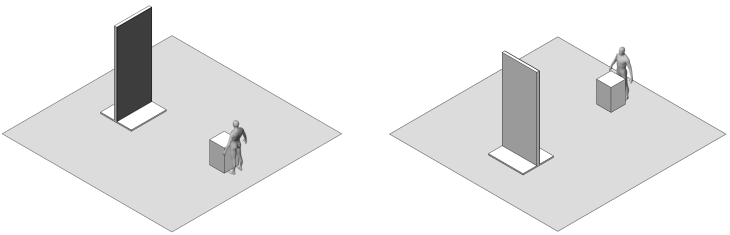
结构外包板　cover the structure with panels



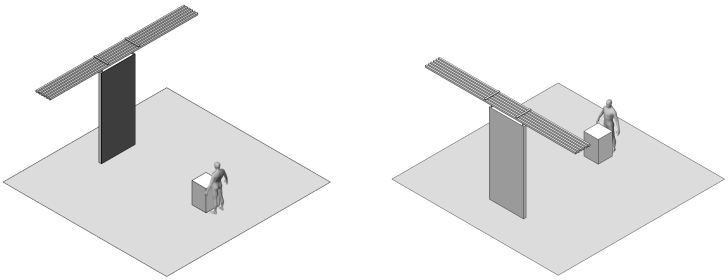
一体化结构　Integration structure

CODE: 41_XKool
PROJECT TITLE: AI-chitect
TEAM MEMBERS: Wanyu He/Xiaodi Yang/Chun Li/Leongshong Yong/Kan Liu

SCALE:
DATE: 2019/
DESIGN CONTENT: AXON



底座加固　Foundation reinforcement



吊顶固定　Fixed on the ceiling

我们想向您询问这种方式是否可行（吊顶不承重，仅起固定作用）
We want to inquiry if this method is feasible (ceiling is not load-bearing, only fixed)

DESIGN INTELLIGENCE

# Urban Skin

**DENG Huishu, ZHANG Li, Marta Mancini**

ARCHITECTURE INDEX
Installation Area: 20.25 $m^2$
Exhibition Area: 30.00 $m^2$
Hight: 0.90 m
Technology Applied: Pressure Sensing Mat; Real-time Data Visualization
Sensors Quantity: 184

URBAN SKIN aims at investigating what typologies of urban space mostly engage the human body. The hypothesis is that different configurations of spaces and surfaces engage people in a diversified way. Meanwhile, they offer the possibility of exploring and challenging bodily awareness and physical abilities.

According to a phenomenological perspective, the human body is the center of the experiential world and the haptic system is the primary perceptual apparatus by which the individual gets information about his body and gets in touch with the environment (Gibson, 1966). Slope angles, finishing materials, distribution of the spatial design are all features that impact on human experience within the urban landscape. They change the center of gravity, suggest movements and engage people's behaviors.

Human skin and urban surfaces become the physical locations of the interaction, the touching point where it occurs. In this sense, the concept of the "Eyes of the City" is here interpreted as the possibility of the urban space to gain a haptic capability, to become sensible and receptive. The urban skin becomes an "inter (active – sur) face" that is able to "see", or better, to "feel" and gather information.

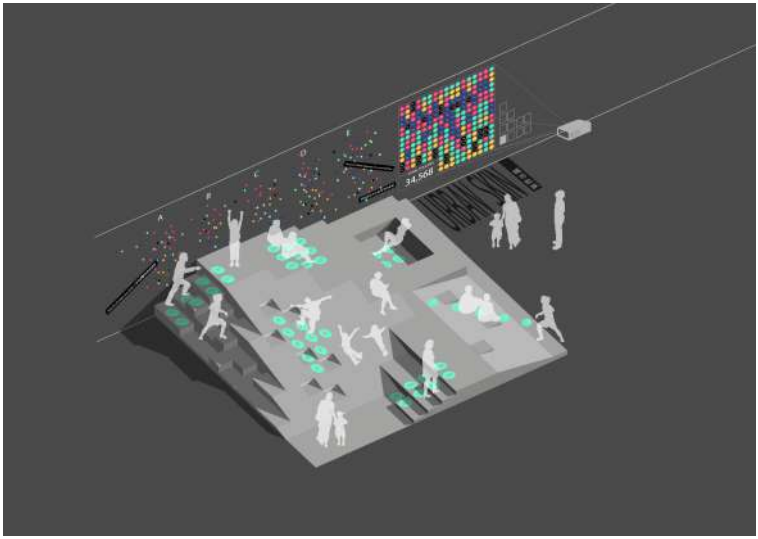
URBAN SKIN addresses the topic of the developing technological ability of buildings (and cities), without aiming to a close-ended solution. The opportunity of taking part to the Shenzhen Bi-City Biennale is considered as a potential occasion to experiment, collect data and advance reflections. The project mainly addresses the following question: which type of urban space is more preferred and engages the human body the most?

Several typologies of urban space are abstracted and integrated into the installation. By embedding digital sensors, a traditionally designed space gains the ability of performing as an active observer through its surface. The engagements with human body are then revealed through the record of the quantity of touches, "felt", recorded, and displayed in real-time.

Chief Curator: ZHANG Li
Concept+Design: DENG Huishu

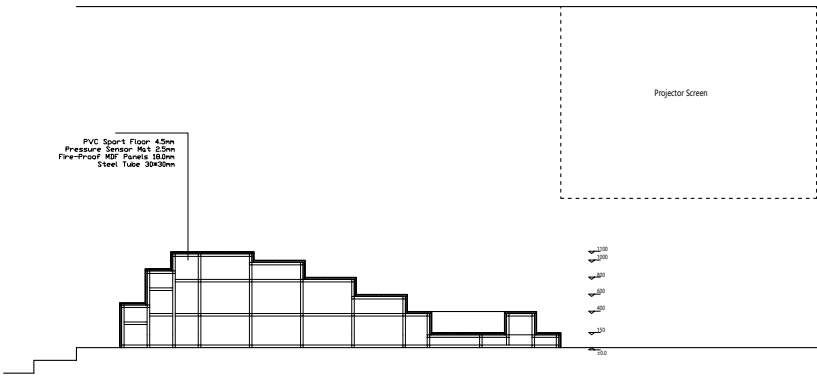
DESIGN INTELLIGENCE

Concept+Design: Marta MANCINI
Project Team: Atelier Teamminus, WANG Ziheng, QIN Huang
Technical Support: Sensing Tex

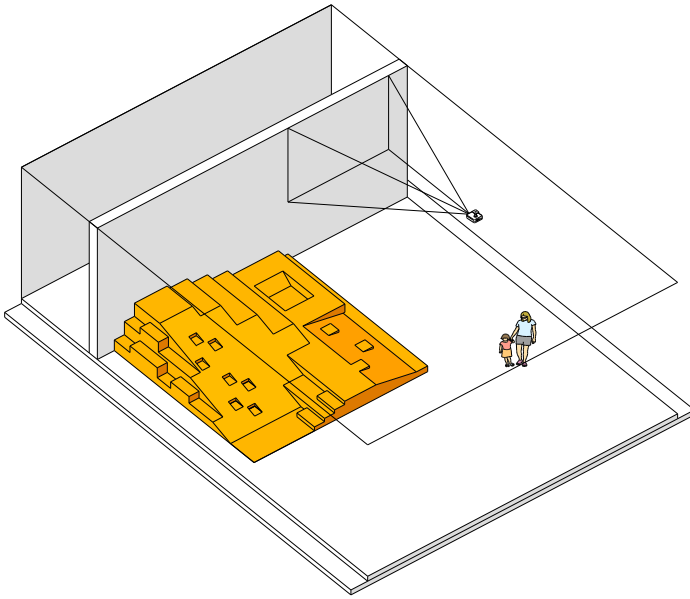


DESIGN INTELLIGENCE

D-d Section

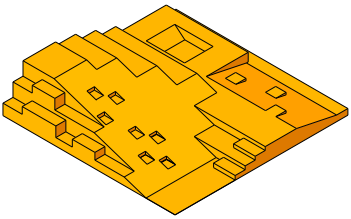



Axonometry
Relation with the exhibition wall

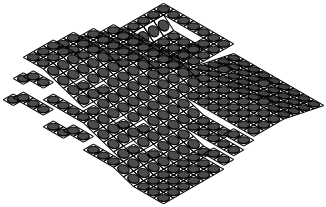


CODE: 42
PROJECT TITLE: UrbanSkin
TEAM MEMBERS: Zhang Li, Deng Huishu, Mancini Marta

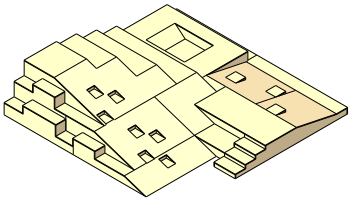
SCALE: 1:50
DATE: 2019/
DESIGN CONTENT: Samp



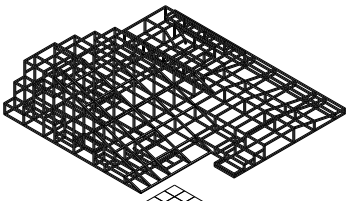
Plan of the MDF Panel



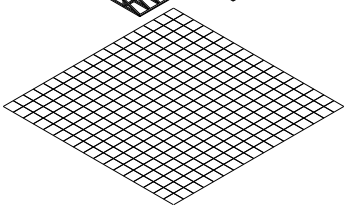
Plan of the MDF Panel



Plan of the MDF Panel



Plan of the MDF Panel



Plan of the MDF Panel

Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

DESIGN INTELLIGENCE

# Everyone is Urbanist with CIIM!

**Future Plus Academy**

"People's City Built by People" has always been one of the slogans guiding China's urban construction, emphasizing the idea that city is of, by and for the people. While China's urban planning mechanism aims to encourage more public participation, its excluding professional practices and abstract expressions make it difficult for the general public to get involved.

It is time to break out of this dilemma of urban planning through tool innovation. Future Plus team members are going to put our imagination into action: Research and Develop "CIIM" – a smart interactive game or model that turns common people to urban designers/ planners.

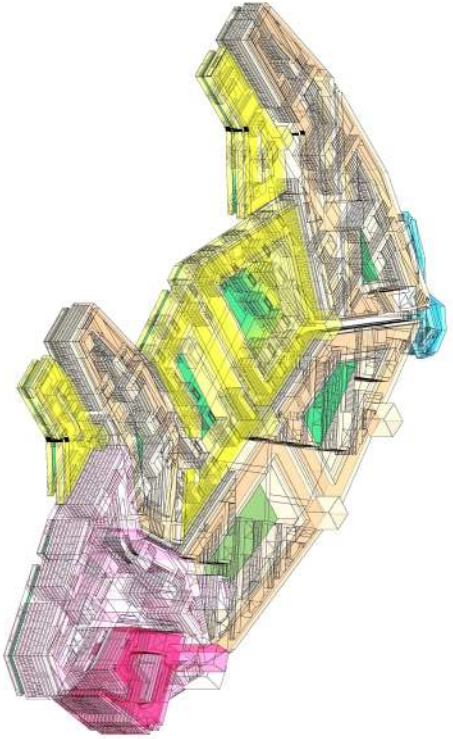
Participants will be asked to choose any sites that they are familiar with, such as the central area of Shenzhen where 2019 UABB is located. The game allows participants to simulate an urban space by using the digital and physical models generated as a result of participants' interaction with CIIM. Participants could assume different roles (urban planners, policy-makers, common people and individual developers) and apply varied planning theories to see how perspectives held by different stakeholders could result in drastically different planning. Participants could also take photos with the "cities" they designed and share them with their friends on social media platforms.

Could "Everyone Is an Urbanist" make "People's City Built by People" possible? Let's play first!

Team Members:
HUANG Weiwen, CHEN Xue, DONG Xu

DESIGN INTELLIGENCE

# DESIGN INTELLIGENCE



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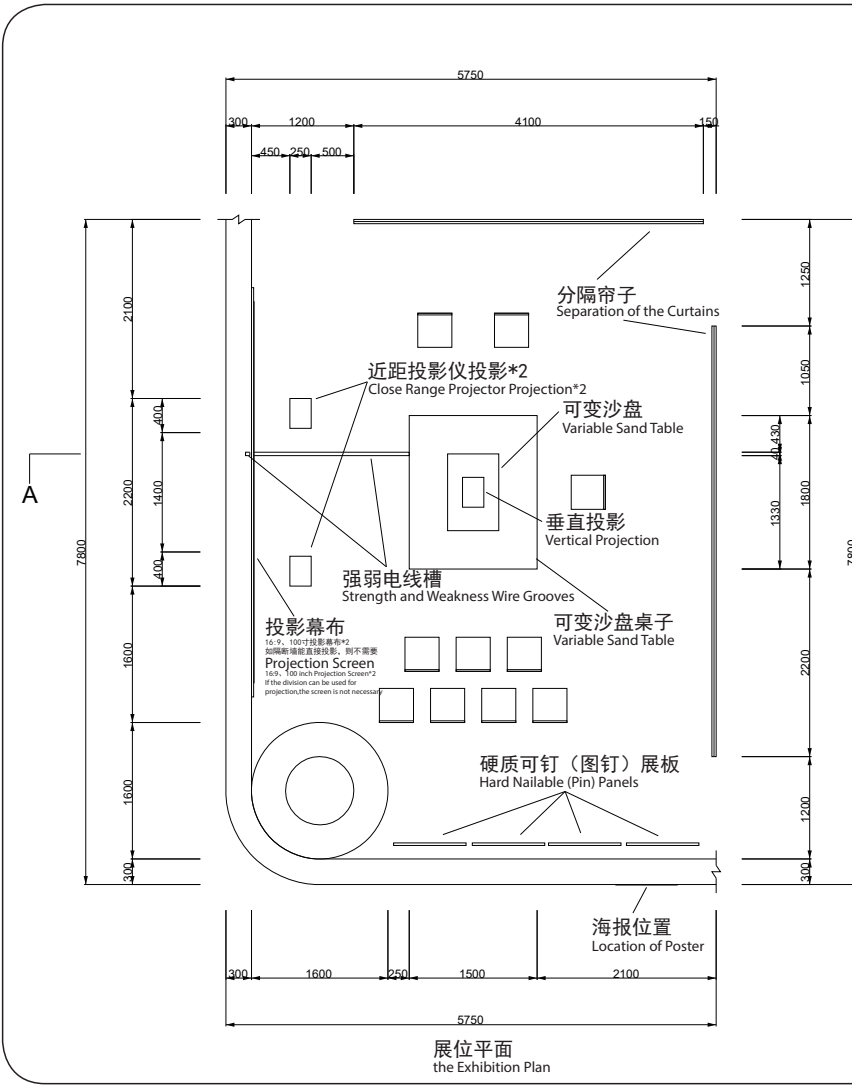
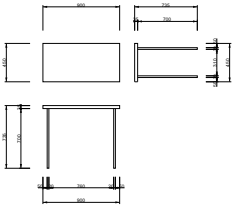
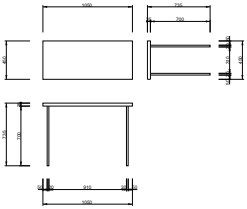



展位平面
the Exhibition Plan

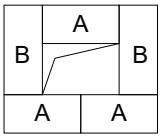
| | | | |
|---|---|---|---|
| CODE: | 43_EveryoneUrbGame_HuangWeiwen | SCALE: | 1:50 |
| PROJECT TITLE: | Everyone is Urbanist with CIIM | DATE: | 2019/ |
| TEAM MEMBERS: | Weiwen Huang/ Xue Chen/ Xu Dong | DESIGN CONTENT: | See E |

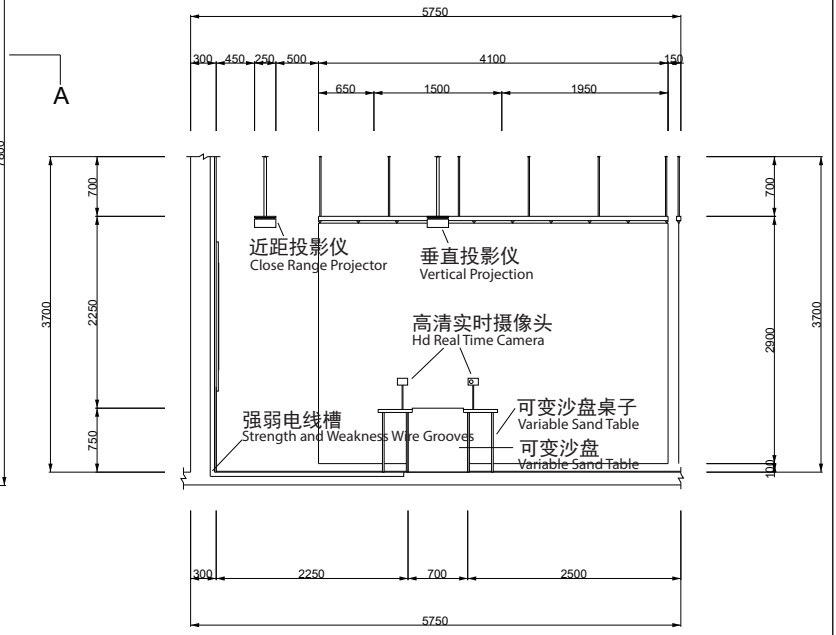


可变沙盘桌子A*3
Variable Sand Table A*3



可变沙盘桌子B*2
Variable Sand Table B*2




A-A剖面
A-A Section

# Re-Coding Post-war Syria: When numbers meet Architecture and Culture

**Reparametrize Studio - Digital Architects**

The aim of this project is to reactivate the past and reimagining the future through the eyes of those who witnessed the war, and to send the visitors on a trip to the neighborhoods of Damascus and the destruction areas using high-resolution images. For a complete experience the visitors take a dive into the timeline of the war and learns about the evolution of the city trough illustrations of the history and the people who lived through the War. Being provided with information on a highest documentation level, using the language of high-quality images, videos and fascinating animations, one can listen to interviews with the local inhabitants focused on their current live style and change during the war. One can also observe the current reality, the grey, unkempt house façades, and the children playing on the rubble. However, this image slowly changes trough the smile of the children a new city starts to regenerate better and brighter than before.

The focus is always on how people adjust to difficult circumstances to be able to lead a life that is as close to normal as possible – how the War and the destruction everywhere became everyday normality, and how slowly but surely a brighter future sets in.

Data visualization is a great way to tell a story. The importance of location data continues to grow so do the ways we can visualize this information. Using Data visualization as powerful communication tool one can imagine the extent of the destruction trough: location data, population density, infrastructural changes documented using 3D scanning and point cloud techniques.

The visitors can observe one of the local neighborhoods in Damascus. The projection mapping serves as a media to attract the curiosity of the visitors who are offered extra choice to see more of the story behind and go inside the picture to experience it through a virtual reality tour using VR equipment.

Senior Researcher: Mohamad Ziwar AL NOURI

Senior Researcher: Atanas ZHELEV

Junior Researchers: Bilal BAGHDADI, Mariya KOROLOVA, HU Yongheng, Raghad Mohamad HAMMOUR, Louay SAKER

Technical Sponsors: Mouaz SHUBAT, Lillian ALWAA, Mohammad JUMAA, Iurii SUCHAK, Ivan TOCHEV, Mohamad Bassam AL NOURI, Muna DANAN, Mounira EL ALTI

DESIGN INTELLIGENCE

DESIGN INTELLIGENCE

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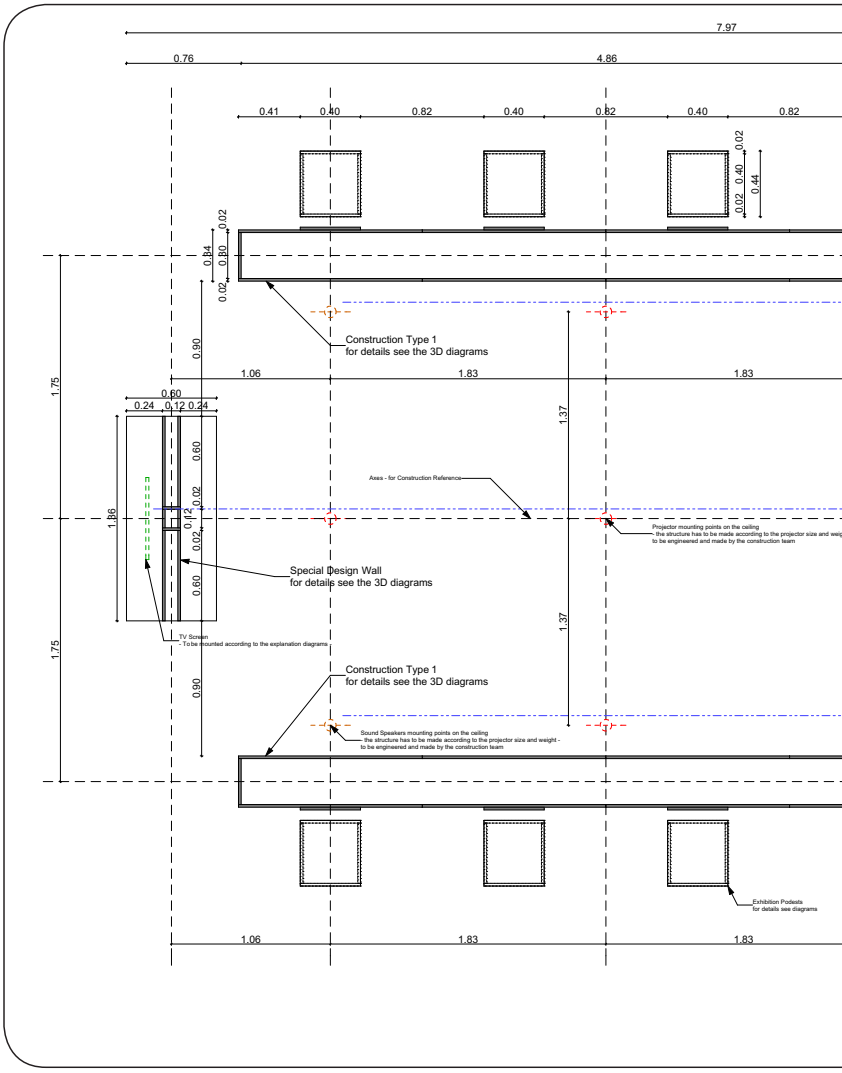
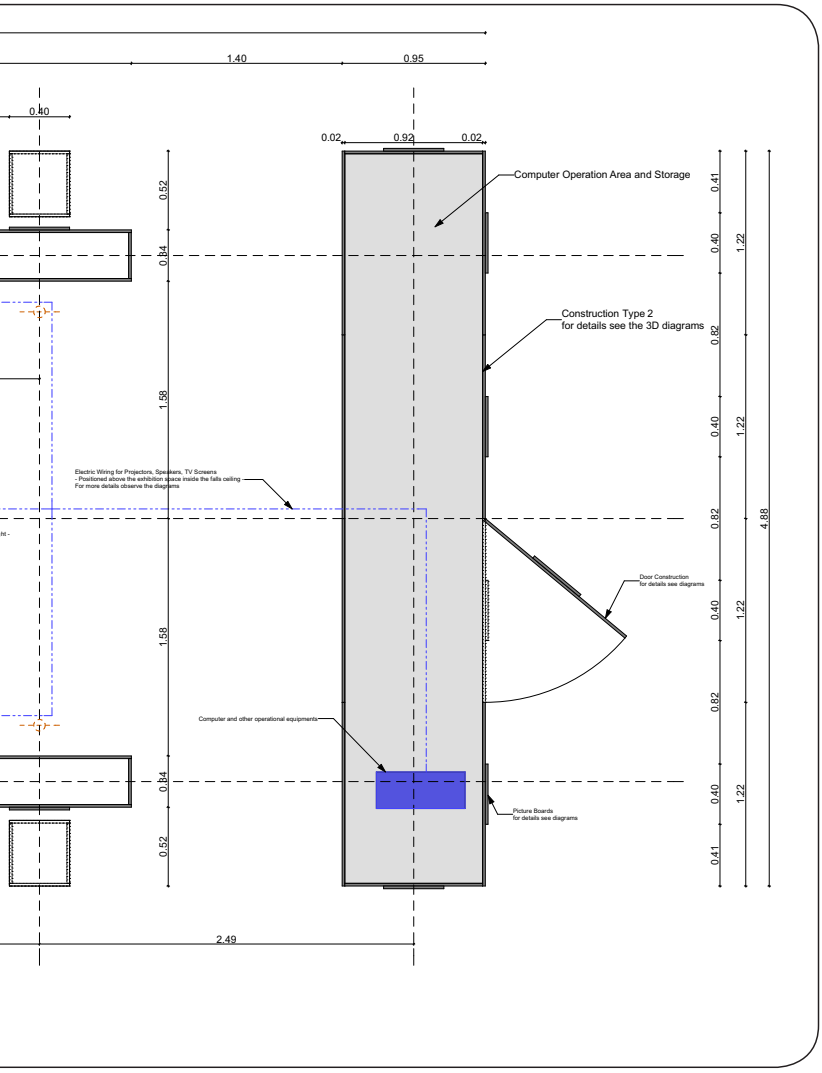



CODE: 44
PROJECT TITLE: PostwarSyria_UnivInnsbruck
TEAM MEMBERS: Ziwar Al Nouri, Blal Baghdadi, Atanas Zhelev, Mariya Korolova, Toto Hu

SCALE: 1:10
DATE: 20.09.20
DESIGN CONTENT: Floor Pl

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## Cities for Humanity

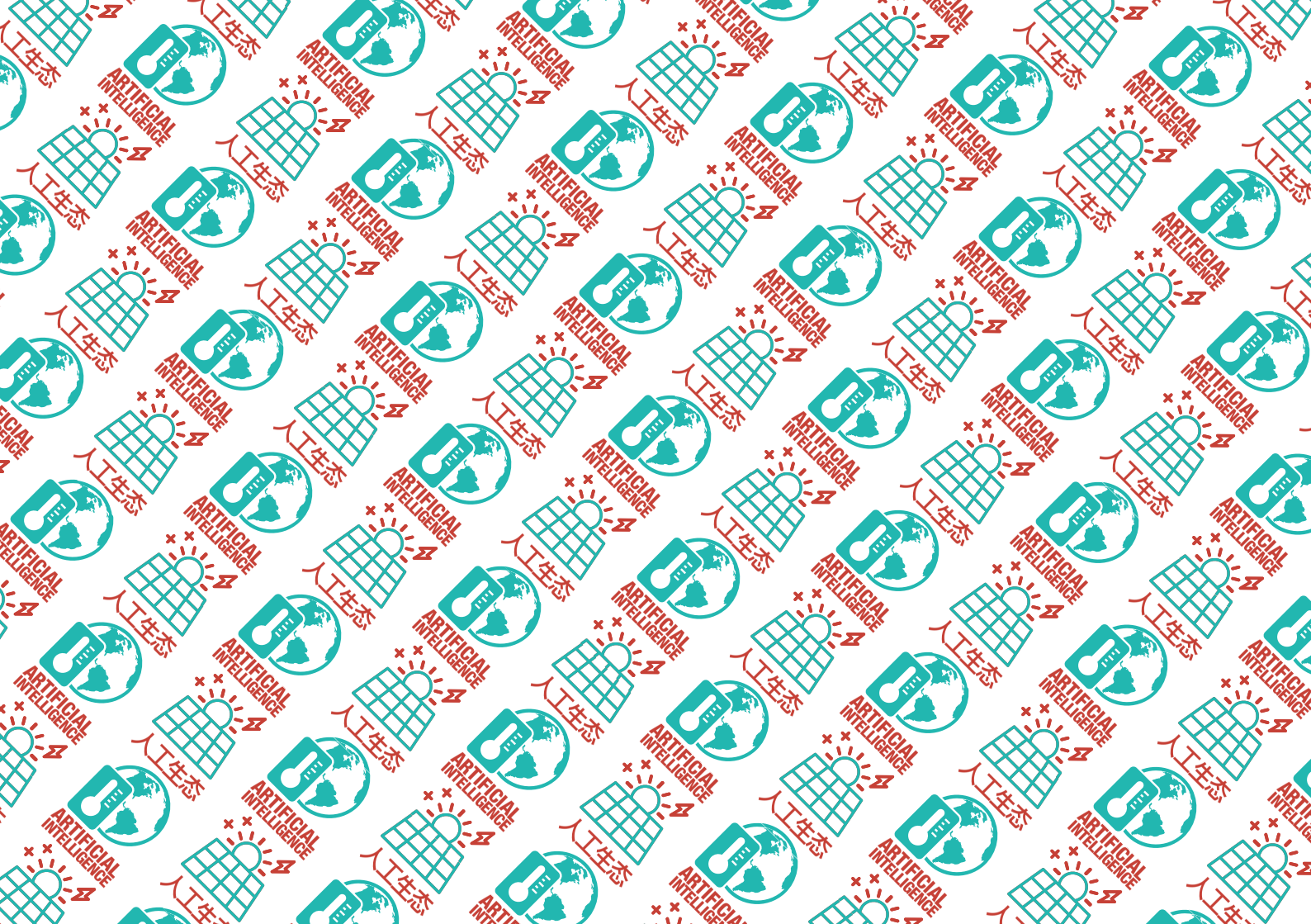
**Thomas Heatherwick**

A filmed interview with Thomas Heatherwick on the subject of human-centred design and the future of cities in the digital age.

Discussing the studio's approach to designing public spaces for cities Thomas Heatherwick addresses some of the criticism that has been levied against the concept of data-led cities more broadly. Whilst concerns have been voiced about some of the potentially negative aspects of living in data capturing smart cities, these technologies, he suggests, also herald many possibilities for a more inclusive and sustainable future. It is clear that this is an area for debate and discussion in order to steer ourselves to embrace a future that celebrates new technologies whilst also making exciting and beautiful places at human-scale. The role of three-dimensional design in our cities is as important now as it has ever been and the role of the designer is to make better places for everyone.

The projects discussed include: Google Charleston East in Mountain View, California, (designed by Heatherwick Studio together with BIG), the project "1000 Trees" in China, and the project "New Bus for London"

DESIGN INTELLIGENCE


ARTIFICIAL
INTELLIGENCE
人工生态

# Section 6
# Artificial Ecologies

Computing is accelerating the hybridization between the natural and the artificial in our cities. Cyborg-ization is moving the natural towards the artificial. But a symmetrical approach is bringing the artificial – and in particular the built environment - towards the natural, thanks to the ubiquitous presence of sensors and actuators. This section explores how the above forces are leading towards a new cybernetic ecology–a network in which everything is connected.

# Monarch Sanctuary Bioinformatics

**Mitchell JOACHIM, Vivian KUAN, Terreform ONE**

The Monarch Sanctuary Bioinformatics project aims to generate a spectacle in designing for non-humans. It uses live organisms combined with complex data to help the public SEE an exquisite organism at the edge of existence. Biodiversity is disappearing in cities everywhere; we must prevent this alarming destruction of habitat. We choose just one insect out of ten thousand known species that vanish every year to represent this massive decline in diversity.

Since the proverbial dawn of modernity, occupants of cities have suffered in a difficult relationship with nature. Leo Marx (and others) have diligently argued that cities and nature are essentially inseparable, which explains this pervasive tension. Cities operate as a massive system of interrelated complex organisms within an even larger system of organisms. These interdependent resources and disparate urban/ nature operations don't necessarily SEE one another. One overarching goal of municipal governing parties interested in sustaining cities was to make ecology visible.

Manifesting ecological routines into a visible spectacle is a utilitarian mechanism for building awareness and communicating intentions. Instead of burying or hiding urban metabolic infrastructure, reversing its presence is desirable. Foregrounding nature as an aestheticized and functional event in its myriad of forms is an excellent design objective. Giving citizens the capacity to SEE waste, energy or water systems in flux highlights their value and immediacy. For "Eyes of the City" our initiative at Terreform ONE concentrates on visualizing nature, or more specifically biodiversity itself. The objective was to reintroduce biodiversity everywhere feasible into the urban realm, from inside intelligent building skins in the exterior pockets of landscape mosaics. The outcome for this endeavor culminated in visualizing a certain fragile urban insect species at the edge of extinction. We wished for denizens of NYC to perceive biodiversity through the lens of a Monarch butterfly and in turn see their own environmental needs reflected back.

The Monarch Sanctuary building works to enable the public to witness biodiversity in the urban realm. It is intended to serve as an object lesson for "Eyes of the City" with salient green technologies. The aim is to make a spectacle which includes plant life, in designing for other species and in conveying images of new possibilities for urban regeneration. Our building program wants the citizens of NYC to visualize our failed relationship with nature, especially as it relates to habitat destruction. This project alone will not save the Monarch butterfly from extinction but it will crucially raise awareness about our much-loved insect residents.

Team Members:

Mitchell JOACHIM, Vivian KUAN, Nicholas GERVASI, Theo DMITRASOPOULOS, Zackary SAUNDERS

ARTIFICIAL ECOLOGIES

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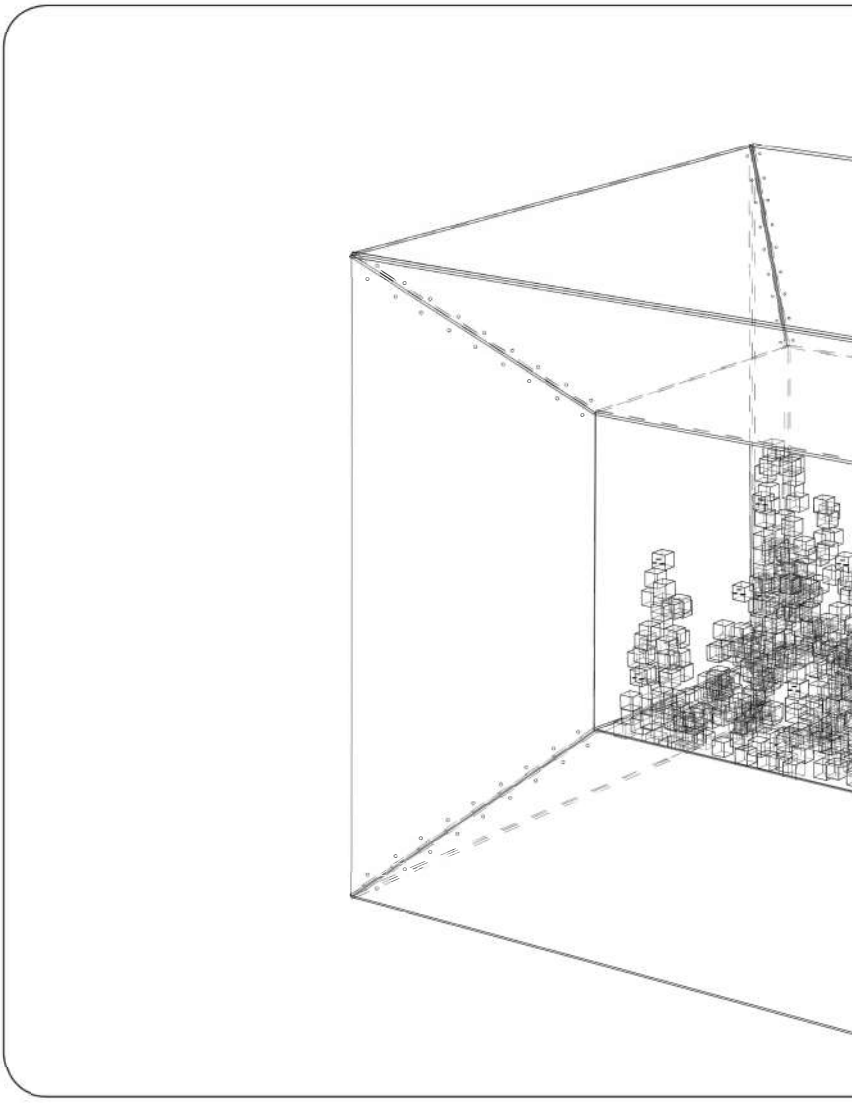
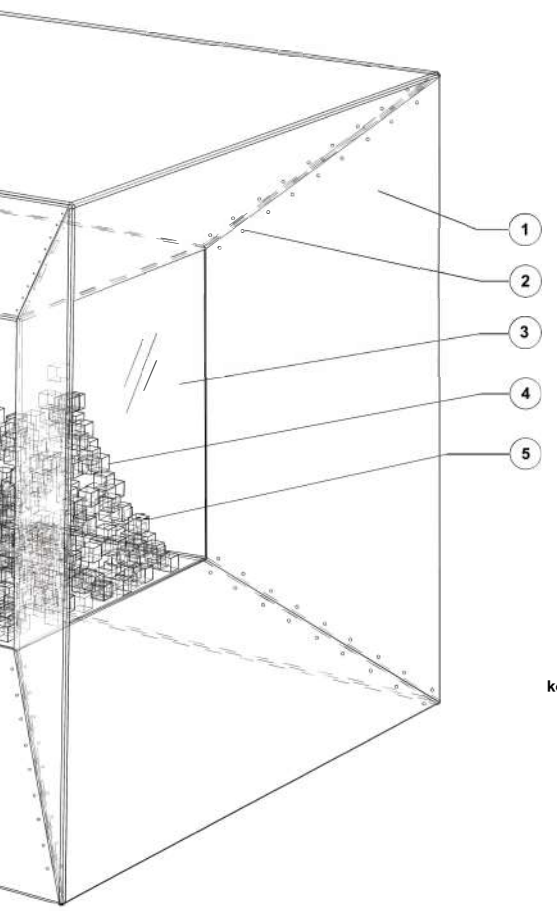


CODE: 45_MonarchSanct_MitchellJoachim
PROJECT TITLE: Monarch Bioinformatics
TEAM MEMBERS: Mitchell Joachim, Terreform ONE

SCALE:
DATE: 201
DESIGN CONTENT: Exhi




**key:**

1. ply-boo tesseract box, painted white
2. bolted connections, see details
3. glass cube w/ perforations, see details
4. styrofoam e-waste
5. living mealworms

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"Eyes of the City" Exhibition

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# Dusts Chambers: What does a dust sensor see?

Adam HUDEC, Tomas TICHOMIROV

Most of us, as data says, live in cities suffering from a constant high level of airborne dusts pollution. Yet, we do not perceive the 18 kilograms of dusts that every human being on average inhales in a lifetime. Therefore we developed devices that deconstruct air pollution into readable data and visualise the information that describe dust processes in atmosphere in a precise but not always factual ways. These devices are dust detectors, simple optical sensors counting the number of particles within a certain volume of air.

Dusts sensors constantly monitor the movement of airborne dusts particles on the scale of a street, city, country and globally. Visualization of particulate matter clearly links the human presence mirrored in amount of particles in the air. Therefore, we perceive airborne dusts as a medium of transformation and contact between the human and the non-human world, between nature and culture. Through this medium we can understand the impact of our actions upon the environment.

Dusts Chambers exceed our perception of airborne dusts that is invisible to naked human eye. By rendering an urban (air) condition readable by sensors only we can reconstruct a dusts-measuring-device in a way that makes it not only a device producing data, but also offers an interactive and sensual experience between humans, technology and the urban environment.

The interactive experience is curated by real airborne dusts collected on different places in Shenzhen, meeting in a single exhibition space. Dusts Chambers are technological devices to help us perceive the environment, they act almost as a human sixth sense: to perceive, to feel, to see and to smell the invisible. Dusts Chambers are time accelerating machines which foresee our futures through dusts. They are interactive instruments which highlight the relationship between human and non-human world. Exteriorized, uncontrolled and invisible processes of motion, transformation and contact take place within the devices and are rendered perceptible by the naked eye. These chambers combine, separate, contain, release and act as technological entities for the dust could become the only collective trace we leave on Earth.

Team Members: Adam HUDEC, Tomas TICHOMIROV
Sponsorship:RESPILON Group
Research support: Dusts Institute

ARTIFICIAL ECOLOGIES

# ARTIFICIAL ECOLOGIES

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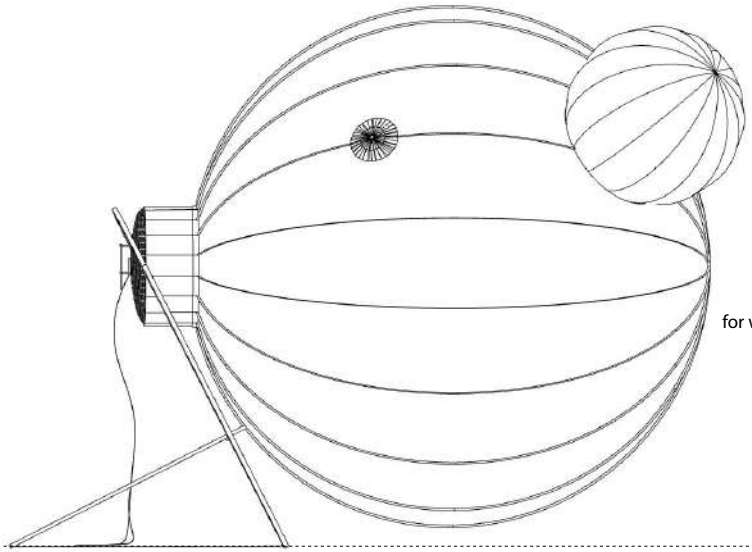


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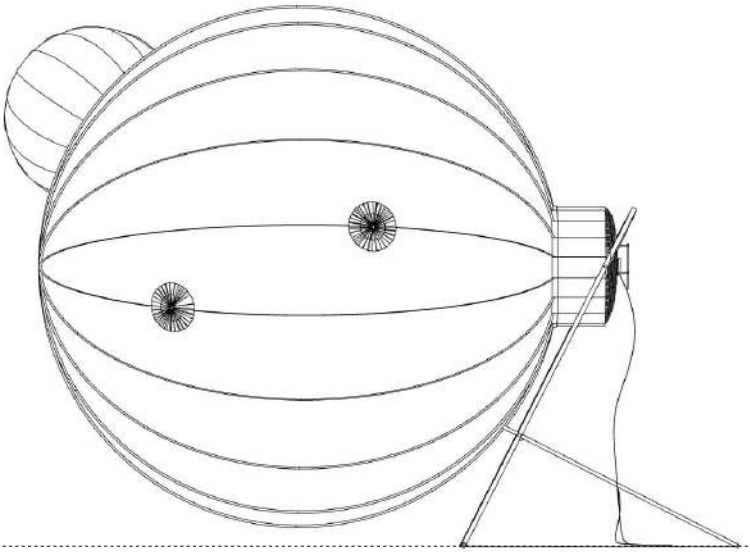
|---|---|---|---|
| CODE: | 48_DustChambers_AdamHudec | SCALE: | 1:XX |
| PROJECT TITLE: | DustChambers | DATE: | 2019/ |
| TEAM MEMBERS: | Adam Hudec/ Tomas Tichomirov | DESIGN CONTENT: | RIGH |

HEIGHTS



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IT/LEFT VIEW

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7th Edition - 2019
“Eyes of the City” Exhibition

# Internet Of Breaths

**Team IoB**

In the rapid rise of new generation 5G networks, IoT devices increasingly play a role in the management of societies driven by individual movements and actions. As much as engines has changed the way and the right of way humans move around places, smart devices such as smartphones and wearables fundamentally transform the mechanics of social networks and information flow. New institutes and regulatory bodies such as MIT's Media Lab, Oxford's Institute of Internet have since emerged around different parts of the world to experiment new governance paradigms for data-driven societies.

In the age of data-driven societies, the so-called "connected society", when standards are considered flawed, incomplete, or unusable without an input from regional individuals. Through interactions with international societies, regional governments will enjoy improvements in administration efficiency with more accurate compliance standards, which translate to richer urban management and new policing features (social credits and rewards), organic policy evolution, faster emergency responses, and resilience to global crises. All these factors contribute to justify incorporating data collection and action prompts into everyday objects, such as a mask, where a future with a 'god eyes view' guarding our health can be envisioned.

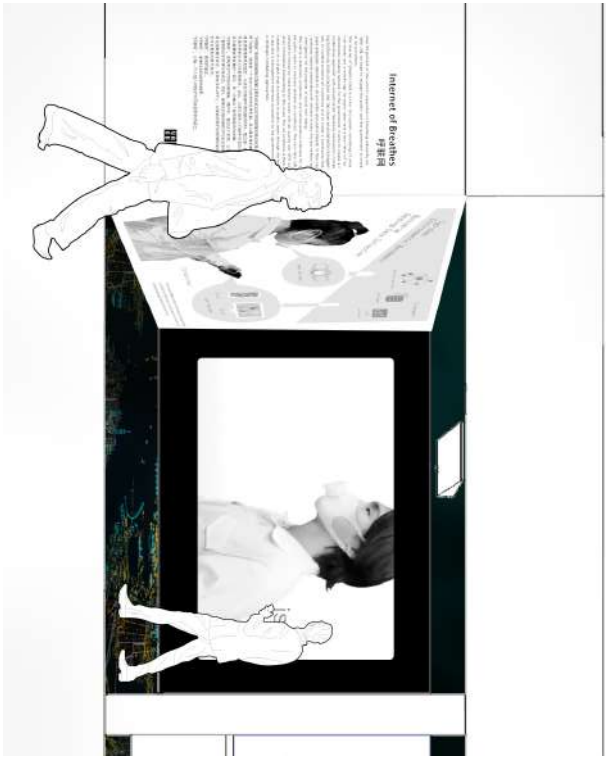
The Internet of Breaths (IoB) derives from such dynamic situation. IoB is a two-fold system consisting of smart air masks and a mobile app for public users and a real-time IoT environmental sensing network for the government. It aims to create a collaborative approach with decentralized feedback mechanism, combining bottom-up data collection and top-down environmental management, to combat extreme air conditions and to foster a community that pays adequate attention to air pollution and public health. Over 95 percent of the world's population is breathing unhealthy air. With IoB, we hope to engage the public and the government to combat air pollutions. In this case, everyday objects interacting with citizens in daily life are imbued with intelligence for the purpose of social well-being.

The IoB is a detection, protection, and communication interface for the public users to measure ambient air conditions. The real-time IoB network is formed by mask sensor nodes with air quality and GPS location information transmitting to the cloud. The air condition is then visualized on a digital map accessible to public users through the mobile app and a management interface accessible to the government to take strategic combating approaches.

Connecting to the IoB is a manifesto, one that reconfirms our sensitivity of the social and natural environment, one that shows our determination to charge against air pollution.

Team Members:
WANG Yujie, ZHANG Yuxiang, ZHU Ziyuan, Adolphus LAU, ZHAO Jiaxi, RUAN Jianan, WANG Dinglu

ARTIFICIAL ECOLOGIES

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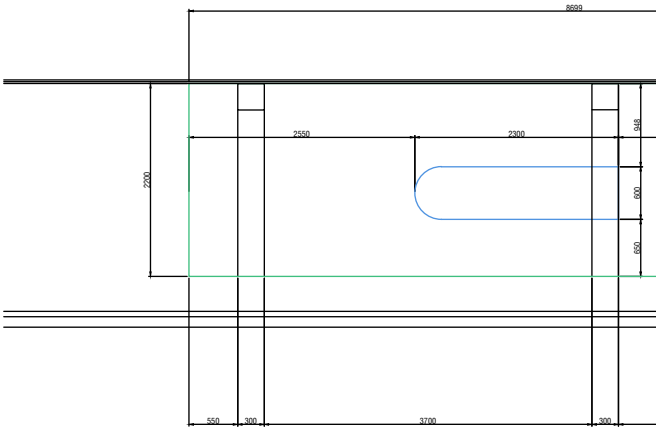


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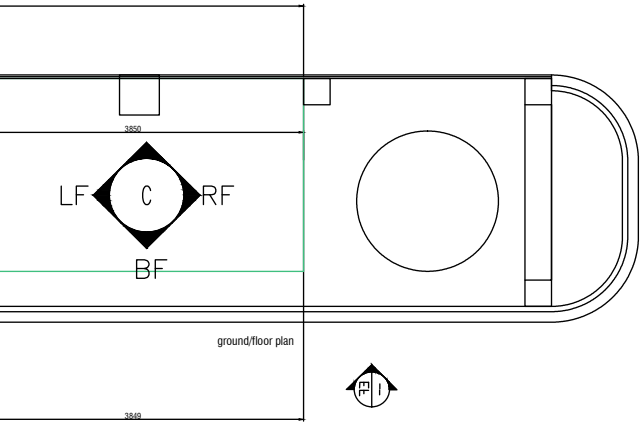
|---|---|---|---|
| CODE: | 49_InternetOfBreaths_YujieWang | SCALE: | 1:60 |
| PROJECT TITLE: | Internet of Breathes | DATE: | 2019. |
| TEAM MEMBERS: | YJ., Wang / YX., Zhang / ZY.,Zhu / DL.,Wang / A.,Lau | DESIGN CONTENT: | Floor |

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Plan

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# Landscapes of Data

Jason HILGEFORT, ZHOU Yifan, FAN Junyi

Not only has technology brought about a fresh notion of seeing the city, but it has even brought forth new concepts of what a city is and whom is a part of the city. As our contemporary cities have expanded in physical form, so has their footprint. Dichotomies of rural and urban have started to blur, as it is more and more evident that our urban spaces rely upon the "rural" for its sustenance. Further, the infrastructures that once defined out notions of the city have extended out into the hinterlands and are industrializing the countryside. Concepts like constellation urbanism attempt to describe our cities not by the walls that used to define them, but the nodes and networks that link them. But despite these systematic linkages, the human connections are often lacking in our modern society.

This installation is based upon a real project and real client on the edge of Ningde in Fujian province. The client is a high tech, data client. They possess spatial imaging patented software that they use to gather data from their satellites, drones, and cameras within greenhouses. With their "eyes" they observe their foodscapes or high tech farms. They collect this data on how the plants grow, how soil behaves, etc. and that is their 'product' – the data – not the plants themselves. This allows them to possess immense knowledge on the nature… of nature… and how it relates to what we all eat to survive.

The installation itself seeks to illustrate how these layers of viewing datascapes allows for a different engagement for citizens with their food, how their food is made, the communities it is made within, the networks that bring them their food, and the communities of people that work to provide these food sources. We literally break the layers of viewing into extruded forms and allow visitors to engage with the plants on different levels and from different perspectives. We project the data harvested from the site back upon the installed landscape components to depict to the viewer the reality of this extra layer that can be 'seen' with these new lenses.

As our eyes are no longer limited by our human capacity, our cities are no longer limited by what we humans can walk to. Technology has warped our world its landscapes. We can leverage this warped reality to bring us closer to each other even if we are far apart.

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On-site peculiarity

abstract visualization

ARTIFICIAL ECOLOGIES

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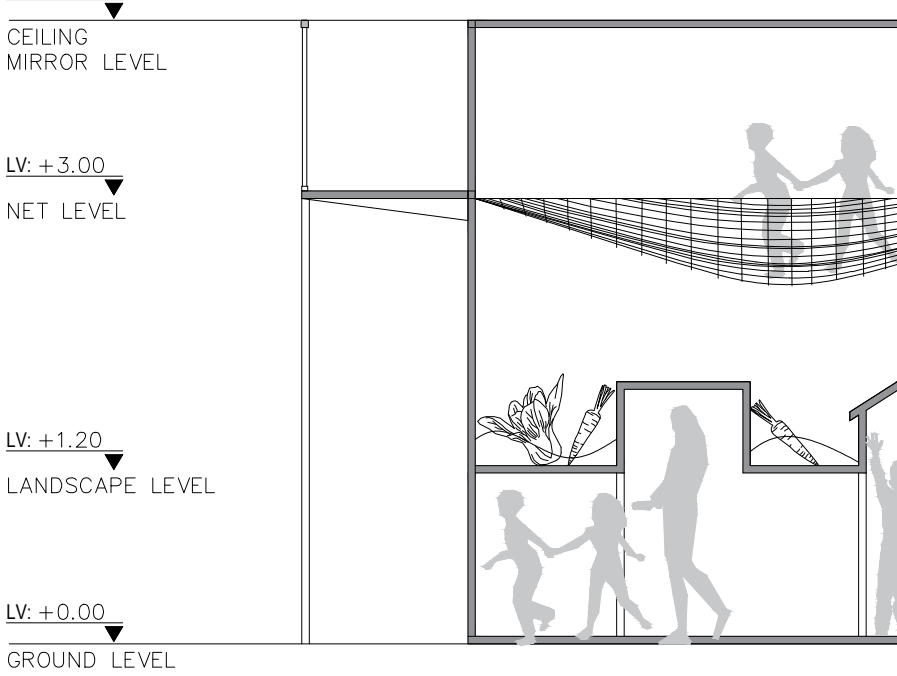
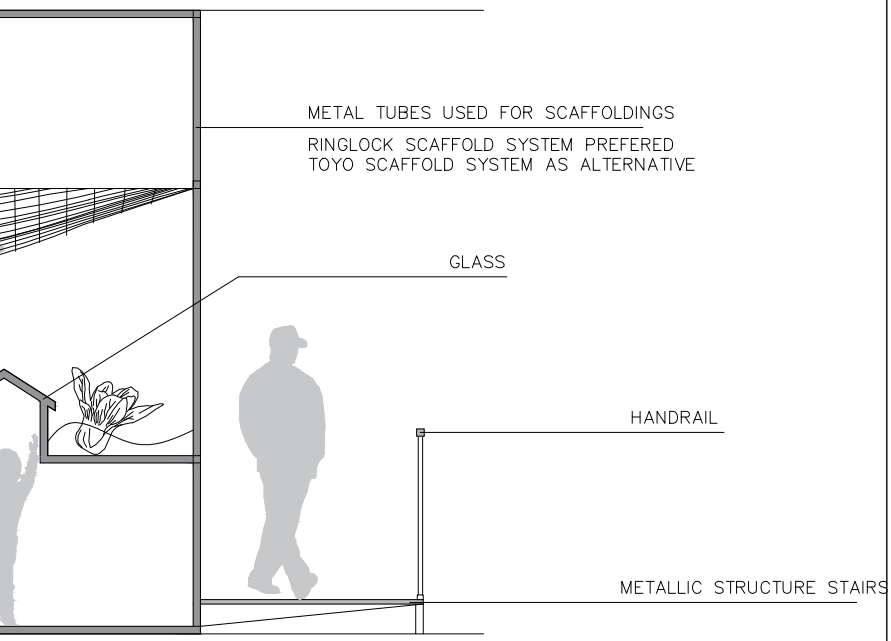



3 SECTION– STRUCTURE
SCALE 1/50

| | | | |
|---|---|---|---|
| CODE: | 50 | SCALE: | 1:XX |
| PROJECT TITLE: | Landscape of Data | DATE: | YYYY |
| TEAM MEMBERS: | J., Hilgefort / Z., Yifan / F., Junyi | DESIGN CONTENT: | Samp |

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE
深港城市\建筑双城双年展

## Green the City Sky

**The Nature Conservancy-Shenzhen Conservation Program**

We live in a rapidly urbanizing world, according to Chinese National Bureau of Statistics, over 57% of China's population now live in cities. The movement of people from rural to urban areas increases the need to expand the built environment of the city, leaving less and less space for nature. With urbanization, the separation of humans from nature is becoming increasingly apparent. Coupled with the rise and wide-spread of use of technology, many feel further and further away from the natural environment.

Some perceive cities as a space of consumption where many find comfort in the artificial, and they stand as obstacles to living in harmony with nature, but this does not have to be the case. In today's urban environments, there are many opportunities to engage with the natural environment, sometimes in the most unexpected spaces. With its wide-spread access, technology has become an essential part of our daily lives, connecting people to one another. Our project aims to use technology as the tool to bring nature back to the lives of urban residents.

Design project "Green the City Sky" takes on a slightly different interpretation of the "Eyes of the City". By utilizing simple technologies that are commonly available to everyone, we can help people see the different spatial facades of the city where green infrastructure exists, and create an opportunity for people to interact with them. This project responds to the question "How will the new technological scenario change people's behavior in the city? How will this articulate the relation between human body and urban space?" from a perspective of protecting the city's natural environment. Through this project, we want to rebuild the relationship between humans and nature through an interactive user experience on a virtual platform. On this platform, visitors can learn about urban sustainability development and the possibilities to interact with nature in uncommon spaces like rooftops. With a specific focus on Shenzhen, users will have the opportunity to express precisely where they would like to see more natural infrastructure projects. The data collected can assist urban planners and designers to support residents' needs and create a better, more sustainable urban environment.

Team Members:
YU Xin, ZHANG Xunyu, Xue Er QIANG

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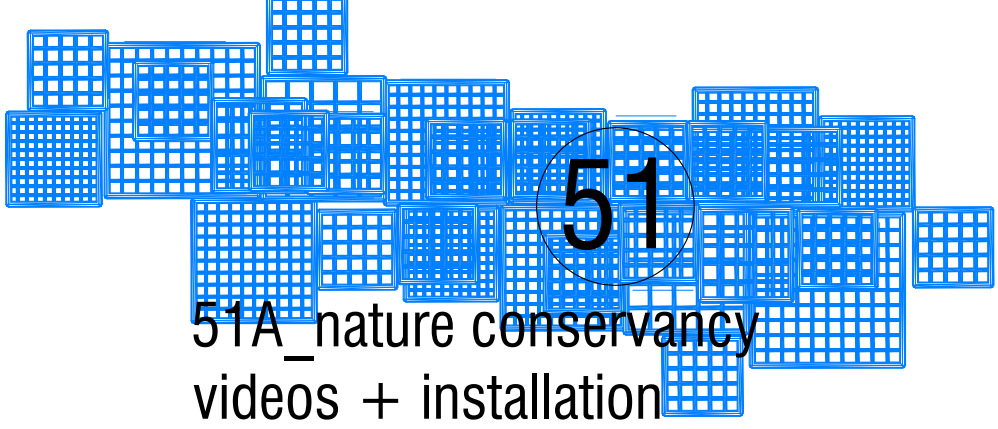
The Nature Conservancy
大自然保护协会




# 51A_nature conservancy
# videos + installation

SCALE: 1:30@
DATE: 2019/
DESIGN CONTENT: Green

CODE: 51_NatureConservancy
PROJECT TITLE: Green the City Sky
TEAM MEMBERS: Xunyu Zhang/YU Xin/ Vivi Qiang

ARTIFICIAL ECOLOGIES

48

# 48_DustChambers_AdamHudec
stand alone installation with plastic balloons

Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
"Eyes of the City" Exhibition

## Smart Village

**Art University Linz, Guangzhou Fine Arts University**

Shrinking Village

All over the world, the countryside living is shrinking. Some 5 years ago more than 50% of the world population lived in the city, coming years this will arise to 80%. With this decreasing of village-life, also the knowledge of village-life will disappear, with all its fascinating aspects of producing. But maybe, there are some aspects which are worth to re-interpret and implement in our contemporary urban lifestyle. Not because of a nostalgic point of view, not with a conservative attitude to keep the village as it is. But to find out if there are "smart" aspects in the village lifestyle which are interesting for our contemporary way of living and bring new vitality. With the ongoing digitalization it is clear that village life is becoming more and more the same as urban life. As Henri Levebrve already wrote, everything will become urban. Already now the food, the cloths, the television programs, are more or less the same in urban areas as on the countryside. We use the same Alibaba to shop, the same We-chat to communicate. But still the differences in daily life style are big, we think.

Possibilities

This opens the possibility to research into a hypermodernity, to find out what was good in history, and what has been lost, on purpose or maybe by accident. Can we repair this? Can we re-interpret this? Can we implement this in our contemporary life? And last but not least, can we make the city smarter with it? It is not about redesign the houses; it is to redesign the life-style. Therefor we need to rethink urban space, we have probably to learn to improvise to get an idea of how to handle this situation, to understand the possibilities and the design the impact.

Copy & Paste

Around the Futian underground high-speed railway station of Shenzhen as main venue of this UABB (Shenzhen), on the top of a building (or within the designated exhibition area), we will show a section through village-life and copy the parts that are interesting. We will produce a "smart-village" atmosphere, which will have a utopian touch (against "Retropotia"), growing Vegetables, and scratching Chicken. From this reflection, the urbanized villages and the digitized cities, the hands of controlled nature and the brains of controlled technology, the anonymity generated by population aggregation and the privacy stripped by social media and many other technological accidents will be generated in the daily life of cities and villages. And with the "art + architecture" approach, we will imagine how the future of urban living-biotope and village could will look like.

Performative Research

In November 2019, space & design STRATEGIES will, together with GAFA, department of Architecture and Applied Art, visit the Qiang village in Wenchuan County, Chengdu,

ARTIFICIAL ECOLOGIES

Sichuan province. In a 2-week stay the team will do a performative research in the village, looking for smart ingredients in a historical village-life, which we can re-interpret and reincorporate in our contemporary urban lifestyle.

Team Members:
Antonius Gerardus (Ton) MATTON, ZHENG Xian, YANG Yiding

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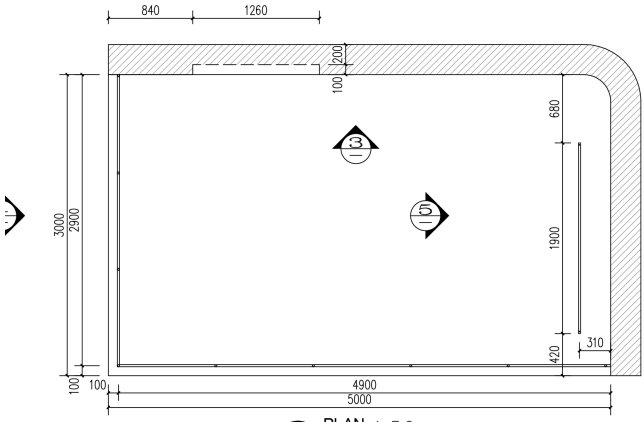
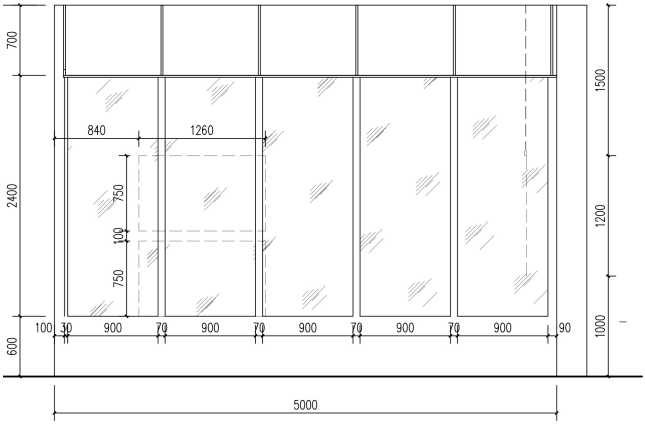
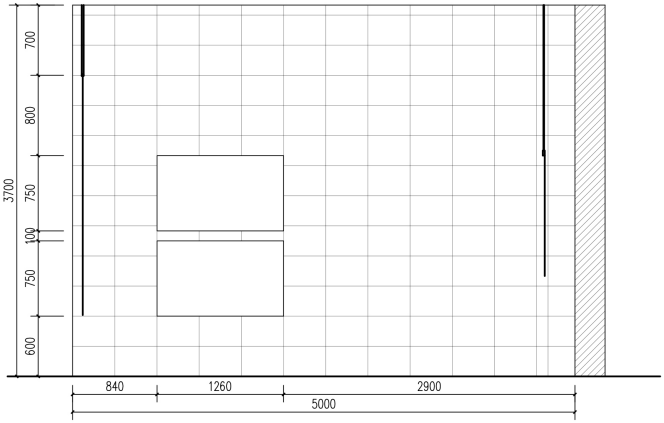



1 PLAN 1:30

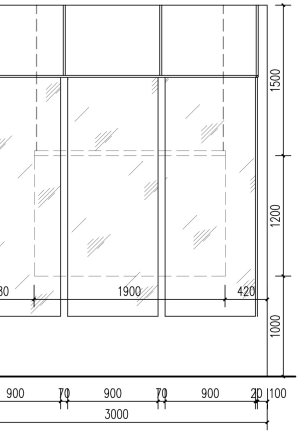



2 立面图1 1:30
ELEVATION 1

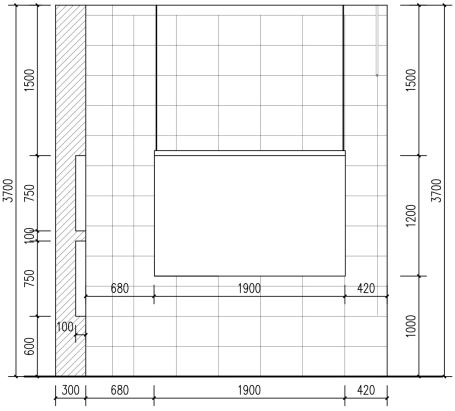
| | | | |
|---|---|---|---|
| CODE: | 52 | SCALE: | 1:XX |
| PROJECT TITLE: | Smart Village | DATE: | YYY |
| TEAM MEMBERS: | T., Matton / X., Zheng / Y., Yang<br>University of Art and Design Linz,<br>Guangzhou Academy of Fine Arts | DESIGN CONTENT: | Sam |




3 立面图2 1:30
ELEVATION 2




4 立面图3 1:30
ELEVATION 3




ELEVATION 4
5 立面图4 1:30

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# Extraction Networks: Territorial Patterns of Coal, Oil and Natural Gas

**Design Across Scales Lab (Cornell University)**

Urban and regional development is intertwined with energy extraction and consumption. This territorial landscape could be called the "extraction infrastructure network". The documentation of this network exists in a complex distribution of corporate, government and environmental databases, however, there is little to no representation of the total energy network. This research pulls together the distributed and fragmented documentation into a synthetic representation of the layers and extents of the contemporary American energy landscape.

The history of the American energy economy contains tensions between the economic, environmental and political priorities of each energy era. The energy economy began with the logging of the east coast forests, continued to the mining of coal, the drilling for oil, the splitting of the atom, and the hydraulic fracturing of natural gas. Infrastructures of energy transportation have developed as increasingly 'one-way' systems. Accelerated automation of these infrastructures has reduced the flow of the products of the city to the communities that paid the environmental costs. This shift from two-way to one-way infrastructures has devastated communities that were created and sustained by the reciprocal flows of energy, such as canals and railways, of the early energy eras. While new efficient systems have lowered the cost of energy in the city, they have also increased demand and have required further intensification of the extraction network.

The growth in economic inequality, increase in environmental contamination and decrease of rural populations demonstrate the inverse effects of the energy economy on urban and rural territories in the United States. Cities today consume 75% of the world's primary energy. Urban energy consumption has had widespread impacts. An extended landscape of extraction that consists of hundreds of thousands of mines and wells, millions of miles of interstate and intrastate pipelines, and thousands of power generation stations fuels the technological demand of the city. Because these energy networks are not comprehensively understood, the public is less conscious of the consequences of utilizing and expanding this network. The visualization of the interlinked extraction infrastructure network brings an awareness of the extents and expanse of energy enterprises with its effects on the city and region. As cities become more aware of their energy footprints, the web of infrastructure that enables them, and their extended environmental impacts, how will they seek sustainable solutions that benefit both urban and non-urban territories alike?

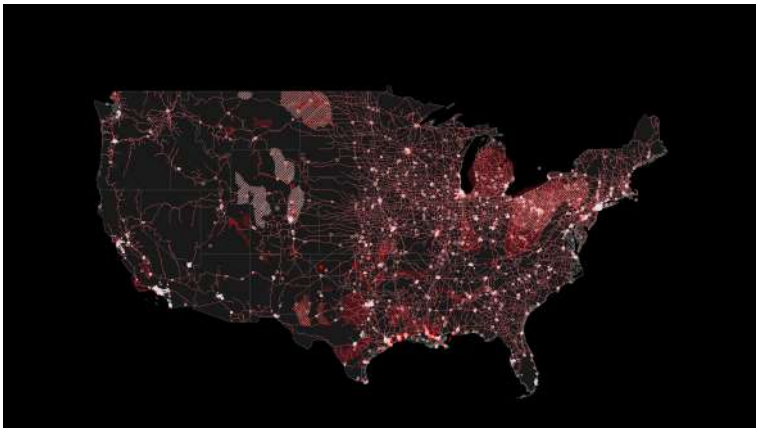
ARTIFICIAL ECOLOGIES

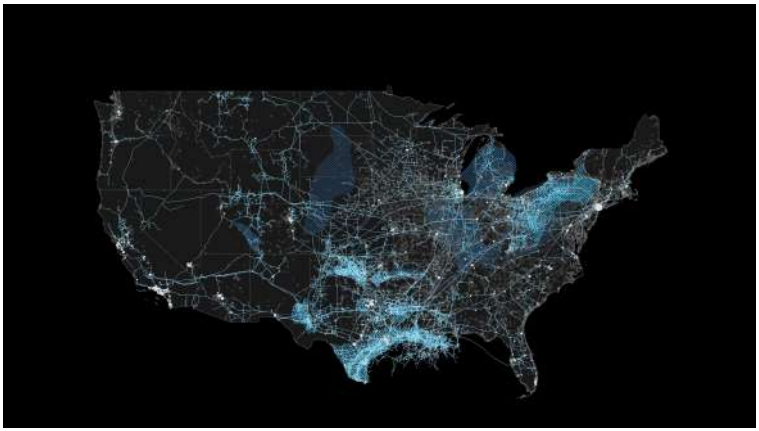
Team Members:

Principal Investigator: J. Meejin YOON

Lead Researcher: Alexander KOBALD

Research Assistant: Borislav ANGELOV, Valeria RIVERA-DENEKE, Cait MCCARTHY, Kashyap VALIVETI, Jordan YOUNG





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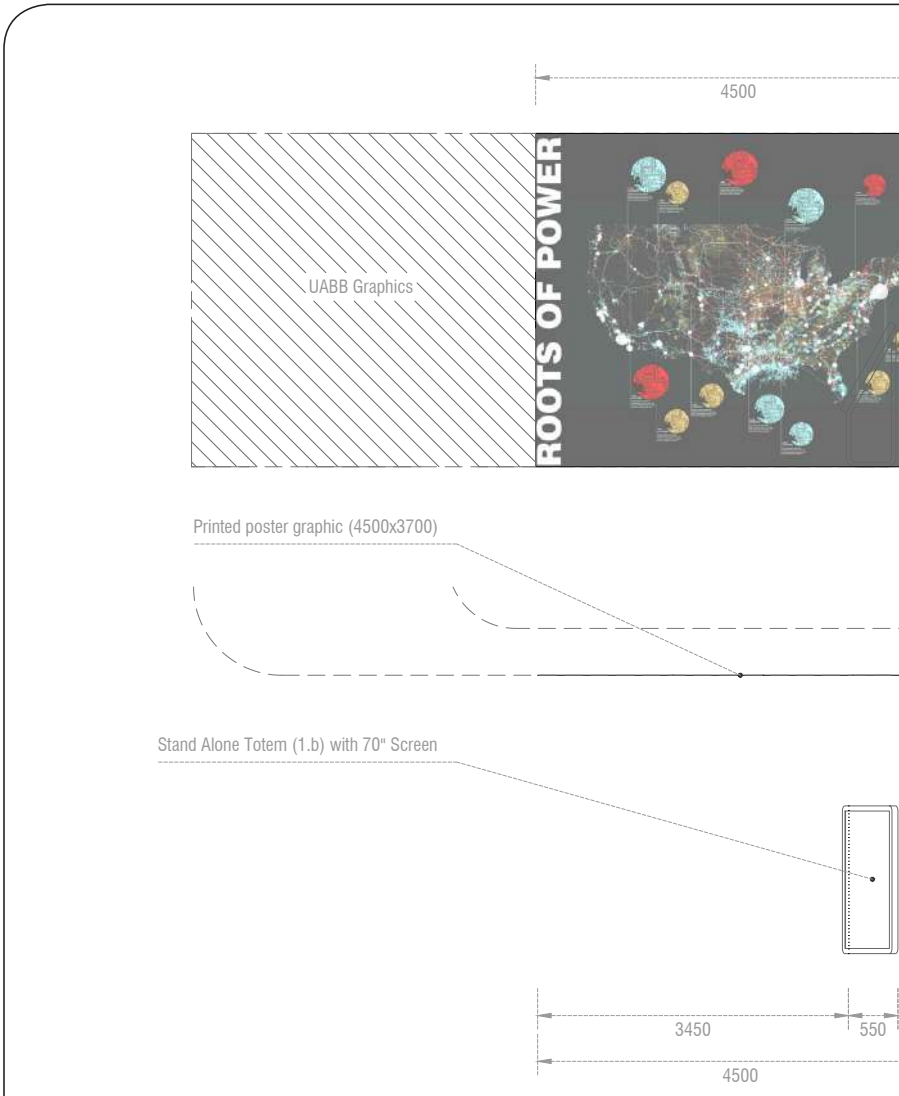


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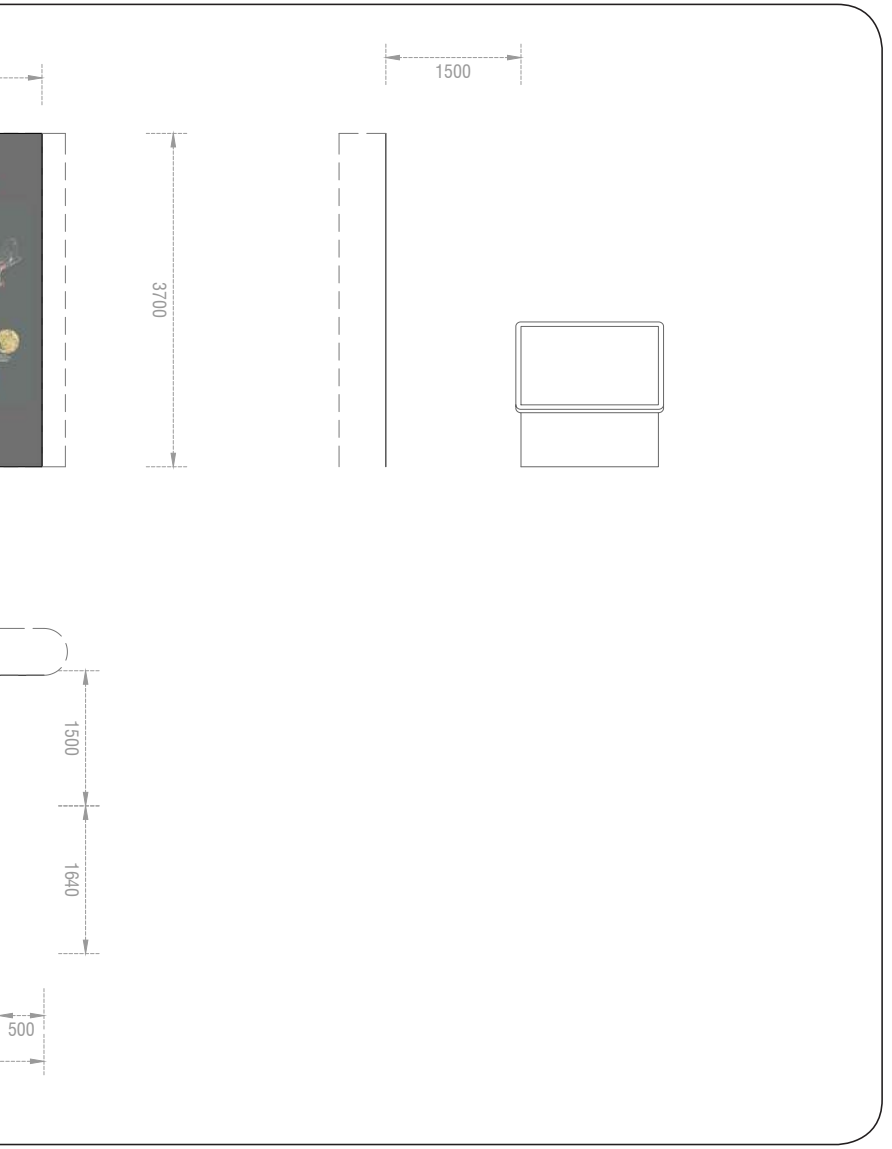
|---|---|---|---|
| CODE: | 53_ExtractionInfr_MeejinYoon | SCALE: | 1:50 |
| PROJECT TITLE: | Extraction Infrastructure Network | DATE: | 2019 |
| TEAM MEMBERS: | J. Meejin Yoon / A. Kobald | DESIGN CONTENT: | Propo |

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7th Edition - 2019
“Eyes of the City” Exhibition

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深港城市\建筑双城双年展

# The Urban (Un) Seen: Artificial Intelligence as Future Space

**ZERZA, Bettina ZERZA, Tae Hong Park**

Technological evolution has defined the modern city; inevitably, digital technology will continue to transform public and private space. The built environment can react in real-time to various data, enabling us to design responsive buildings rather than merely install static technical systems. According to the United Nations, 55% of the world's population now lives in urban areas, a proportion that will likely rise to 70% by 2050; nearly 90% of such growth will occur in Asia and Africa.

The Urban (Un) Seen is addressing sustainable urbanization by measuring, visualizing and sonifying data with a focus on global urban noise pollution. Our audiovisual installation is driven by a noise sensor network that is data-driven, community-driven and art-driven; the goal is to maximize community participation, awareness and sensor network scaling to enable the creation of a real-time soundmap of global cities. At the core of the Urban (Un) Seen project are several noise sensors around the exhibition and throughout Shenzhen; residents will be invited to experience the city through the sonic spatial data they provide.

The Urban (Un) Seen gives visitors the opportunity to interact with each other in real space and digital space. Modules with integrated loudspeakers will invite visitors to sit, take a rest or observe the sonic visual elements, and invisible information will be projected directly onto the surface of the physical installation. The project enriches the perception of space by bringing in urban environmental sound that cannot be seen, touched or smelled, even though omnipresent. The installation's visual, sonic and physical elements will provide a multisensory experience that can be felt, touched and heard beyond space and time since the sonifications and visualizations will be generated by real-time data and data archived during the exhibition.

Residents and visitors can also engage with smartphones and tablets inside and outside of the exhibition by measuring noise through an AI-driven sensor network. We revisit the built environment through the lens of urban acoustic patterns and their potential to create healthy urban soundscapes by using acoustically informed urban design. In an effort to contribute to urban noise reduction studies, residents will be able to continue measuring their urban soundscapes after the exhibition ends.

Concept + design: Bettina ZERZA

Sensor network + sound: Tae Hong PARK

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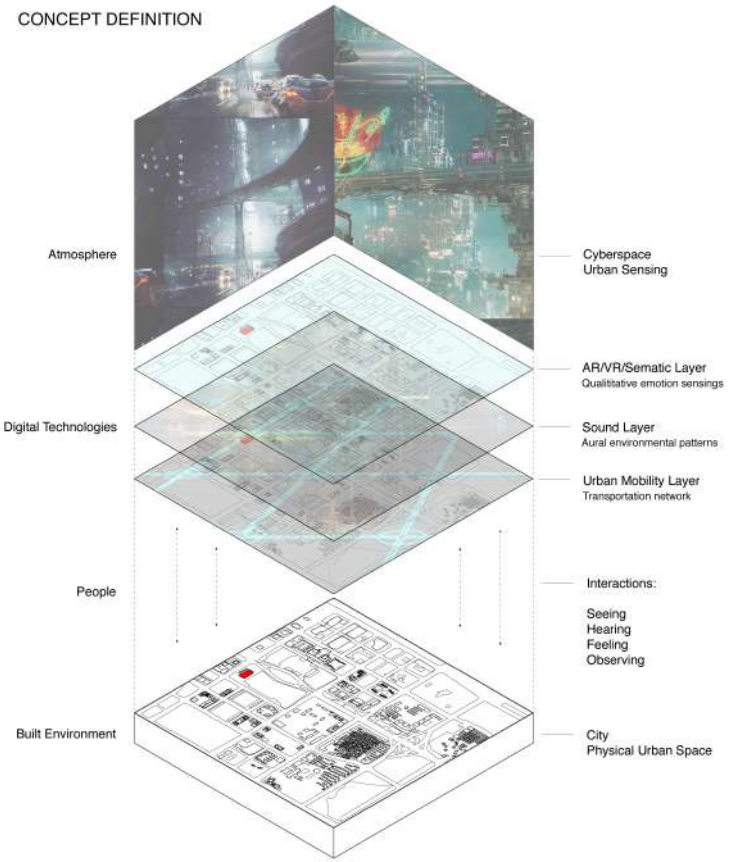


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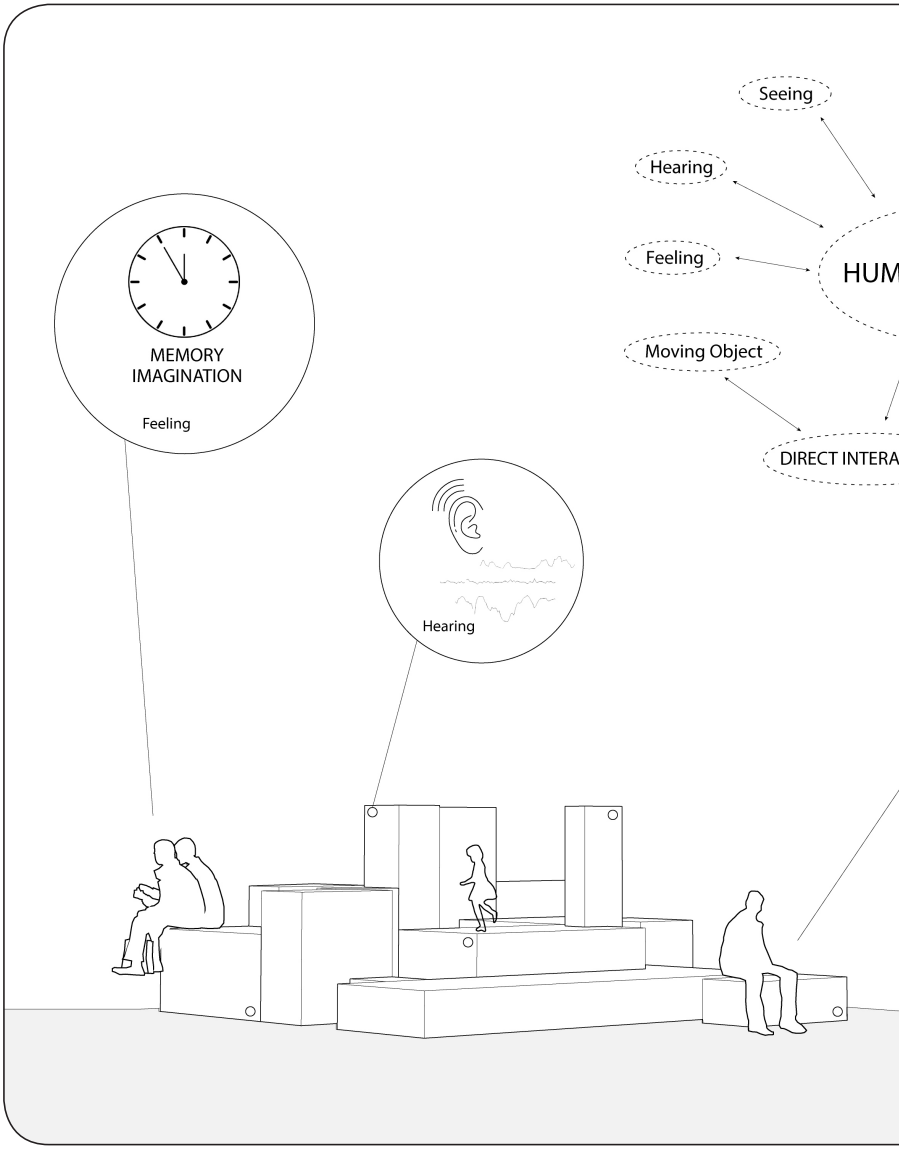
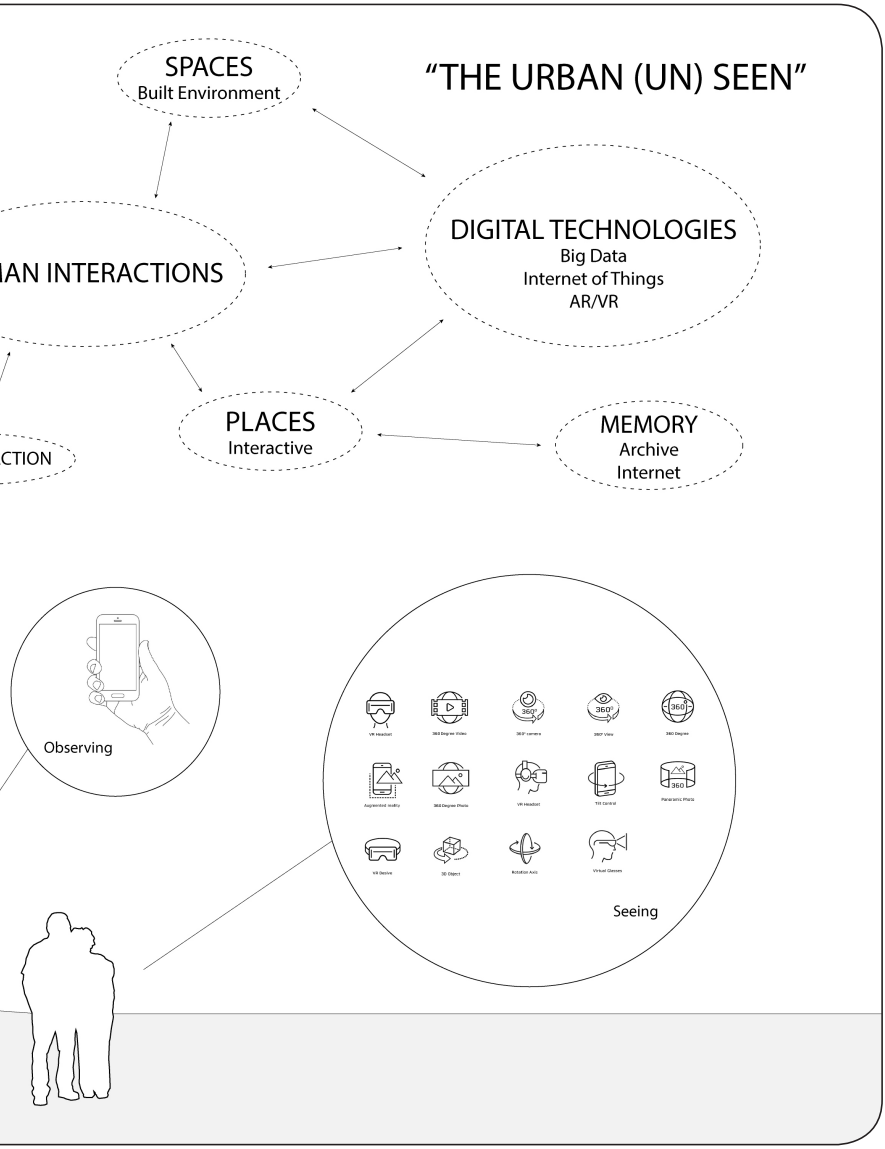



CODE: 54_NoisyCity_BettinaZerza
PROJECT TITLE: THE URBAN (UN)SEEN
TEAM MEMBERS: Bettina Zerza / Tae Hong Park

SCALE: NOT
DATE: 2019
DESIGN CONTENT: CUBI

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7th Edition - 2019
"Eyes of the City" Exhibition

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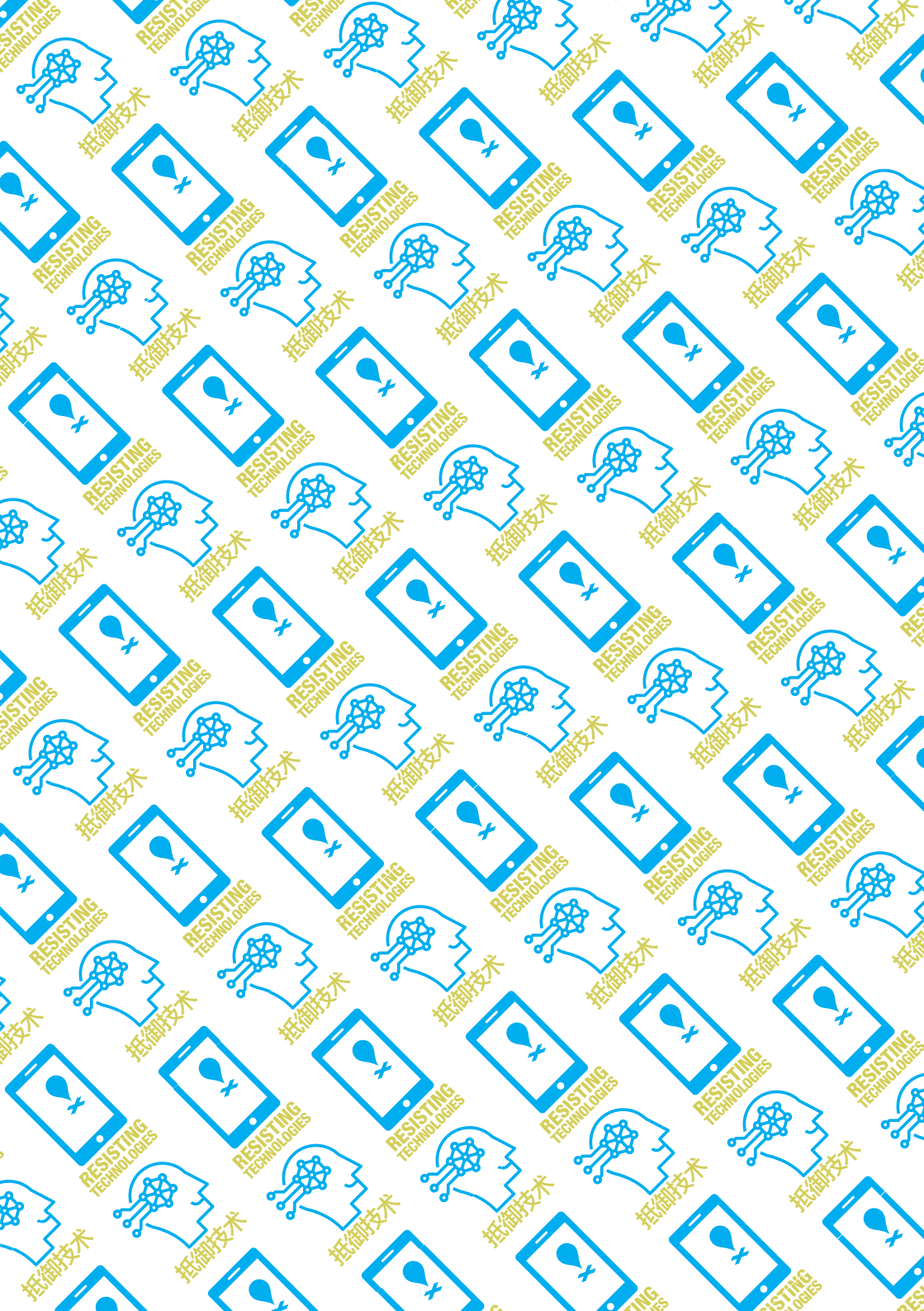

RESISTING
TECHNOLOGIES
抵御技术

# Section 7
# Resisting Technologies

Rich Gold famously asked: how smart does your bed have to be, before you are afraid to go to sleep at night? This section explores the spectrum of people's reactions when confronting intrusive technology. It is divided in two parts: resistance against technology – i.e. when citizens use creativity to defy intrusive technologies – and examples of technology for resistance – i.e. technology which is re-appropriated to become a tool of empowerment.

# The Emoting City

ZHANG Jie, Sayjel PATEL, Raffi TCHAKERIAN

This project imagines a futuristic scenario where the city becomes an emotional machine. A machine created from elements that see, feel, and even reconfigure their own function in relation to human emotions. Throughout history, emotional intelligence has differentiated humans from machines. While humans have an innate ability to spot subtle social cues and modify behavior accordingly, machine systems are deterministic and indifferent to human feelings; programmed to optimize human behavior for economic efficiency rather than negotiate social relations. The ubiquity of such systems improves living standards across the world. However, the imposing effect of routine and consumption also alienates people from their innate behaviors. What if the built environment could "see" and "feel" emotions to evoke new forms of authentic urban spectacle, desire and play?

The advancement of emotion-based computer vision and AI technologies will soon make this a reality. This project, named "The Emoting City", gives these technologies physical form to speculate on their potential future. Comprised of a network of responsive architectural components, the resulting installation interprets emotions from the facial expressions of occupants as new environmental factors. Personal emotions are then manifested through shifting color and form as corollaries to a spectrum of psychological states, as either reinforcement or intervention. At the Meta scale, algorithms compute a group mood index over time from individual expression data. Ultimately, the user experience is one of personal attention as well as community building and spectacle. It encourages the deliberate collaboration between visitors to trigger novel responses and urban situations.

Situated within the active Futian Railway Station, "The Emoting City" assigns an empathetic role to large-scale public space, and demonstrates the potential of connecting the architecture of the human mind with that of the city. Promoting an emotion-aware "Eyes of the City", this project advocates for the responsible use of machine vision to celebrate the authentic desires of inhabitants, and to mitigate the alienating effects of ubiquitous technology.

RESISTING TECHNOLOGIES

RESISTING TECHNOLOGIES

RESISTING TECHNOLOGIES

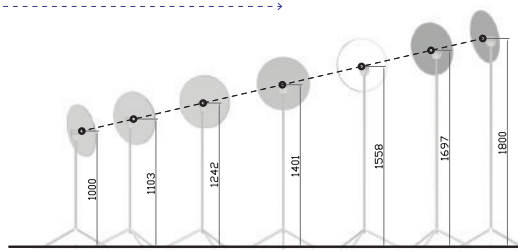
Unit 单位：mm

01 | PLAN SETTING OUT 定位平面

Center of Mirrors
镜子中心点

Center of Installation
装置中心定位圆点

Circulation
参观路线




02 | SIDE ELEVATION 侧立面

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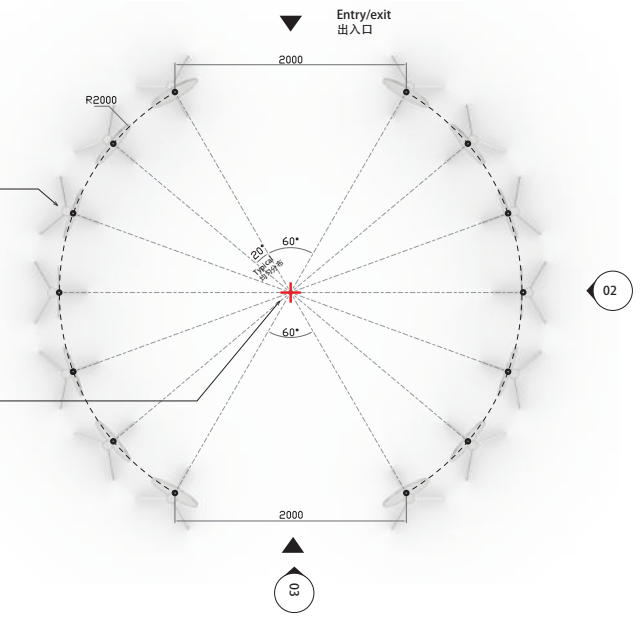
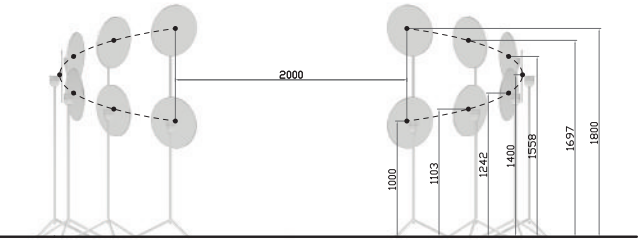
|---|---|---|---|
| CODE: | 17B_Patel_Zhang | SCALE: | N/A |
| PROJECT TITLE: | The Emoting City | DATE: | 2019 |
| TEAM MEMBERS: | J. Zhang, S. Patel, R. Tchakerian | DESIGN CONTENT: | Bluep |




03 | FRONT ELEVATION 正立面

# Looking for Brunelleschi

**Yung-Ho CHANG, Atelier Feichang Jianzhu**

This is an attempt of making an instrument that can repeat in the urban context of today the famous perspective experiments by Italian architect Filippo Brunelleschi in Florence between 1415 and 1420, which marked the beginning of a scientific construct of space. When one tries to establish his/her position within the contemporary city, most likely, he has to look at a building facade and even into someone's apartment, a scenario vividly portrayed in Alfred Hitchcock's film The Rear Window. This very moment, when Filippo meets Alfred or the baptistery of Florence meets the residential block of New York, is what we like to capture with this viewing machine. Specifically, this piece of equipment allows one person to look through a peephole onto an elevation of a multi-story building in the reflection of a mirror, which can be pulled forward or pushed backward with a crank operated by the observer, who may want to adjust the distance between him and the observed. In the end, what he discovers is his own eyes in one of the windows on the wall and realize that the window he sees is exactly the same as the one of his own room and he himself is the reference of his existence.

Technology has been both the relief and source of contemporary urban anxiety. Thus, this project takes on technology by resisting it in two ways: 1. Interactive design with only manually powered movement and without electronics; 2. Selfie of one's eyes as part of the building facade is impossible since the size limitation of the peephole.

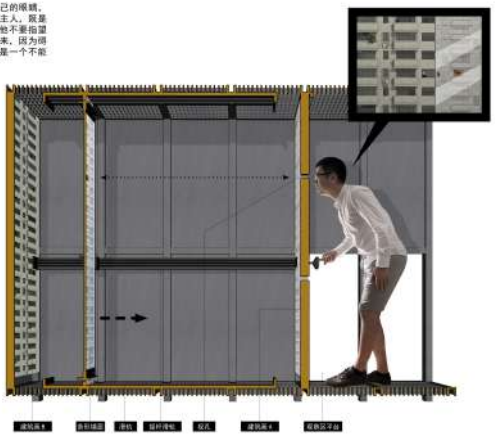
The main structure of this installation will be built entirely with steel plates with a piece of mirror as the additional material. The building facade will be painted on the steel plate.

Team Members: Yung-Ho CHANG, ZHANG Bowen

RESISTING TECHNOLOGIES

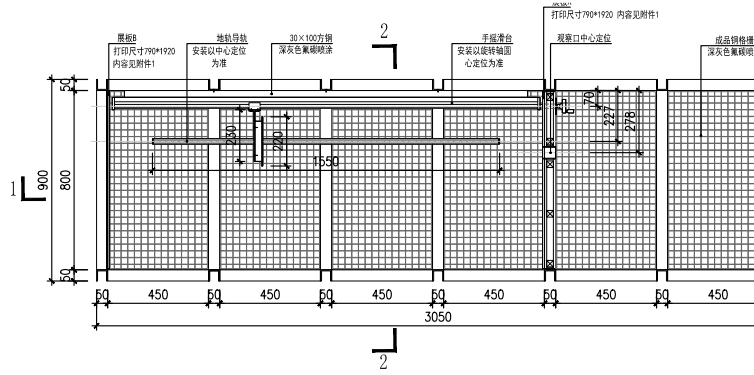
### 看与被看

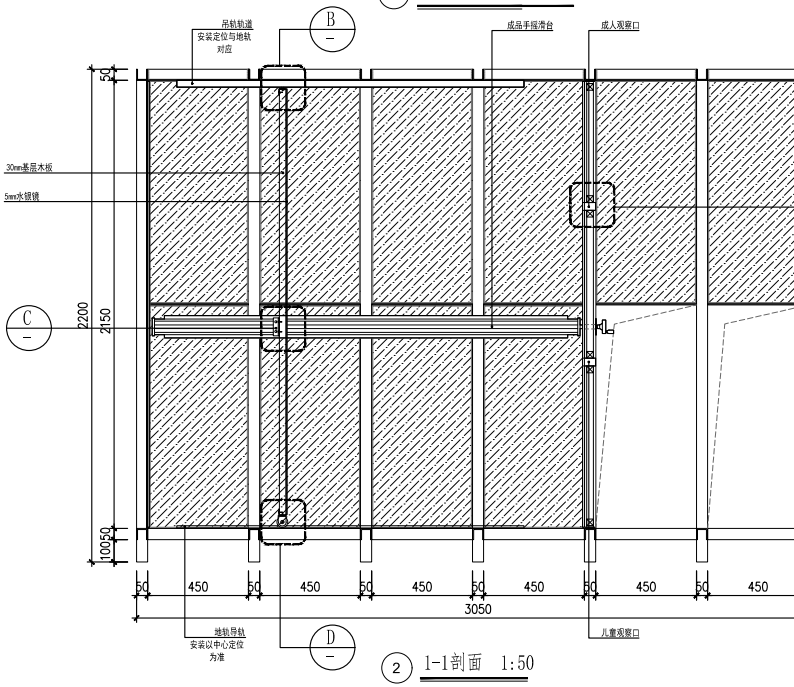
观察者将在镜面反射中发现自己的眼睛。这时他好似变成了公寓后窗的主人。既是观望者，也是被观望者，但是他不要指望将这一切用自拍的形式记录下来，因为碍于视孔尺寸的限制，本装置将是一个不能被自拍，“反技术”的机器。



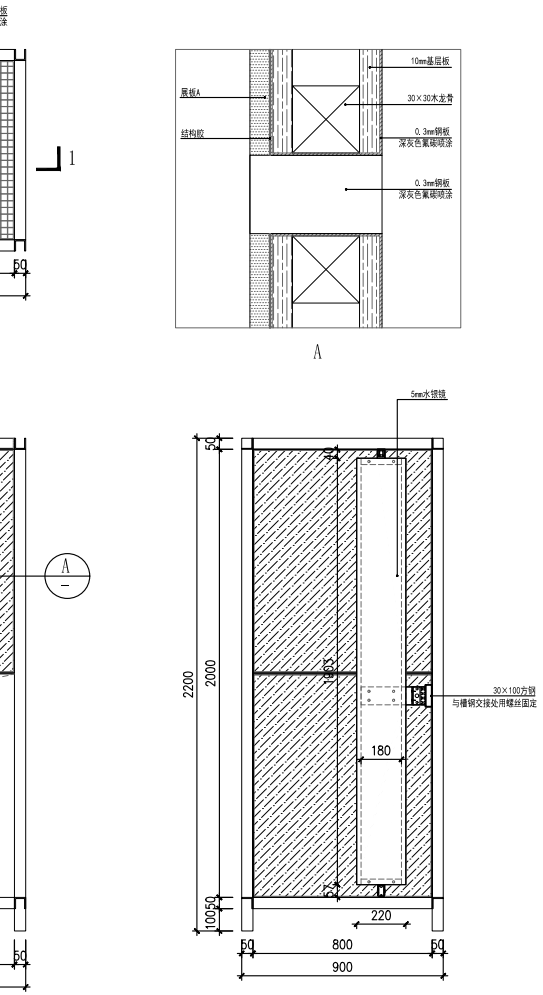
RESISTING TECHNOLOGIES

RESISTING TECHNOLOGIES




| | | | |
|---|---|---|---|
| CODE: | 55_LookingBack | SCALE: | 1:50 |
| PROJECT TITLE: | Looking for Brunelleschi | DATE: | 2019/ |
| TEAM MEMBERS: | Yung Ho Chang / Bowen Zhang | DESIGN CONTENT: | Cons |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A
10mm基层板
30×30木龙骨
0.3mm钢板
深灰色氟碳喷涂
0.3mm钢板
深灰色氟碳喷涂
结构胶
A
5mm水银镜
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100
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220
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800
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900
30×100方钢
与槽钢交接处用螺丝固定
滑轮构件
吊轨
30×30角钢
沉头自攻钉
5mm水银镜
结构胶
30mm基层木板
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10
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5mm厚T型钢板
与滑台滑块固定
沉头自攻钉
5mm水银镜
结构胶
30mm基层木板
C
滑轮螺丝与角钢连接
沉头自攻钉
5mm水银镜
结构胶
30mm基层木板
成品滑轮
D

③ 2-2剖面 1:50

## Yawning Shame

SUN Yitong, ZHANG Ziqi

The project consists of two parts. The first part, monitors with facial/motion recognition program set beside the selected artworks exhibited in the Biennale, is for detecting and catching the exact “offender” who did the “inactive” actions according to the ”regulation” (actions indicating an uninterested attitude towards the artwork). The second part, a darkroom located somewhere in the venue, is for displaying the images of the “offenders” of that day. Only when the audiences find the darkroom, can they realize the existence of the surveillance system.

The “inactive” action that will be caught switches randomly every day. It could be yawning, distracting from the artwork (by looking away), or just quickly passing by the artwork (to be determined with third party supplier for Detection software). Even though the audience will get to know that there is a “surveillance” system if they re-enter the exhibition, they will never know the specific action that is recognized as a “crime” on that day. The audiences may be panicked by the surveillance at the beginning, then be “conquered under the fictional relationship”, and begin to “self-surveillant”. So far, the project wants to represent the power of anonymous subject to supervise every inch of space and time in the network monitoring and discipline by technology acceleration. As Foucault said, power symbols are divided and concealed by technology, becoming a hard-to-break knowledge system and technological product; the body itself has also become an integral part of the micro-power network, accumulating and producing continuously over time.

However, with the prolongation of exhibition, the “under surveillance” situation may gradually change to an “active” reaction towards the regulation. The tool for surveillance may be the tool for self-expression. What we interested more is to see the audiences intentionally act as “offenders” to become part of the exhibition. The surveillance by new technologies may lead to a rebellious banter and carnival after unconsciousness and shock. The life you peep at is the life I want to show you, and the technology that is considered to be a threat to individuality may turn into the means for self-expression.

The “passively” “active interaction” with the exhibition under the regulation and surveillance, and the “positively” “active interaction” with the regulation itself, together reveal how technology has changed the nature and type of people’s behavior.

RESISTING TECHNOLOGIES

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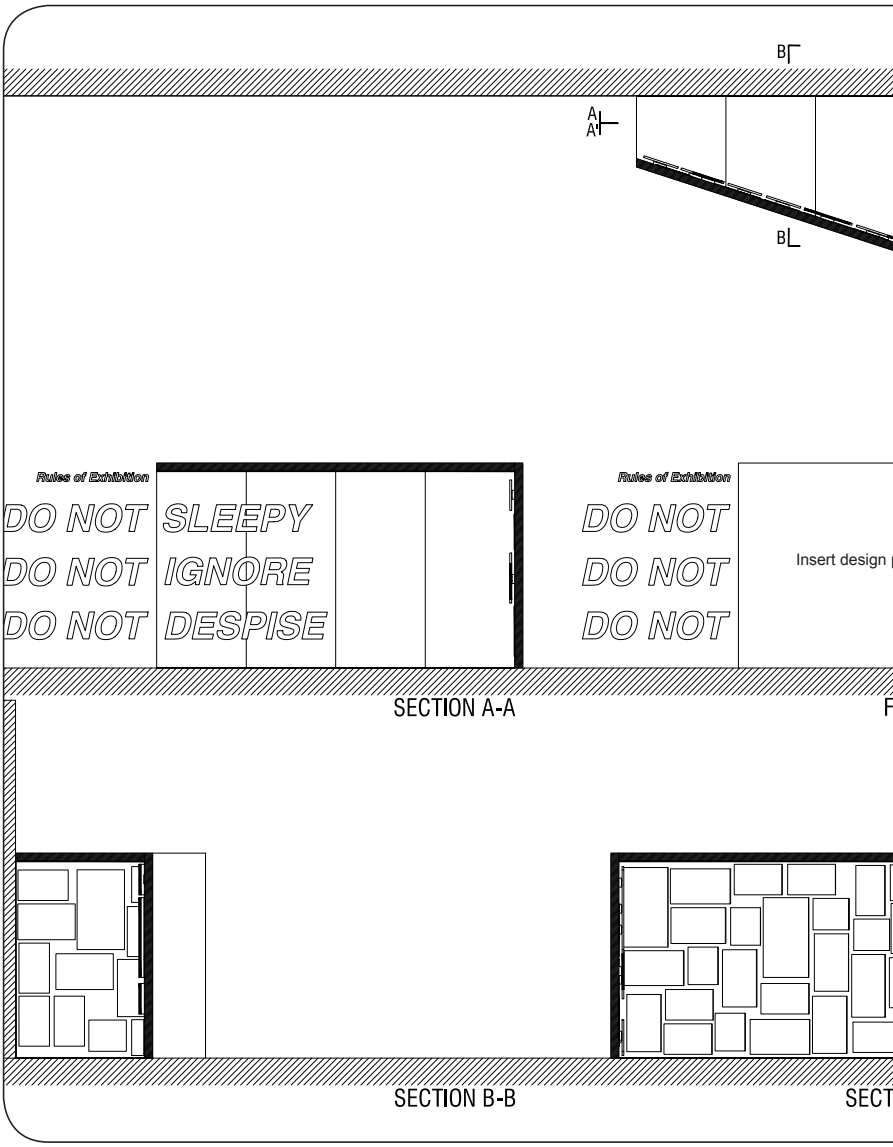
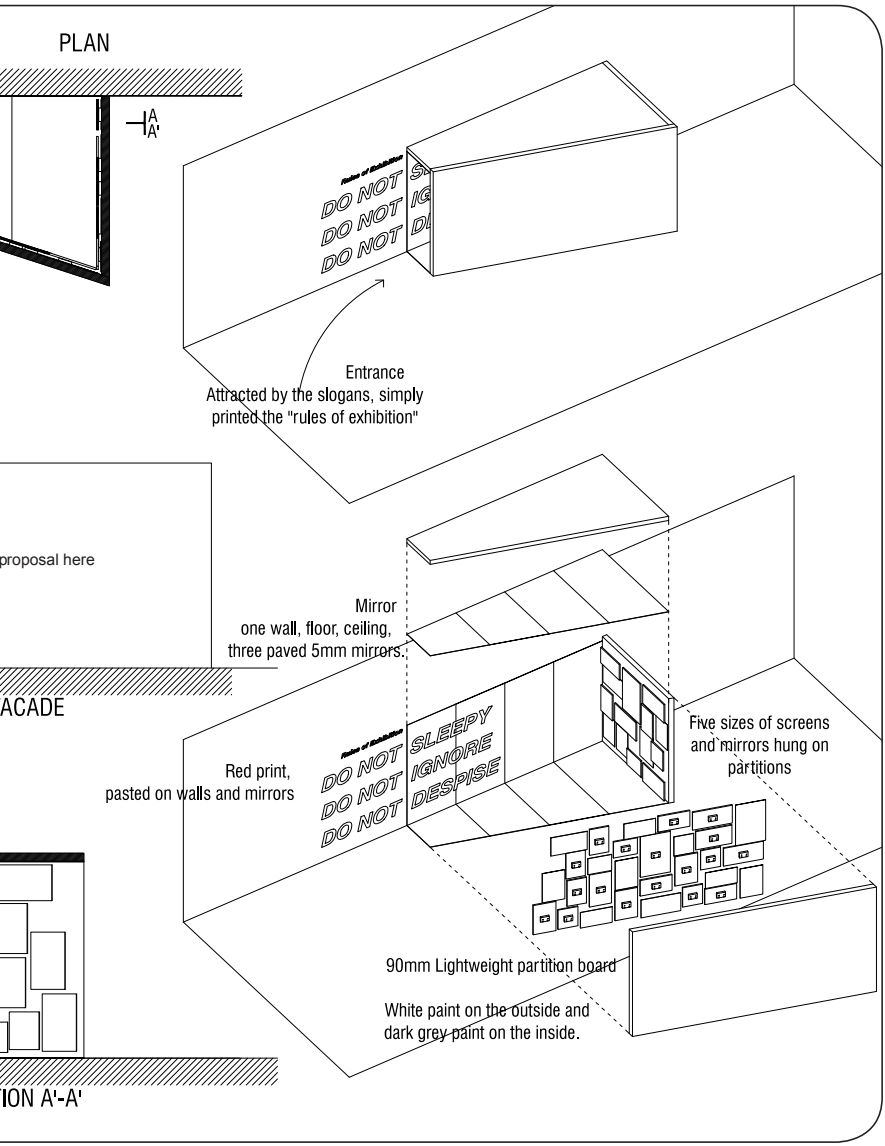



| | | | |
|---|---|---|---|
| CODE: | 56_YawningShame_SunYitong | SCALE: | 1:50 |
| PROJECT TITLE: | Pay attention to exhibition | DATE: | 2019 |
| TEAM MEMBERS: | Yitong Sun / Ziqi Zhang | DESIGN CONTENT: | Displ<br>mand |

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

UABB BI-CITY BIENNALE OF URBANISM\ARCHITECTURE 深港城市\建筑双城双年展

RESISTING TECHNOLOGIES

## Seven Stories of Mellonopolis

**Studio Forage, ALINE Studio**

This is a story of a near-future city and its cunning inhabitants. Seven Stories of Mellonopolis presents a series of speculative situations in which AI could be implemented in cities and humans may develop cunning methods and behaviors to subvert this technology for their own individual self-interest. This theme is prompted from the curator's enquiry into how AI (a predominate enabler of the smart city concept) will affect citizens, communities, behaviors of individuals and masses, design practices, and wider groups in the future. We simply do not know. And despite what others may say, neither do they.

What we do know, is that humans will be cunning. They will be creative and adaptive. They will make systems work for them and find ways to beat the machine. This is neither a grand utopian or dystopian vision of the future. Instead, it is a portrait of the banal, everyday reality of how normal people with human nature find ways to get what they want in a city augmented with sophisticated yet ultimately naive artificial intelligence.

With AI already a part of our lives, but general artificial intelligence a long way off, the project invites the audience to question what life may be like in the not quite smart enough, smart city. Furthermore, the project responds to a variety of discussion points proposed by the curatorial team, including how the new technology will change people's behaviors as well as how communities will re-appropriate technology.

We wonder if the cities of tomorrow will all be the same. Will technology take the same route as identical architecture, algorithms shared between municipalities and technological solutions integrated across global cities? Or will we humans find ways to break the system – to make it our own and transform its identity?

From pretending to be a child to cross the road quicker to disguising pigeons as crows to avoid paying a fine, we invite you to meet the residents of Mellonopolis and discover their mischievous relationship in the smart city of the not too distant future. The city may be smart, but the residents will always be smarter.

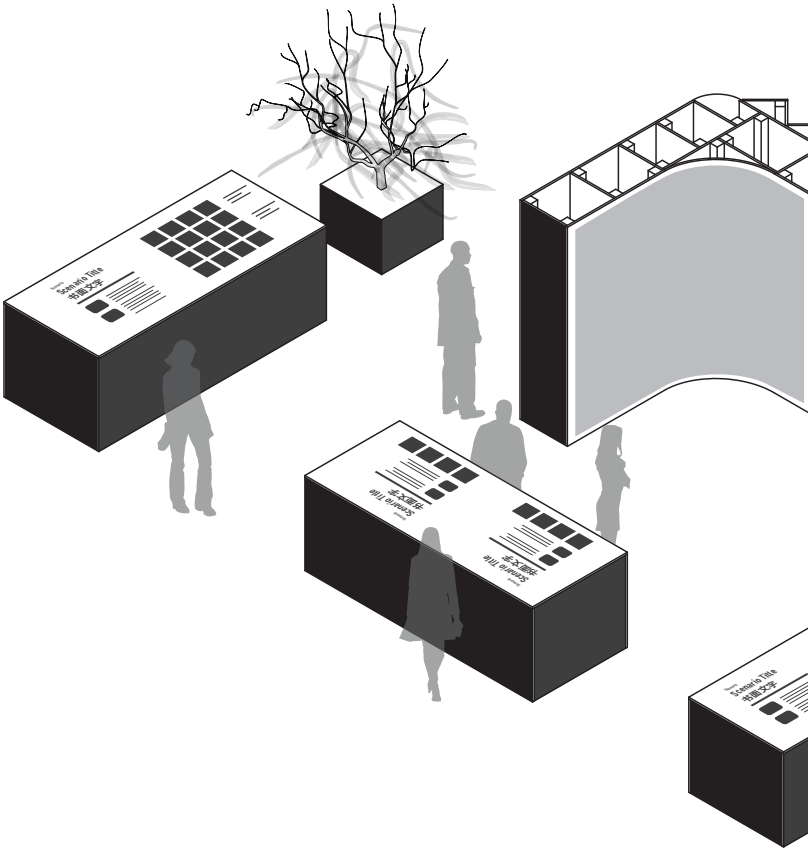
Team Members:

Michael PECIRNO, Charles RICKLETON, SUN Xinglin, Sebastian KOSEDA, Laura GORDON

RESISTING TECHNOLOGIES

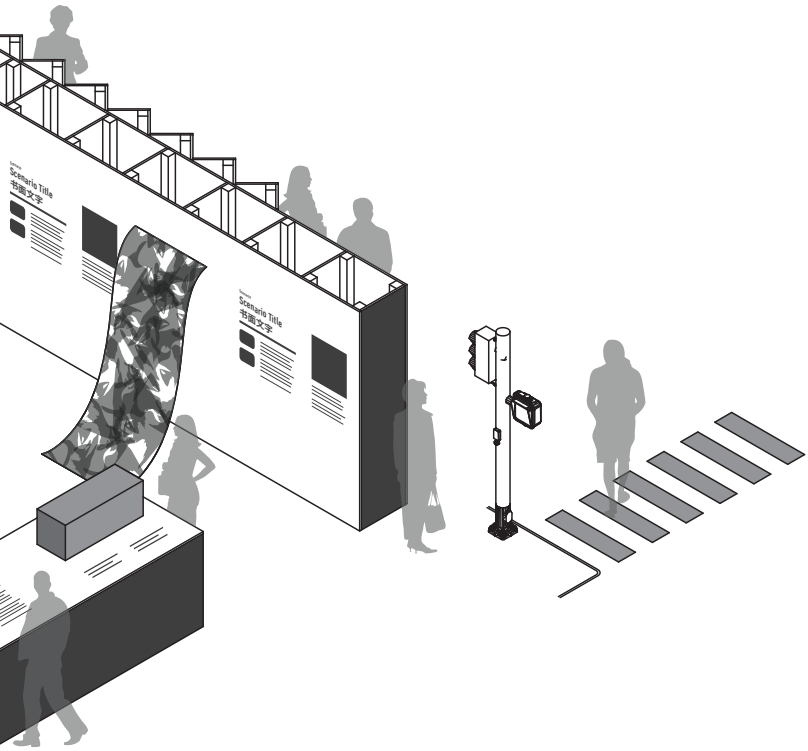
140500 JUNCTION 42EX29NJ3
140500 INIT WAIT PRIORITY
140500 14:05:00 07/05/2042
140501 READY
140501 DISCOVER NO RISK ASSET
(MAN 0.0975)
140501 PRIORITY = 0
140502 DISCOVER HIGH RISK ASSET(5){
[CHILD 0.712, CHILD 0.854,
CHILD 0.984, CHILD 0.961,
CHILD 0.738]}
140503 PRIORITY = 5
140503 DISCOVER NO RISK ASSET
(GRAPE 0.031)
140504 INIT PRIORITY(42EX29NJ3, 5)

# RESISTING TECHNOLOGIES



CODE: 58_SevenStoriesAI_StudioForage
PROJECT TITLE: Seven Stories of Mellonopolis
TEAM MEMBERS: M., Pecirno / C., Rickleton / I. Sun

SCALE: NA
DATE: 2019
DESIGN CONTENT: 1. 4 I

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE
深港城市\建筑双城双年展

# Presense

## Presense

Presense is a machine learning prediction platform prototype. Trained on users activity in his/her environment it can produce predictions of a user's future behavior, not just in one, but multiple urban environments in parallel. Acting as a "refractive lens" between the user-citizen and their native city, Presense creates personalized predictive model we call "the predicted self" - a quantified entity which can be copied and deployed as "synthetic replicas" in any number of foreign cities. By learning from users' unique urban signature and interacting with a range of contexts, Presense grants the user insight into the lives he or she might be living elsewhere - the experience previously unattainable. We imagine this would lead to, what we call, "a social multiverse of the self". Since users can't influence their "synthetic replicas" other than by adjusting their own patterns of behavior and observing the gradual change of machine re-learning the question of "who is training who" becomes apparent. This phenomenon of continuous negotiation between us and "predicted" us we call "the predictive self-sensing".

In the age of ubiquitous data mining, we want to look at the benefits and hazards of predictive models as they operate at present but also speculate on how they might evolve with a special interest in how it impacts the urban environment. Coming to terms with the fact that whatever we choose to do is only retraining the machine learning algorithms to make a more accurate model of us is a phenomenon that deserves a global pause and a buzzword as big as climate change. The existential change running silently in parallel is relevant to our idea of the self, as arguably the most prized resource is no longer fossil fuel but us, or rather, our data. Because of this, it seems it is not the technology but the human being that must adapt.

As an expanded urban design practice, Presense investigates the intersections of urban planning and synthetic modelling looking for a new understanding of the scale, we, until recently, found useful to call human. In challenging the technology we are building by envisioning its 'side effects' we find cinematic language to be the most communicative. For 'Eyes of the City' we would like to present several such narratives.

Team Members:
Igor SLADOLJEV, Gleb PAPYSHEV, Sveta GORLATOVA, Artem NIKITIN

RESISTING TECHNOLOGIES

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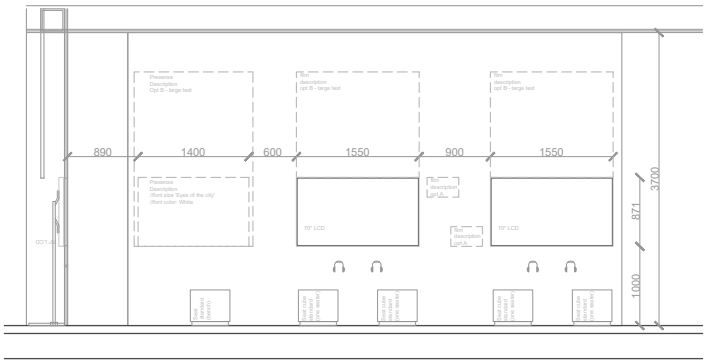
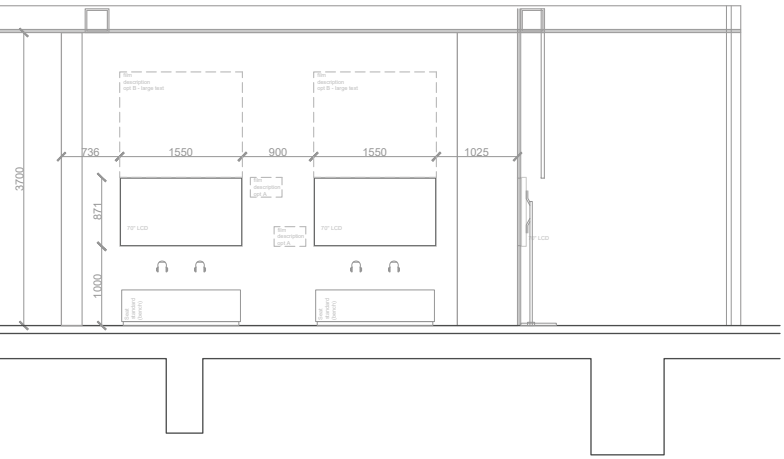
RESISTING TECHNOLOGIES

SECTION
A-A




| | | | |
|---|---|---|---|
| CODE: | 59_Presense_IgorSladoljev+ | SCALE: | 1 : 10 |
| PROJECT TITLE: | Presense | DATE: | 2019 |
| TEAM MEMBERS: | S., Gorlatova / I., Sladoljev / G., Papyshev / A., Nikitin | DESIGN CONTENT: | SECT |

SECTION
B-B

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE
深港城市\建筑双城双年展

## Network-by-Desire

Nidhi SINGH RATHORE

If you look up "buy Weibo followers" or "Facebook likes" in your browser, you'll discover a string of advertisements and links to social media management organizations; sitting in Los Angeles you can buy a thousand followers for just $9.99. These followers are mistaken for bots in many scenarios, whereas they can very well be profiles made by a rigorous process, where an individual earning $1 a day makes approximately 100 to 150 fake accounts in 8 hours. To highlight this key moment of my research, I created a tangible frame of reference for viewers to understand the nuances of this hidden social media economy. The fictional device, Network-by-Desire (NxD), is a physical manifesto of the power of digital labor of developing nations. NxD streamlines the process of fake social media content generation, and situates the viewer in a click farmers' position. The device showcases the process of fake profile creation on NxD, and the consumer end of it on a counterpart device. The aim to show both the process is to inform individuals about how social media platforms are being used, and the power digital labor holds in this process of intertwined digital economies. Between the black and white — terms and conditions — ends of cyberspace, there lies an expanse of information and economies that netizens are unaware of. Less than 60% traffic on the internet is human, and the journey from fake profiles to bots happen, primarily, in the developing countries of the world. By designing for the digital labors of developing countries, this project focuses on the fact that click farms are footsteps towards counter-colonization in the age of neo-colonization; where the developing world has logistical resources, mass, and an understanding of the grey fabric of the world to establish their technological power.

RESISTING TECHNOLOGIES

RESISTING TECHNOLOGIES

RESISTING TECHNOLOGIES

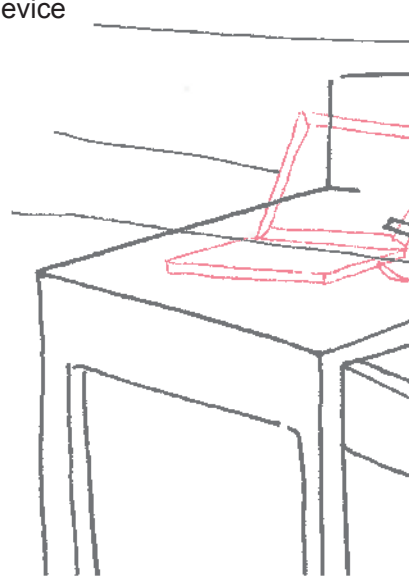
The laptop goes on the shorter side of the table, and the device would be placed with props on the other end. There are two cavities on each side, to insert the wiring through.

Use the drawer to store the wire and the extension cord. And house the media player there as well. The drawer must be concealed well.

The Main Device

Cheap Laptop

Power Supply



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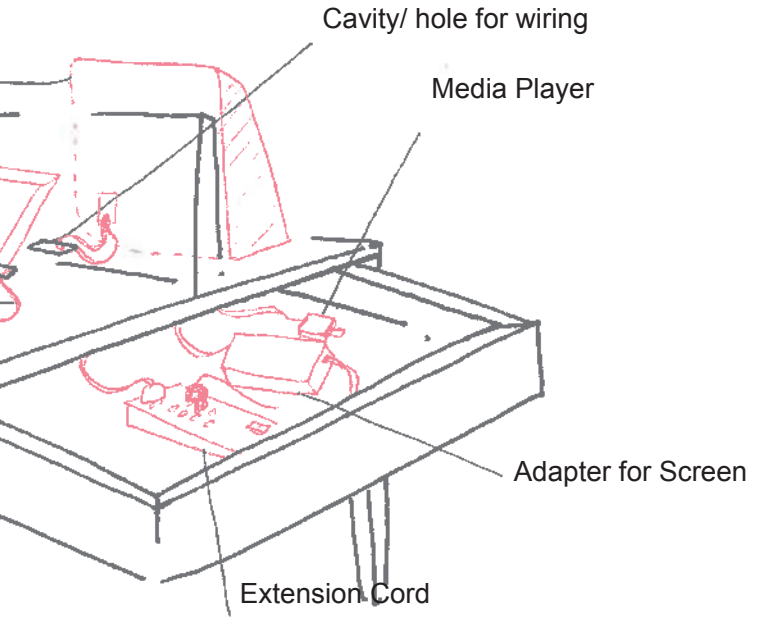
|---|---|---|---|
| CODE: | 61_ClickFarmTrolls_SinghRathore | SCALE: | Fo |
| PROJECT TITLE: | Network-by-Desire | DATE: | 20 |
| TEAM MEMBERS: | N., Singh | DESIGN CONTENT: | In |

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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

## Camouflage Choreography

Liam YOUNG

A music video is set in the Chinese owned and controlled Detroit Economic Zone (DEZ) and is shot with the same laser scanning technologies used by autonomous vehicles. The inhabitants of the near future city are recorded through the eyes of the robots that manage it. In a city that sees everything through a million sensors and camera networks an underground community adorn themselves in machine vision camouflage textiles woven on cnc mills from iridescent silks that scatter the light of scanning technologies to create glitches and distortions in the city wide data set.
In collaboration with world renowned choreographers a series of new dance movements have been developed that disguise the proportions of their bodies from body detection algorithms used by the city's control networks. The music video shifts between live action video and machine vision visualizations of the way skeleton detection algorithms are trying to read and recognize the body. Music is provided for the project by iconic Detroit producers Underground Resistance. Fashion and music have always developed in response to existing power structures. The video is a prototype for a new sub cultural movement that may soon emerge in response to emerging smart city technologies.

Directed by Liam YOUNG
Technical lead Shuruq TRAMONTINI

RESISTING TECHNOLOGIES

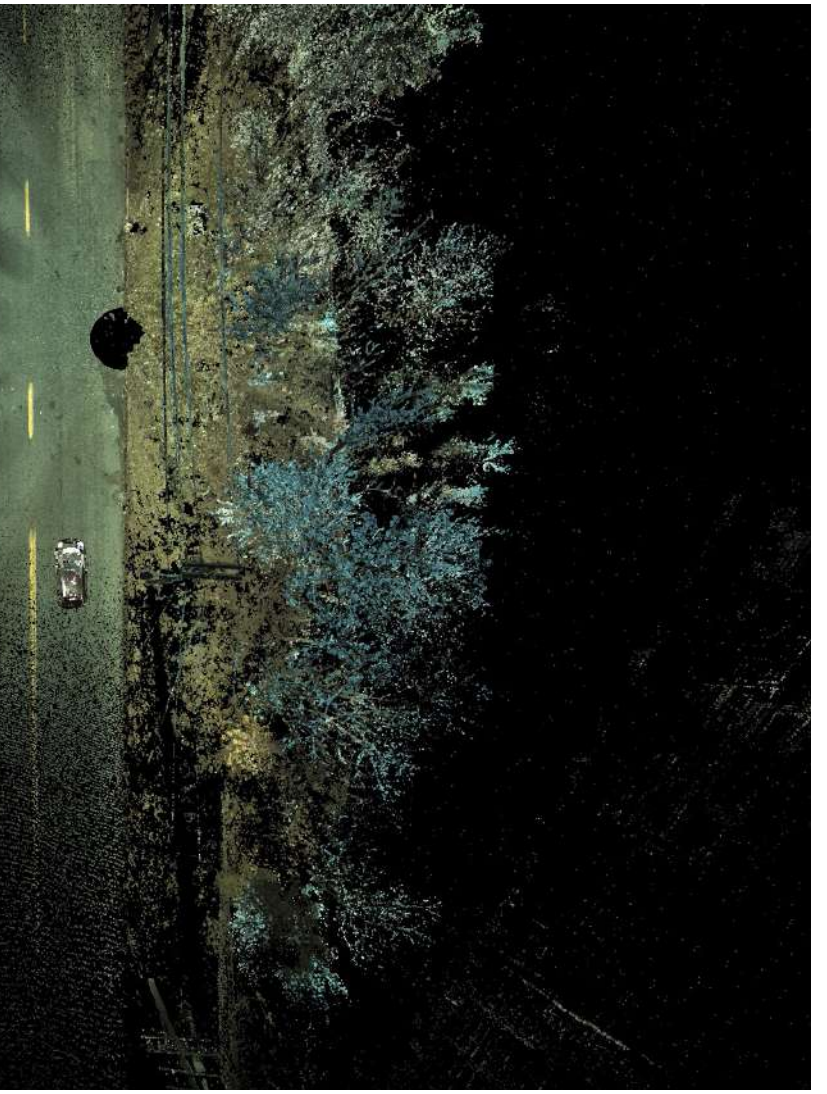
RESISTING TECHNOLOGIES

# RESISTING TECHNOLOGIES



CODE: 38
PROJECT TITLE: Camouflage Choreography
TEAM MEMBERS: L., Young

SCALE: 1:XX
DATE: YYY
DESIGN CONTENT: Sam



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Bi-City Biennale of Urbanism\Architecture (Shenzhen)
7th Edition - 2019
“Eyes of the City” Exhibition

BI-CITY BIENNALE OF URBANISM\ARCHITECTURE
深港城市\建筑双城双年展

CURATING THE CITY
策展城市

## Section 8
## Curating the City

Over the last 15 years, the Shenzhen Biennale has developed as a platform for engaged urban transformation. This year's decision to host the exhibition inside the Futian railway station will allow it to reach a much wider audience than normal. It also permits exploring first-hand one of the public spaces that are being actively transformed by the "Eyes of the City" condition. Through the specificity of the site and its relationship with the rest of the city, we would like to foster a collective conversation on what Shenzhen could be tomorrow. In this section, we look at the Shenzhen Biennale's objective to "curate the city", acting as a real-scale testing ground for creative practices and urban transformations.

# Curatorial Practices in an Urban Community - A Case of Zhongkang Road

Action Meilin

'The shift of focus from forming to curating the city marks a significant change within architectural discourse.' [1] 'Curating the city' reflects a different imagination of space. This process is no longer a traditional physical transformation dominated by architects and planners, but a socio-cultural phenomenon embedded with time ---- form becomes only a part of it.

'Urban curation' takes place in public space, where its inherent contradictory is self-evident. In the context of spatial politics, these conflicts are far beyond the scope of 'everyday'. In such a project, the curators and designers are experiencing an unprecedented extension in their identities ---- from the specific design of urban space to the selection and coordination of art works, to the negotiation of stakeholders, project implementation, financial management and so on. Each step is facing new challenges.

The exhibition content is centered on the discussion of the curatorial practices of Zhongkang Road. Situated in Meilin, Zhongkang Road is on the north extension of the central axis in Futian District.
Due to the segregation of the North Ring Road and the neglect in early urban planning, the area suffers from poor pedestrian environment and accessibility, dilapidated urban facilities and lack of public space. However, the once disordered urban development has given birth to the rich social ecology in the area. There are many residential neighbourhoods, convivial commercial activities as well as a lot of institutions along the road. The public space to be upgraded involves a complex group of stakeholders, which makes the process extremely difficult. Nevertheless, the involvement of design and art has played a role of "lubricant". The reflection of the urban design discourse and the search for collective memory have more or less aroused resonance and discussion, thus promoting communication and understanding.

Through four stories, namely 'Trigger', 'Bridge', 'Contradiction' and 'Boundary', the process of Zhongkang Arts Corridor will provide a new discussion on the practice of 'urban curation' in Shenzhen communities.

1. C Gabrielsson, 'The necessity of distance', in S Chaplin and A Stara (eds.), 'Curating architecture and the city', London: Routledge, 2009, p219.

Collaborators:
Meilin Sub-district Office, Shenzhen Institute of Building Research

Concept Design Collaborators:
NODE, Zizu Studio, JINTIANYISHU, Yuanliang LU, Guodong LIU, Yingbiao PAN, Xushikongjian, Meng GUO, Qing Studio, Sen KONG

CURATING THE CITY

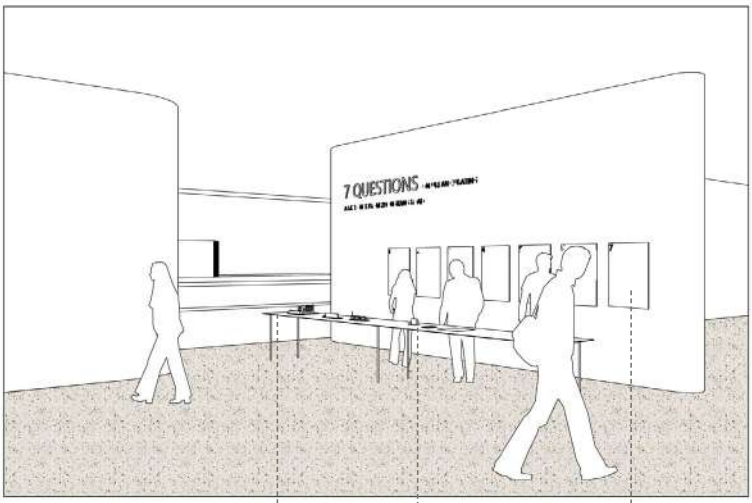
CURATING THE CITY

7 Questions on Urban Curating： A Response from Zhongkang Road

城市策展七问：来自中康路的回应

Exhibition Space Layout Options - 展场布置方案

Option 1




Display Table with 1：200 Road Plan

展示桌，上有1:200 道路平面图

1:200 Models

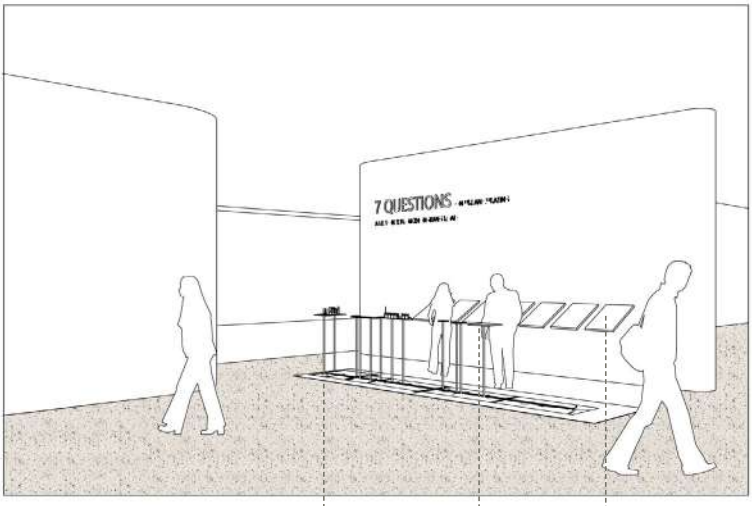
1:200 模型

600 X 900 mm Panels with 3D numbers on the top-left corner.

600 X 900 mm 展板 左上角有立体数字标识。

| | | | |
|---|---|---|---|
| CODE: | UC_1_Zhongkang Road | SCALE: | / |
| PROJECT TITLE: | Zhongkang Road: 7 Questions on Urban Curating | DATE: | 2019 |
| TEAM MEMBERS: | Ya Liu, Yichen Xu | DESIGN CONTENT: | Spac |

Option 2




| | | |
|---|---|---|
| 1:200 Road Plan | 1:200 Models | 600 X 900 mm Panels. |
| Printed on floor | Supported by metal display racks | 600 X 900 mm 展板 |
| 1:200 道路平面图 | 1:200 模型 | |
| | 由金属支架支撑 | |

# City Panopticism

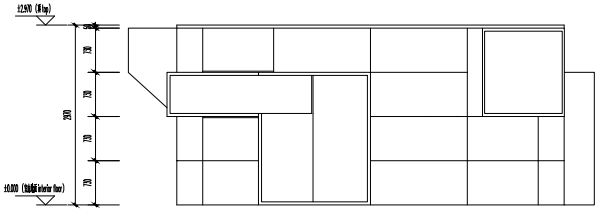
WANG Xiaoyu, WANG Yutian

Two hundred years ago, English philosopher Jeremy Bentham invented Panopticon as a spatial prototype for disciplinary criminals. The lighthouse in the center of the circle emits light from time to time in a 360-degree individual cell, making it impossible for prisoners to know if they are being monitored. In theory, this model efficiently reduces police force, the prisoner is constrained by self-discipline, and Foucault has named it as Panopticism. If the light from the lighthouse in the middle of the panopticon is invisible Eyes at that time, then two hundred years later, with the development of electronic surveillance systems in the city, the camera has become the invisible eyes of the present, effectively restraining crime. It also inevitably exposes people's daily life and redefines the boundaries between public and private spheres. In this context, the device is envisioned as a city panopticon that intended to discuss how people's perceptions of space is reshaped and explore how people interact with each other through the lens of camera and screens.

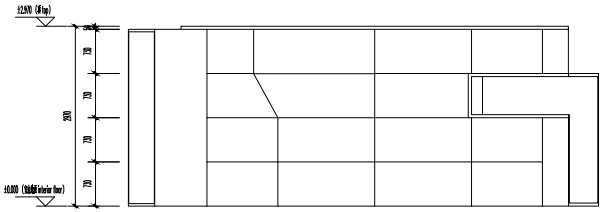
The concept of the device is designed to be hidden in a circular observation room in the public space of the city. Through the replacement of a series of electronic cameras and screens, people's behaviors both inside and outside the device are recorded and displayed and mutually revealed to each other. When a person monitors the others, he or she can also be clearly seen how him/herself are being monitored by the others. The physical image of a person is deconstructed and reshaped by an electronic screen, namely the "eye". The device is specifically designed as a circular wood structure with a radius of 4m and a height of 3.2m. The inner wall is composed of multiple electronic screens, the outer wall is made of hidden frame mirror-effect stainless steel, and there are 6 major apertures with special shapes and interactive functions that connects the inside and outside of the device.

In addition, the design concept is further developed to discuss the displacement of seeing and being seen relationship between the installation and the 9 sub-venue sites. We would like to install one screen and one camera on each sub-venue site and displace the LED screen display between installation site and the sub-venue site. What should be seeing from the installation LED screen is now displaying what's happening on sub-venue site and vice versa. This reversion creates a continuously back and force relationship between the two screens. In this way, we connect all venues with one big observation room, meanwhile, it is fully exposed to the city. Through this reciprocatively interactive process, we would like to discuss a new perspective of connectivity by using digital apparatus.

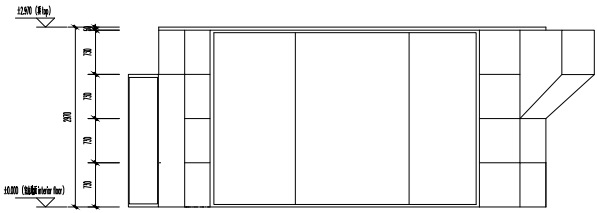
GRATING THE CITY



立面图-15ELEVATION-1 1:75

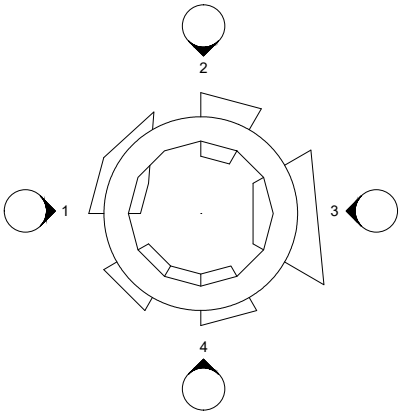


立面图-25ELEVATION-2 1:75



立面图-35ELEVATION-3 1:75

| | | | |
|---|---|---|---|
| CODE: | UC2_CityPanopticon_Wang | SCALE: | 1:75 |
| PROJECT TITLE: | City Panopticism 城市全景敞视主义 | DATE: | 2019/ |
| TEAM MEMBERS: | Yutian Wang / Xiaoyu Wang 王雨田/王晓宇 | DESIGN CONTENT: | ELEV |

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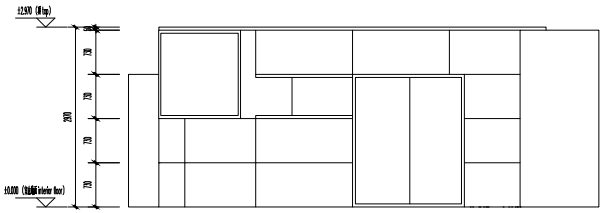

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# Connected Plaza. A Masterplan for the Square of Futian Station for UABB 2019/2020

**Designers:**
Carlo Ratti Associati
Politecnico di Torino (China Room)
South China University of Technology (School of Architecture)
Atelier Bow-Wow + Tokyo Tech Tsukamoto Lab
NODE
Guangzhou Architectural Engineering Design Institute Co., Ltd

**Creative Advisors:**
HIL Architects
iNgAmE Office
Italo Rota
Vector Architects

Strongly characterizing contemporary Asian cities, the notion of "infrastructure" embodies a dualism: besides the overarching idea of connection operated by existing layers of hyper-mobility, infrastructural elements might represent today a cut dividing rather than unifying urban space and the people who daily live it.
What happens when infrastructure becomes the leading element of urban design? Is it possible to combine this technocratic, existing approach, to a more holistic experience of contemporary urban space?
This twofold reflection lies at the background of the Masterplan conceived for the Futian Railway Station area: a physical and social infrastructural project connects people and city space, offering the possibility of "seeing" the city by experiencing a sequence of different urban environments. The creation of a promenade - sewing otherwise fragmented spaces - is the leading idea of a choral project which gathers international designers in re-interpreting the notion of "connection".
Far from being merely intended as technical unifying gesture, the infrastructure becomes a light sequence of elements whose social function does not deny - but rather enhances - the multiple layers of connection in the contemporary hyper-city.
Starting from the hard infrastructural core of Futian Railway Station, the new layers designed for UABB 2019 define an articulated configuration of progressively lighter elements.

Carlo Ratti Associati, Politecnico di Torino/China Room and South China University of Technology developed the new entrances of the Station by reconfiguring the existing shelters and the entrance canopy, while NODE Architecture and Urbanism designed a new stair connecting the Sunken Plaza with the Park, where terraces and slopes encourage the public to enjoy news views of the surrounding CBD and where a central stage and the painting canvas, designed by CRA, would host public shows. Inside the

CURATING THE CITY

Park, Atelier Bow-Wow proposed the "Urban Foresters Club" pavilion, a light social project aimed at displaying the process of forestry as a cycle.
The notion of "care" in conceiving social connections is contextualized in the broader perspective initiated by UABB – Shenzhen Bi-City Biennale of Urbanism\Architecture and in the conception of the exhibition as an experimental field to "curate" the city: though unrealized, Masterplan for Futian High Speed Train will remain as a legacy by designers and Curators for the City of Shenzhen.

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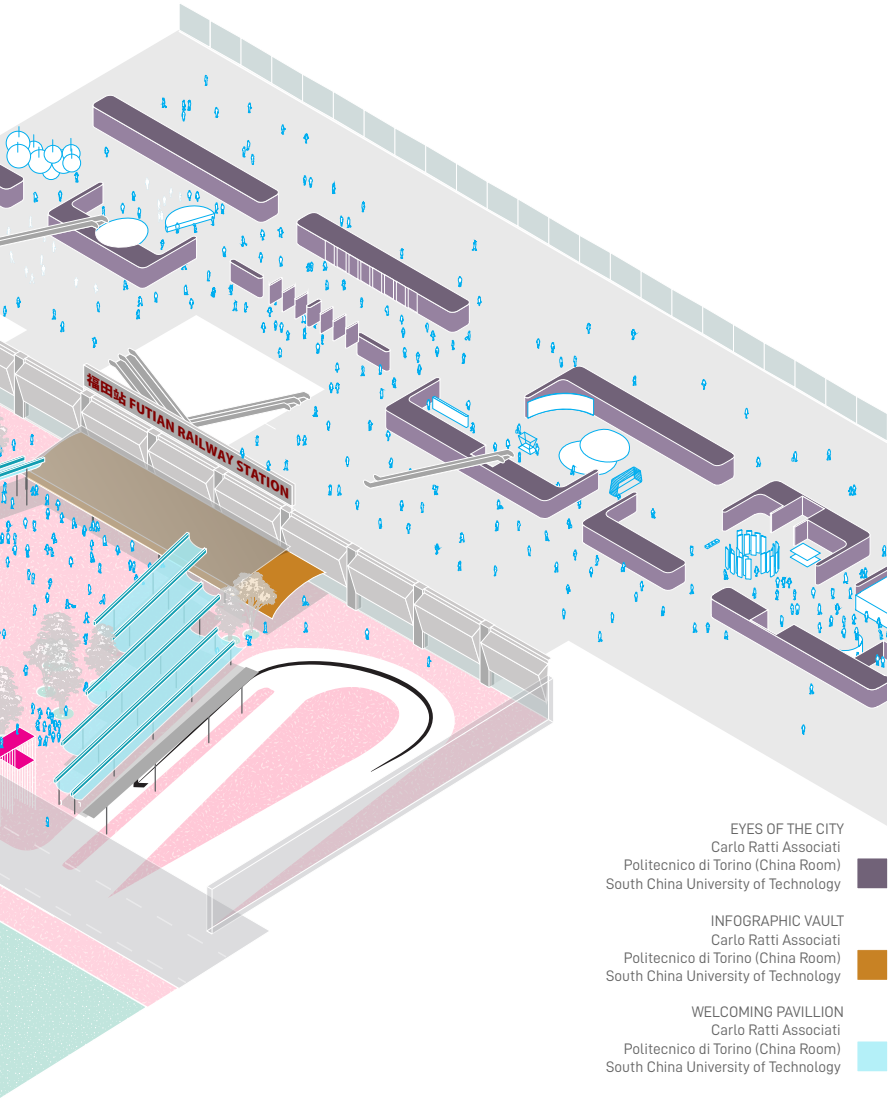
# CURATING THE CITY




EYES OF THE CITY
Carlo Ratti Associati
Politecnico di Torino (China Room)
South China University of Technology

INFOGRAPHIC VAULT
Carlo Ratti Associati
Politecnico di Torino (China Room)
South China University of Technology

WELCOMING PAVILLION
Carlo Ratti Associati
Politecnico di Torino (China Room)
South China University of Technology

CITY THEATRE
NODE

URBAN FORESTERS CLUB
Atelier Bow-wow - Tokyo Tech Tsukamoto Lab

PAPERABSTRACTS

# Paper Abstracts

In April 2019 the open call for the Eyes of the City section of the Biennale was published. It was a three-part call, asking contributors to submit their proposals in the form of design, research or paper proposal. While the selected design and research proposals were eventually made into installations, the authors of the paper proposals worked with the curatorial team to develop full papers. The 14 papers exhibited here were selected out of the 57 initially submitted through a two-stage process that contributed to the curatorial definition of the sections of the Eyes of the City and of its wider scope.

# THE GREATER BAY AREA: INTEGRATION, DIFFERENTIATION AND REGENERATIVE ECOLOGIES

**Thomas CHUNG, Associate Professor, School of Architecture, The Chinese University of Hong Kong**

ABSTRACT

The Greater Bay Area is China's top-down political megaproject to rebrand and internationalise the more geo-culturally rooted Pearl River Delta to address the country's national geopolitics (reintegration of Hong Kong and Macao, and eventually the Taiwan issue), internal strategic planning (consolidating the southern tip of the five city clusters) as well as global ambitions (to become "greater" than other "bay areas"; contribute to Belt & Road Initiative). The Western gaze interrogated the PRD as its own refutation or prefiguring global networked flows (Koolhaas, Castells), while Chinese scholarship deliberated the GBA's configurational complexities of economic region-building, conflicts and contradictions and tendencies of integration and differentiation (Zhou, Wang et al, Wei et al).

Official visions of integration imagine better inter-city collaboration, cross-border cooperation, infrastructure upgrades to facilitate intra-bay mobility, a "one-hour living zone" with improved liveability, even speculating "Bay citizen" as collective social identity. In reality, multiple differences continue to exist, those on which the first SEZs were founded to exploit (witness Shenzhen's spectacular flourishing). Despite systemic disparities exacerbated by unsettling social unrests, Hong Kong's super-charged differences may yet provide reconciliatory possibilities with wider implications.

Besides complementing cores (Hong Kong, Macao, Guangzhou, Shenzhen) and specializing nodes (Dongguan, Foshan, Zhongshan, Huizhou, Zhuhai, Jiangmen, Zhaoqing), coordinating development and managing growth beyond GDP-oriented performance, a genuine multi-level institutional innovation and governance recalibration process is called for. Development patterns heavy on resource input and environmental cost must give way to more enlightened impetus that aspires to place-based, energy-positive and climate-resilient networks, coupled with cultural inclusivity and intellectual openness. Perhaps alternative GBA imaginaries can explore natural analogies – subtropical rainforest morphology merging polyculture landscape to engender an estuarine mega-urbanism, one of regenerative ecologies of complex systems with dynamic flow periodicities enlivened by new economic, social and cultural realities.

# TORRANCE MOBILITY STUDY: HOW CAN DESIGNERS AND CITIZENS HARNESS THE POWER OF REAL-TIME BIG DATA IN NOVEL WAYS TO FOSTER PLANNING'S ABILITY TO RESPOND TO PEOPLE'S NEEDS?

**Rawad CHOUBASSI, Alessandro VACCA, Tiffanie YAMASHITA, Marianna ZURETTI**

ABSTRACT

In 2018, Systematica completed a project on mobility patterns in US cities with a specific focus on the city of Torrance, Los Angeles, through extensive use of Big Data. The purpose of this exercise was to analyse current mobility dynamics to predict future changes and define strategies to responding timely and effectively through mobility offerings. As in the case of Torrance, the use of real time transportation Big Data was used to underpin the planning principles and proposed pilot projects to improve the current urban conditions in Torrance. Both macro and micro data analyses informed the mobility solutions that were most feasible in the area, while innovations in transportation provided a modern and resilient solution realized in a pilot project on Sepulveda Boulevard and the greater Torrance area. The paper sheds light on the role of Big Data in planning and on how this data is used not only to analyse cities but also to plan and design them. Moreover, the paper reveals some of the areas of action where further improvements to the use of this data is still to come, bringing novel methods closer to traditional traffic modelling tools that still prove to be robust and reliable.

# SHAPING SOUNDSCAPES; MULTI SCALES DESIGN GUIDELINE

**Santiago BECKDORF**

ABSTRACT

We live in a world ruled by the built environment. Even though cities represent 2% of the earth's surface, they are responsible for 75% of the world CO2 emissions[1]. Urban Age is an ongoing process that is far from reversing the trend. The study aims to analyse how urban infrastructures, which enable citizens to have access to good and services, impact on natural systems that define the existing peri-urban ecosystems of cities that are facing urban sprawl processes.

From here, the research agenda was developed under the scope of Soundscapes, ecology and mutualistic co-inhabitation between species. Through the application of sensing technologies, the manipulation of data (decibels/frequencies) is possible to suggest strategic design guidelines at different scales from urban planning to material density properties at a site-specific scale. The proposal seeks to rebalance the soundscape, reducing sounds that produce adverse effects over biota, enhancing sonic conditions that imply biodiversity thrive and, drive urban sprawl along urban infrastructure to protect natural soundscapes.

Shaping Soundscapes is about "Hearing the City" and envisioning new ways of interaction between data and design practice towards more sensitive, democratic and livable environments.

*Notes*

*1. BURDET,R & SUDJIC, D. (2011), "Living in the Endless City". Phaidon Press, NY.*

## LABOUR IN THE DOCUMEDIA AGE

Maurizio FERRARIS

ABSTRACT

A few months ago I was waiting for a flight at the London City Airport, the one near Canary Wharf, which means it has the highest imaginable concentration of managers per square metre. The books on sale there, in addition to the usual Art of War by Sun Tzu (how curious that one should use the precepts of a Chinese general from the sixth century BC as a business oracle) were variations on the theme that the winner, who takes it all, is an egotist at best, and a fraudster at worst.

Ultimately, all these handbooks, like the general ideology that we often find in management, make the same mistake that Nietzsche made in his time. Nietzsche's idea was that the Greeks were strong and full of life, and that Christianity then introduced values of resentment and weakness - a morality of the flock that falsified the true original power of humankind. Against this morality of the weak and resentful, the Übermensch had to rise up, affirming the values of life, selfishness, power, and oppression, carrying out a transvaluation whereby moral value would once again coincide with strength, not weakness.

Nietzsche, however, was faced with an irresolvable problem. If the Übermensch is so strong, why is he regularly defeated by the flock? Doesn't this circumstance suggest that his analysis is wrong? Indeed, it is wrong. What eventually wins is not power, but something different, and not necessarily better: what wins is whatever we call "smart", something that looks much more like the knowledge of the needs and values of the flock than like an Übermensch proudly beating his chest. If that is the case, then the right choice would be to place books like The Way of the Wolf, Rebel Talent and What They don't Teach at Harvard Business School on the same shelf as Thus Spoke Zarathustra and American Psycho. And to seek not a return to some heroic, brutal and (most importantly) lost and losing past, but rather an understanding of the present.

# NOOURBANOGRAPHIES OF THE INFORMATION AGE: YOUR REAL ESTATE INTERIOR

Hélène FRICHOT

ABSTRACT

Noology, a concept that names the logic of mind, produces effects that can be affirmative or oppressive depending on how thinking together at the scale of a population manifests in the formation of urban environments. Understood as a logic of a thinking that is both embodied and distributed, singular and collective, noology is ever at risk of being over-determined by a status quo, or what can be called a hegemonic Image of Thought. When noology is mobilised across an ecology of subjectivities then a noopolitics emerges, a society of those who think together. If we assume that noopolitics produces local environmental effects, then something like a critical noourbanography suggests ways of mapping the material and spatial impacts of how populations think together. Responding to the curatorial call that repositions the 'eyes on the street' in this age of advanced technological visioning – human and non-human, live and machinic – this paper proposes to mobilize concepts such as noology, noopolitics, noourbanography to rethink emergent spaces between users and designers in our contemporary societies of control. This work will be undertaken through a noourbanographical analysis of images of designed real estate interiors gleaned from the Shenzhen marketplace of spatial products.

# ON THE MODE OF EXISTENCE OF SMART URBAN OBJECTS

**Lukáš LIKAVČAN**

ABSTRACT

This essay reflects on the evolution of technical objects in the context of contemporary urban development, where "smart cities" discourse stands for a moment of becoming autonomous of the technical objects. In the first chapter, the essay enhance the concept of apparatus (or dispositif) as conceived by Foucault and later on by Agamben, notion that come from the Hegelian positive religion. The second chapter continues to develop this idea of the productive power of apparatuses through focus on fetishism as a practice of social creativity. In the situation when cities become populated by autonomous machines, it is argued that social creativity become a non-human skills.

The third chapter builds on this last observation, presenting a notion of communal intelligence as mediation between multitude human and non-human elements.

Smart cities of the 21st century mark in this phase a moment of redistribution of rational competences: creative and intellectual activities formerly enacted by humans are delegated to single technical objects and or ensembles of them.

After this claim, the essay closes with a final chapter, building a vision of the 'city-to-come' as a metabolic multitude, echoing Paul Virilio. This comparison allows us to view the city as a productive armature, non-narcissistic fetishism, where the autonomy of technical objects – formerly conceived as reflections of human competences – develops alongside its independent evolutionary trajectory and invites us to reflect on the ethics of the forthcoming urban design.

DIGITAL SOCIETY

# STREET ART IN THE DIGITAL AGE: PHOTOS, DOCUMENTS, URBAN AGENCY

Andrea BALDINI

ABSTRACT

In the last decade, social networks have made available to internet users a constantly expanding gallery of street artworks. Communicating technologies have then radically changed how we engage with this art form. We primarily appreciate street artworks as and through photographs, in ways suggesting an epistemic and ontological primacy of the "reproduction" over the "original."

For its constitutive linked with the city, the street art's digital media revolution have affected how we perceive, experience, and conceptualize public space. First, web-shared photographs of street art function as documents. Second, such documents do not just function as traces of urban memories, but also as enablers of urban agency, showing new ways to use the city. This transformation also finds its way back again into the digital stream, activating a constant loop connecting material and virtual reality. The binary code is also reprogramming the material world.

# DISCRETE AUTOMATION

**Mollie CLAYPOOL**

ABSTRACT

This paper looks at the historical and theoretical political and economic contexts, and social and technological consequences, of implementing an architectural approach such as Discrete in the automation of the built environment. In the last several years the Discrete has emerged as critique of earlier paradigms of digital architecture that "asserts that a digital form of assembly, based on [discrete] parts that are as accessible and versatile as digital data, offers the greatest promise for a complex yet scalable open-ended and distributed architecture".[1]

Drawing on research developed in the last several years on the Discrete in Design Computation Lab at The Bartlett School of Architecture, UCL, the paper examines the historical and contemporary constraints in the architecture and construction industry preventing large-scale automation, including existing automated technologies used for realizing buildings. Particular emphasis will be placed on outlining the key aspects of automated frameworks for the increased agency of the public in the co-production of the contemporary city, looking at issues of labor, inclusivity, accessibility, efficiency and scalability. It will aim to outline a critique of these industries, arguing that in response Discrete Automation can enable the participation of a wider group of stakeholders in the built environment.

*Notes*

*1. Retsin, G. "Bits and Pieces." 2019. Architectural Design, Vol. 89 (2), Discrete: Reappraising the Digital in Architecture. Wiley & Sons.*

# PROTOCOLOGICAL ARCHITECTURES: RECURSIVE REMEMBERANCE

Charles DRIESLER, Ahmad TABBAKH

ABSTRACT

If architects are tasked with abstracting design as instructions, and if drawings are ultimately graphical projections of intent, then our attention should turn to the recent invention of objectively actionable language: computer programming. We track how canonical “computational” and “participatory” projects like Christopher Alexander’s patterns and Cedric Price’s scaffolds took this development as an opportunity to package the process of design into a black box and step away from the built product. But where they saw the possibility for an architecture without architects through greater participation in design, we assert that participation has always been a red herring. We propose reconceiving design as the creation of protocol: elective instructions with objective definitions and goals. In that way, this paper is both a continued rejection of determined proposals as the object of design and a defense of the human designer’s continued existence. We then outline how the inherent indeterminacy, unpredictability, and greater chance for error within protocols are productive constraints in an era of machine intelligence. The paper concludes with a specification for an example protocol. We employ a generative adversarial network (GAN) in the context of postwar reconstruction efforts and evaluate its usefulness as a tool for preservation.

# THE DEEPFAKE DISTRICT

Pierce MYERS

ABSTRACT

The Deepfake is an AI technique for human image synthesis. It is used to combine and superimpose moving images onto source images using Generative Adversarial Networks (GANs), a type of Deep Learning. GANs generate input and determine how accurately the generated input portrays the target criteria, often a 'face'.

The Deepfake District is a speculative architectural concept in which GANs operate at the scale of the city, as opposed to the human image. It is both a metaphor for the wide-ranging forms of mediated urbanism to come, as well as a conceptual plan for the design and implementation of a district today. The Deepfake District builds from the analogy of the facade as face, when urban spaces are mediated and layered over by the interfaces of digital platforms and the stacks that support them. Just like the face, the image of the city is constantly remapped and superimposed upon by new forms of economic and cultural production and the aesthetics that accompany them. Design districts, art fairs, creative co-works, biennales, and culture zones are the prototype launch sites for augmentation by generative AI and the future modes of production they incur.

# CONCEALED CITY

Monica HUTTON

ABSTRACT

The evolution of disguise in design can be discussed as a socionatural response to emerging technological scenarios. Decentralized infrastructure distributed throughout cities and peripheries continues to change the way individuals and groups view the city, and how the city views us. There is a growing presence of devices that actively view, collect, share, and process data related to our everyday activities. In a world that is becoming increasingly monitored, and arguably more transparent, innovations to remain discrete, unobtrusive, and hidden are emerging. The rise of concealment design to disguise technology or subjects in the environment is becoming more sophisticated. In turn it is altering the legibility of urban space. It has become difficult to decipher and easy to be deceived. Camouflage that occurs naturally across species has long been a source of ecological study. Over time it has come to influence designs that blend and mimic the aesthetics and form of subjects in urban environments. The following aims to articulate the relationship between cross-species bodies and urban space as simultaneously natural and human-made.

It examines how disguise is used as a tool of power and resistance, drawing on examples of groups and individuals who are deploying, responding to and re-appropriating technology to conceal objects, themselves, and others. These evolving design practices, and rising creativity support speculation on the future blending between nature and culture.

# TRAVELS IN WOUNDEDLAND
## Atmospheres of spectacle and activism for resilient urban commons in the age of translocal and transductive territorialisations

**Manfredo MANFREDINI (Coordinator), The University of Auckland, New Zealand; Mingxing SONG, Hunan University, People's Republic of China; CHEN Hui, Hunan University, People's Republic of China; Paola LEARDINI, University of Queensland, Australia; Haison WANG, Shanghai University, People's Republic of China.**
**Staff and students of The University of Auckland, New Zealand (UoA); Hunan University, China (HNU); University of Queensland, Australia (UQ); Shanghai University, China (SHU); and Cambridge University, United Kingdom (CAM).**

ABSTRACT

Woundedlands are places of crisis where architecture contributes to the exclusion, abstraction and control that, with the changing technological framework, escalates dissociative forces that annihilate the collective, the civic and the political. The wall—a harsh boundary displacing and negating access to the stranger—represents them as the epitome of unmovable and unforgiving socio-spatial divides of stalled/latent conflicts. The heavily armed Korean Demilitarized Zone is an egregious example. Its recent spatial production is characterized by two major phenomena: translocalization—the accelerating mobilization of territorialization patterns—and transduction—the iterative production of immersive meta-stable spatialities.

Articulated design propositions reimagine this woundedland as productive utopia: a reappropriated and (re)creative wonderland with rich mixes of instrumentalities for relationality and maximal difference. In its growing metastability, latent counterforces are affirmed and given consistency. A coordinated narrative set reimagines utopia. Discursive frameworks with scenario-based, context-specific and sign-value articulations, and tightly signifying chains of recoded elements envision alternative spatialities. Challenging and transmuting the failures of the contemporary mode of production, the alienating symbolic warfare is recast into possible analogue worlds. Leveraging on the productive agency of desire, utopia is made accessible as allegorical fabulatory proses of (extra)ordinary commoning machines for pluralism, justice and jouissance.

# LATENT CITIES WITH EYES WIDE (AND) SHUT

**Federico RUBERTO**

ABSTRACT

How do we look at the city and how does the city looks at us? The city is undergoing an ontological-aesthetic-ethical transformation that needs to be understood by exposing and speculatively naming the underlying complex process that makes the “city-everywhere”, the cosmo-poli(tic)s that fabricates “us” at the same time. To overcome the city physical/digital divide we shall start discussing the city as latent-space(s), a fibrous, discretized, spectral multi-linearity of stories, a complex assemblages of feedback-loops built between human and non-human agents. The city-tomorrow-now is “depth”, the immersive relationship mediated by augmenting devices between the scalar interpolative multiplicity of machine-learning driven processes and agents building the dyadic, digital-physical, spaces of the city; its true real-virtuality. After mentioning limitations of the current computational apparatus the paper concludes narrating the necessity of designing the “city” by modelling “fictions”, hybrid multi-dimensional sequences —causal and non-causal real-time intersections of physical and digital “events”— challenging biases-discriminatory and commodifying practices. There is not one nature-form-identity, or “image of the city”, since its nature(s) is a matter of continuous virtual construction.

## THE BLINKING EYE

Viktor MAYER-SCHOENBERGER, Karl-Heinz MACHAT

ABSTRACT

Big Data and machine learning (ML) are outstanding strategies for city planners and managers to improve their decisions and enable predictability and stability. They work particularly well, when the future is a continuation of the past. Unfortunately, the very technologies these tools are built on also facilitate transformative changes of economy and society, leading up to disruption. In such disruptive times, the future is quite unlike the past – or, technically speaking, there is simply not enough training data for Big Data and ML to bring about stability. Taking a cue from nature, therefore, in times of disruption the best strategy is massive experimentation. In the context of the eyes of the city, we suggest such experimentation is best enabled by creating moments of void, of temporary disconnection and disorientation. We ask the eyes of the city to blink – to enable, as we explain in greater detail in our submission, interventions such as the social island, the data DMZ or the Terrain Vague, among others.

## ABOUT UABB

Bi-City Biennale of Urbanism\Architecture (UABB) is currently the only biennial exhibition in the world that is based exclusively on the set themes of URBANISM AND URBANIZATION. Co-organized by the two neighboring and closely interacting cities of Shenzhen and Hong Kong, UABB situates itself within the regional context of the rapidly urbanizing Pearl River Delta, concerns itself with globally common urban issues, extensively communicates and interacts with the wider public, is presented using expressions of contemporary visual culture, and engages in international and avant-garde dimensions as well as discourses of public interest. **http://szhkbiennale.org/**

## ABOUT 2019 UABB

The overarching theme of 2019 Bi-City Biennale of Urbanism\Architecture (Shenzhen) is "Urban Interactions". Chief curators for this year's UABB are Architect and Director of MIT Senseable City Lab Carlo Ratti, CAE Academician Meng Jianmin and art critic Fabio Cavallucci. Under the theme of "Urban Interactions", there are two parallel sections, namely "Eyes of the City" and "Ascending City", both exploring the evolving relationship between cities and new technology. The "Eyes of the City" section features Carlo Ratti and Politecnico di Torino-SCUT as the curatorial team, while the "Ascending City" section is to-be curated by Meng Jianmin and Fabio Cavallucci.

## WHERE & WHEN

**Urban Interactions**
**Bi-City Biennale of Urbanism\Architecture (UABB)**
**Shenzhen, China**

Opening ceremony: December 21, 2019

Open to the public: December 22, 2019-March 2020

Closed for Chinese New Year (January 19-February 3, 2020)

Eyes of the City
Futian CBD, Futian, Shenzhen, China

*This publication was edited by Camilla Forina and Jiachen Lin*
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