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Belgium's Forgotten Women Designers: The Wiki Women Design Project

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Few architectural historians will be familiar with the work of Belgian designers like Eliane Havenith (1918–2004), Simone Guillissen-Hoa (1916–1996) or Anita Evenepoel (1945). At best, historians may have heard of their names and the context in which those names appeared — for Havenith, for example, Can you and *Bouwen en Wonen* [Building and Living] magazines — but their knowledge would probably stop there. These are examples of designers who have remained obscure until now because they were edited out of patriarchal accounts of history. The legacies of these invisible women formed the point of departure for the Wiki Women Design Project, which was launched by the Flanders Architecture Institute in October 2020. At its core, the project consists of what today may be called a classic feminist approach: researchers set out to identify female actors and to (re)write their histories, mainly through the use of primary source material. The breadth of this project, which includes women active in interior architecture, graphic design, fashion and product design, together with its digital format, marks it as a milestone in the study of women and design in Belgium. The Wiki Women Design Project consisted of 11 writing sessions — 'edit-a-thons' — and had 237 participants and a list of 184 Wikipedia entries. Writing sessions were organized by, among others, the Design Museum Ghent, the Fashion Museum in Hasselt and the Museum for Art and History in Brussels. The last writing session coincided with 'Matrimony Day' in Belgium, which is organized annually as an alternative to the notion of patrimony. The project had an impressive list of partners and supporters, including archives and museums, universities, designers and the Wikimedia Belgium community. It concluded with an international conference on the theme of Women, Design and Heritage and an evening debate about the experiences of women designers today.

In Belgium, the tradition of writing about women and design is fairly recent. In 1997 Hilde Heynen and Christine Delhaye published the article 'De Zij-kant van architectuur' [The She-side of Architecture] in *Tijdschrift voor Vrouwenstudies* [Journal for Women's Studies], the first exploration of this topic as it relates to Belgium. Further initiatives have been restricted to the engagement of individual researchers: Heynen, for example, has written about women and architecture, and Marjan Sterckx has explored the theme of women and design. From this perspective, the importance of the Wiki Women Design Project lies in the fact that it was supported and executed by a range of institutions — it was created with the support of 27 partners in total — signaling the wider acceptance

of this approach within Belgian academia. A characteristic of the Wiki Women Design Project is that its point of departure is the blind spots in archives rather than the narratives of history. In this respect, the project is a follow-up from a number of earlier initiatives. In 2016 Ellen van Impe and Eva Van Regenmortel published the *Archievengids Vormgevingserfgoed in Vlaanderen na 1945* [Archival Guide Design Heritage in Flanders after 1945], in which they noticed that more than 90% of the design archives stored in public institutions were about men. This gender gap also exists in other fields: the Design Museum in Ghent, for example, accommodates the largest design collection of Flanders, and among its 23,000 design objects, only 606 are registered under the name of a female designer. In the archival collection of the Flanders Architecture Institute, only 4 of the 200 archives are about women designers. In addition, another project, called Design in Kaart [Mapping Design], executed in 2020 by the Design Museum Ghent and the Flanders Architecture Institute with the goal of exploring the post-war field of Belgian design, found that many women were active in the field but never ended up in an archive or in a design collection. Of the 3,547 personal records collected for that project, only 1,047 could be attributed to women — less than one third.

The choice to use the Wiki infrastructure as the venue for the project is a response to the feminist demand for visibility. Wikipedia is one of the most visited sites on the internet, and its entries show up as the first search results of almost any web search. The Wiki Women Design project also follows upon earlier initiatives of this kind, such as the project WikiD: Women, Wikipedia, Design, created by Parlour in Melbourne, Architexx in New York, and N-ails in Berlin in 2019. A Belgian precursor was the project Just for the Record, from 2016, which investigated how gender is represented in new media and how writing tools such as Wikipedia influence the way history is recorded. The assumption behind these projects is that Wikipedia affects knowledge acquisition and history writing; however, they could also be seen as a critique of Wikipedia itself, as women are underrepresented here as well, both as authors and as subjects. The use of Wikipedia offers an innovation to the writing of architectural history in three ways. First, because it works with standardized entries which are the same for every subject, it has an equalizing power. A well-established scholar such as Hilde Heynen thus stands side by side with the unknown ceramicist Simone Kroll: both are discussed in the same framework and in the same manner. Second, it exchanges individual authorship for corporate ownership, thus creating a history to which everyone can contribute, instead of architectural history being the privileged domain of the lucky few. Third, it offers an opportunity to pursue a critique vis-à-vis data, silencing those who state women have no place in architectural history because there were no women designers.

In collaborating with various institutional partners, the Wiki Women Design project yielded substantial knowledge about women designers in Belgium. From the collaboration with the Faculté d'architecture La Cambre Horta in Brussels, for example, it became clear that Jeanne van Celst was the first woman architect working in Belgium. She worked with her husband, Charles Emonts, in the 1920s and '30s, and in 1925, she was the first woman to be admitted as a member of the Société centrale d'architecture Belgique (Central Association of Architecture Belgium). Apparently, knowledge about her is still fragmentary as the Wikipedia entry does not mention dates of birth and death. The first woman who graduated as an architect — Van Celst worked without a formal diploma — was Claire Henrotin, for whom only a date of birth, 1908, is known. Henrotin graduated in the year 1929-30 from the new La Cambre school of architecture, which had been founded by Henry van de Velde two years earlier. From the collaboration with the Museum for Culture and Architecture in Brussels the archive of Eliane Havenith (1918–2004) surfaced. Havenith was a rather high-profile architect who graduated from the National Higher Institute for Architecture and Urban Development in Antwerp in 1943. She was the secretary of CIAM Belgium in the 1950s and a member of the editorial boards of such magazines as *Architecture* and *Bouwen en Wonen*. Researchers at the Platform voor Architectuur en Ruimte [Platform for Architecture and Space] in Turnhout discovered the forgotten architect Florette Vancauwelaert (b. 1944), who in the 1960s studied architecture at the Académie royale des beaux-arts de Bruxelles, the only school that admitted women in Brussels at the time. The Wiki Women Design project also yielded a wealth of information about female designers in Belgium, such as the experimental jewelry designer Anita Evenepoel (b. 1945), the graphic designer Frida Burssens (1930–2020) and the designer Alice Holbach (1872–1951). Working with contemporary designers gave some authors the chance to develop their entry in collaboration with the designer, as was the case for Linde Hermans (b. 1945), about whom a very informative entry was written.

Of course, a project like this also has its questionable sides. As is perhaps inevitable, the quality of the articles varies, with some biographies being quite extensive and others being just a few lines. Also, in the list of subjects, a considerable number of 'red links' remain, indicating entries that still need to be written. In addition, some entries remain difficult to find on the internet. This suggests that the project is in need of following up; articles will likely not be written spontaneously without some overarching organization. Another problem is that the articles on Wikipedia cannot be the end station for the study of women in design in Belgium: rather, they should be considered as stepping stones on the way to a full integration of women into the canon of the design history of Belgium. For this, we need exhibitions, academic studies, conferences and so on; Wikipedia alone

will not do the job. In each case, the Wiki Women Design Project has given us a taste for more; if the much needed follow-up occurs, this project could become the prelude for a different Belgian architectural history.

Imagining Rio

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In the last few years, research results are not only being published in digital and open format, but research materials and data are quickly accessible, accelerating the progress of knowledge. In 2020, the need to digitize and make available the resources of archives, libraries, museums, public administrative bodies, schools, universities and so on was further evidenced by the Covid-19 health crisis and the restrictions imposed to curb its spread. The pandemic highlighted the importance of widespread access to information and the role of technology in this challenge.

Digital portals are not only open but also collaborative, interactive, dynamic, searchable, updatable and upgradeable. Their content can be displayed on different devices and shared in different ways. These characteristics define the project called imagineRio. Created by the Spatial Studies Lab of Rice University (Houston, Texas, USA) in collaboration with Axis Maps, imagineRio is an interactive diachronic map of Rio de Janeiro in Brazil that enables the user to become immersed in the built landscape of the city over time. This project was born in 2010 as the idea of two professors from Rice University, Farès el-Dahdah, an architect, and Alida C. Metcalf, a historian. They collected visual material to illustrate the history of Rio de Janeiro and shared a repository with which their students could work (El-Dahdah, 2020).

To situate the increasingly abundant historical maps and site plans in space and time, it was necessary to create a database that would eventually become a powerful Historical Geographic Information System (HGIS). This project therefore consists of an easy-to-use online atlas where maps and site plans are georeferenced and can be searched through a timeline. It also includes unexecuted urban and architectural projects, and its creators explain that the project thus shows the evolution of Rio de Janeiro not only over time but also as it has been imagined.

An ongoing project and an upgradeable concept, imagineRio has evolved since its inception in 2010. The team improved the interface of the initial version, making it more attractive and intuitive. Currently, in the third iteration of the platform, in

partnership with the Instituto Moreira Salles (IMS) and Axis Maps and with the financial support of a Getty Foundation Digital Art History Grant, the imagineRio research team is integrating 4,000 views from the 19th and 20th centuries from the photographic collection held by the IMS, greatly expanding the scope of the website. This part of the project, called Situated Views of Rio de Janeiro, geocodes historical images from glass plate negatives, stereoscopic views and prints in a time-sensitive map, each linked to a view cone showing its area of sight (Passos & Heyman, 2021).

The website presents the project as comprising three main sections, all linked in the main menu: Iconography, Narratives, and Map. The iconography section gathers all the graphical material (maps, views, plans and aerials) with different search, filtering and display tools. The user can explore each iconography result (views, maps, plans) in a user-friendly image viewer and check its metadata (identifier, title, creator, date, source, related links and copyright information). Historical views and photographs appear as points on the map, and a view cone and a key data label appear when the cursor overs over a point. When selecting a historical plan, it appears, georeferenced, in the map pane, and the transparency between the overlaid images can be adjusted.

This story map platform allows users to intuitively create and upload visual and dynamic presentations about Rio de Janeiro. It uses GIS layers and graphical materials in the database to illustrate the user's own multimedia content and locate it in time and space. Some examples are a study about the city's port transformation in the 19th century, a vision of Rio in the 1950s conveyed through the spatial-based reading of a novel and ongoing research on the origin and evolution of Rio's *favelas* (Higino da Silva 2021; Marques 2021; Salomon 2021). At the moment, not many more narratives are published on the website, but the application itself is a valuable tool for sharing findings and teaching materials. Hopefully, in the future the project will bring together more narratives that leverage the imagineRio collection and provide new interpretations and insights into the history of the city.

The map section is the most innovative contribution of the project. When accessing the map, the user sees a timeline from 1500 to 2020 at the top of the page, with a slider to adjust the desired year of the map and two outer circular sliders to establish a date range for images. The rest of the screen is divided into two parts: the image pane, which displays the filtered results and allows the user to sort and search, and the resulting interactive map, adjusted to the selected year. The latter allows the user to move around and also tilt or rotate the map, as with any 3D viewer.

The map legend displays the GIS vector layers organized in different categories, whose content changes according to the selected year: neighborhoods, buildings (civil,

military, religious, etc.), public spaces (squares, parks, cemeteries, beaches), roads, utilities (aqueducts, fountains, reservoirs), inland waters, ground cover and physical points. The user can turn layers on and off to customize the view and can also search and highlight elements by name, making it easy to explore changes in the city's built environment over time.

The imagineRio team suggests promising lines of research for the future (El-Dahdah, 2020). Through the integration of the IMS photographic collection, they are exploring the possibility of automatically extracting architectural information from historical photographs by rendering them in three dimensions through monoplotting, a photogrammetric technique to reference oblique terrestrial images to a Digital Elevation Model (DEM) of the depicted landscape (Bozzini et al., 2012).

The results of the project to date demonstrate that imagineRio is a practical tool for documentation but an especially powerful one for dissemination, inasmuch as it gathers the photographic and cartographic heritage of the city in an open and intuitive HGIS platform available to the public. The rich graphic material, digitized and integrated into a geographic database, constitutes a resource of great potential to support the development of research and the creation of didactic materials in different disciplines. The aim of the project is also to host and share them as 'Narrativas'. The imagineRio project provides a concept that can be replicated in other cities and contexts to promote the digitization and dissemination of collections linked to urban history.

Discovering a 'Hidden Florence': Immersive Experience and Prosthetic Memory in the Renaissance City

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Florence has been a popular tourist destination for centuries, yet anyone who has visited in recent years has experienced a city bursting to capacity that is difficult to navigate. Before the start of the Covid-19 pandemic, over 16 million tourists poured into the historic city center to stand in the shadow of Filippo Brunelleschi's dome and pay homage to the famous works of Renaissance art in Florence's museums and churches. Tourist overcrowding has posed serious challenges to the quality of experience in the city, as extremely long queues, packed galleries and mobility congestion contribute to increased levels of stress and dissatisfaction for both visitors and residents alike. In a city as well-traveled as Florence, what is left to discover?

Led by Fabrizio Nevola, David Rosenthal, Nicholas Terpstra and Donal Cooper, a team of Renaissance scholars and digital media specialists collaborated on a digital app, Hidden Florence, that introduces tourists to a new way of experiencing the historic center. Free and easily downloaded to smartphones, the app provides six outdoor walking tours of Florence, each narrated by a historical personality from the 15th or 16th century and designed to immerse tourists in the social world of their Renaissance city. The app uses geolocalization technology to visualize the individual user's live position on a digitized version of Stefano Bonsignori's late-16th-century map. Each tour begins at a specific site: the audio guide is activated once users have reached the correct GPS location. Although all tours explore the historic center, they often weave through streets and off the beaten track, thus revealing a 'hidden' Florence. The organization Firenze Patrimonio Mondiale (Florence World Heritage) has already lauded the app for its de-centering of tourism in alignment with the 2016 Action Plan of the Management Plan of the Historic Centre of Florence. Yet, beyond simply encouraging tourists to explore new spaces, the app also provides new ways for visitors to consider the city's social history, the built environment and Florentine identity.

The app's tours are designed to construct an empathetic relationship with a diverse set of individuals who once populated the Renaissance city, from the wealthy and powerful to the orphaned and disenfranchised. Depending on the narrator's socio-economic background, the sites featured on a given tour are framed as symbols of the well-functioning city-state or as reminders of political oppression and social hardship. The earliest narrative account, provided by Cosimo de'Medici, is set in 1459 and travels from the Baptistry of San Giovanni northward into his family's neighborhood. As the wealthy banker and unofficial ruler of the Republic visits sites of his patronage that helped to shape his political identity, including well-known tourist sites, such as Palazzo Medici and San Marco, and lesser-known locations like Sant'Apollonia and Santa Maria degli Angeli, he presents the urban environment as a manifestation of his largesse and magnificence. By contrast, two tours narrated by Giovanni, a wool worker from 1490, present the city from the cheeky and decidedly different perspective of a politically alienated laborer. Giovanni introduces tourists to his more modest church and home in the neighborhood of Sant'Ambrogio and describes the communities that once gathered in the local tavern, market, apothecary and artist workshops. His stories about the people and places of his everyday life are peppered with frequent critiques of the structures of Florentine power and offer insight into common preoccupations of the working class. Marietta, an orphaned and widowed single mother and silk weaver from 1561, guides tourists to the spaces of the most socially marginalized in the Renaissance city. Beginning at the orphanage of the Ospedale degli Innocenti and moving to the

Orbatello widow's asylum, Santa Maria Nuova hospital, the Bigallo boys refuge and the Office of Decency that regulated sex workers in the city, she characterizes Renaissance Florence's charitable institutions as socially progressive while illuminating the struggle of women who fell outside the traditionally defined roles of daughter and wife. The social diversity of the narrators sets the Hidden Florence app tours apart from the traditional guided tour. They each bring to light their on-the-ground social world and provide the context by which tourists can meaningfully engage with the city.

Blending user participation and first-person narrative storytelling with additional options for more scholarly information or a virtual 3D experience, the Hidden Florence app transforms the traditional passive tourist into an active, engaged investigator of the built environment. Once the audio commentary at a particular site is triggered by the proper positioning on the map, an individual can move around and explore while listening to the narrator's tale. At times, the user is guided to look at specific details within the built environment — a tabernacle on a street corner, a sculpted relief inserted into the side of a building, an inscription or plaque on a wall — but is also given non-directed information that allows the user to contemplate the larger context of each neighborhood and its architecture. After the audio segment is complete, the user can choose to explore further and enter the churches, museums and public buildings highlighted in the stories before moving to the next geoposition.

Despite the positive advantages of employing imagined historical figures as narrators, historical personification through imagined script and performance is nonetheless fraught with the potential danger of distorting the past through the imposition of explicit or implicit subjective biases. Each narrator relays a somewhat heavy-handed version of their role in society, and the professional voice actors who perform their identities employ rhetorical strategies to portray differences in their characters' social class and education. For example, the script for Cosimo de'Medici emphasizes mainstream interpretations of his political power as 'a City Boss', a godfather figure who needed to give back to God in the form of patronage to settle accounts. In a highly anachronistic manner, he characterizes himself as 'a prince in all but name' and openly admits to tax evasion and usury to defend his expenditure of money and social maneuvering. This particular Cosimo is brought to life by the posh English voice of James Faulkner, the actor known for his roles as the ruthless Randyll Tarly on HBO's Game of Thrones and the voice of Severus Snape in the Harry Potter and the Half-Blood Prince video game, layering contemporary popular culture associations onto the representation of Medici power. For the imagined character of Giovanni, on the other hand, Colin Guthrie employs Cockney English, transposing the working-class London dialect on a 15th-century Florentine. Given the social signification of

and contemporary attitudes toward these speech variations, their explicit use in the theatricalized tours may inadvertently enforce negative social stereotypes or lead to broad generalizations that seem contrary to the project's overall effort to construct a more nuanced understanding of the social world of Renaissance Florence.

There are some technical glitches that users will experience on occasion, such as when the user's live position in the city is not aligned with the visual positioning on the map, obscuring the exact GPS point at which the tour will advance to the next audio segment. Other moments of dissonance sometimes occur due to errors in the narration or when the inevitable scaffolding for a restoration project blocks the visual prompt for the tour session, which happened at multiple locations. Stefano Bonsignori's map is dated later than the purported experiences described by the narrators in the tour, thus often offering a close approximation of the built environment but not always a precise one. Nonetheless, the remarkable similarities of the streets of the Bonsignori map to those of present-day Florence make it an ideal cartographic foundation for the user's experience. The digital media team successfully retained the map's high quality and accuracy in the app's display by creating high-resolution tiles that were then stitched together and geolocated.

Overall, the Hidden Florence map provides an informative platform through which tourists and students of the Renaissance can explore the city and its history. Harnessing the technologies of mass culture, the app's design cleverly empowers the user as a co-producer of the experience and thus enlivens the detail-rich historical narrative through the construction of firsthand, sensuous memories. By literally taking a walk and seeing through the eyes of a specific historical member of Florentine society, the user's space and time is folded into the narrator's experience. Thus mapping — quite literally — the present onto the past, the user constructs 'privately felt public memories', what Alison Landsberg has termed prosthetic memory (Landsberg 2004). The app provides a remarkable model for the innovative dissemination of historical research through somaesthetic engagement and creative placemaking.

Reconstructing and Teaching Medieval Paris in the Digital Age

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Digital mapping and imaging technologies have transformed architectural research in recent years, not only by revealing the secrets of existing buildings and hidden layers of subterranean cities — spectacularly demonstrated by the BBC television series *Invisible*

Cities — but by powerfully creating vivid reconstructions of lost historical spaces. No longer the preserve of construction and heritage professions, three-dimensional scanning and photogrammetry are becoming increasingly accessible to architectural historians thanks to lower hardware costs, handheld scanners and more intuitive software. Caroline Bruzelius has written that laser scanning has opened up new horizons for architectural research since it generates detailed, non-invasive measurements of fragile buildings, which can unearth fresh evidence about historic construction techniques. Meredith Cohen uses digital technologies to create virtual models of lost medieval architecture, which, she argues, facilitates a deeper understanding of the historical built environment by allowing architectural historians to work with material evidence in three dimensions.

The digital reconstruction project Paris Past and Present grew out of Cohen's award-winning 2015 book on Sainte-Chapelle, reflecting her realization that only a handful of buildings contemporary with the 13th-century royal chapel remain standing today. Cohen's mission is focused on creating 3D reconstructions of the lost buildings and spaces of medieval Paris, including the Louvre, the Temple and various religious institutions. Many of these sites were demolished after 1789. Although Cohen's project is not the first to create digital reconstructions of a medieval city, Paris Past and Present is notable for its rigorous, methodological approach that combines painstaking documentary research with computer-aided architectural modeling to produce historically informed and structurally coherent reconstructions. As of November 2021, the project has begun reconstructions of around ten architectural complexes located within medieval Paris — some of which still have surviving buildings while others no longer exist as physical sites in the present-day city.

Undertaken by Cohen and Kristine Tanton, with the support of the UCLA Center for Digital Humanities, the most detailed reconstruction to date is of the Lady Chapel of Saint-Germain des Prés, originally built in the mid-13th century and demolished around 1802. The website presents some of the documentary sources used in its virtual reconstruction, alongside screenshots of conceptual digital 3D models developed during the reconstruction process using Vectorworks software. Cohen and Tanton determined the general form of the virtual chapel by piecing together evidence found in manuscripts, written descriptions, engravings and maps. Photographs of extant masonry fragments and sculptural elements of the demolished chapel were converted into 3D photogrammetric renderings, which were imported into Vectorworks to help define the precise dimensions and proportions of the reconstructed building. Surviving fragments of a pier and a dado also helped determine a number of the interior design details. However, such reconstructions also require a degree of careful speculation

to recreate missing elements that were not captured in written or visual records; researchers drew on built precedents and comparative studies to produce informed decisions about the final design of each reconstruction as the virtual 3D puzzle came together. The researchers prioritized architectural accuracy of virtual reconstructions and used photogrammetry of surviving fragments to prove that some historical plans of the chapel were inaccurate. While this meticulous investigation is an important reminder that architectural drawings are rarely archaeologically exact, the quest for structural accuracy in the reconstruction comes at the cost of rather monotonous renderings that lack the textures, tone and material qualities that shine through in the existing building fragments.

The virtual reconstruction can be explored as a fly-through animation of the chapel or as a 3D interactive view — users can toggle between interior and exterior views, rotate the building through any conceivable angle and zoom in to inspect elements of the structure in greater detail. The digital model can also be viewed in 3D using Sketchup with mainstream virtual reality headsets, including smartphones with an appropriate viewer, but I was not able to test this technology. A video usefully highlights how the surviving architectural fragments fit within the overall structure of the reconstructed chapel and identifies the present-day locations of the fragments, including the Musée de Cluny, a public garden adjacent to Saint-Germain des Prés church and a municipal storage facility.

Paris Past and Present is noteworthy for placing teaching at the center of the research project through Cohen's undergraduate art history course at UCLA, Digital Gothic, and a residential course in Paris examining medieval art and architecture and its afterlives. Drawing on Cohen's virtual reconstruction methodology, these courses have developed an outstanding pedagogical framework for introducing architectural history to students with no studio design background that combines analysis of primary sources with instruction on 3D digital modeling. The project website credits student collaborators who contributed to the reconstruction of medieval Paris, although the quality and presentation standards of the student work vary. Using Vectorworks allows students and more advanced researchers to ensure that reconstructed elements are structurally sound by identifying problems such as an arch with a too sharp angle or a vault with an incorrectly centered keystone. The software helps researchers of all levels discover the limits and possibilities of Gothic masonry construction in order to develop a deeper appreciation of medieval building practices.

One of the admirable outcomes from Cohen's Digital Gothic course is that students learn to evaluate the modes of representation deployed by artists who painted or drew buildings and whose same images now form evidence for virtual reconstructions. The

course demonstrates that while artistic representations are important starting points, they do not necessarily provide reliable topographical and archaeological evidence. A watercolor by Gautier Dagoty depicting the demolition of Saint-Germain des Prés in 1802, for example, provides some general evidence of the lost Lady Chapel, but this view also needs to be contextualized in terms of representational practices of post-revolutionary sites of ruin and demolition. For students involved in the project, working with such a source allows them to make connections between 18th-century aesthetics of the sublime and medieval architecture while learning to use 21st-century technologies. The project website has the potential to be a learning tool for wider audiences as it hosts a comprehensive set of design tutorials, which are valuable resources for art history programs that do not usually have studio components. Each tutorial offers step-by-step instructions for using CAD software to create basic elements of Gothic architecture, including a pointed arch, rib vault, buttress and column shaft. Further tutorials are available to produce a more complex reconstruction of an entire Gothic building.

Although Paris Past and Present has many positive attributes, I had to delve deep into the website to get a clearer sense of how the 3D reconstructions were produced. Cohen discusses the project's methodology in a lecture posted on the website's blog (2017), but it is not obvious for users to look there for this type of information. The design tutorials and descriptions of the student work, including a master's thesis by Rachel D. Weiss that evaluates the digital recreation of the Trésor des Chartes of Sainte-Chapelle, helped me understand the practical challenges of designing virtual reconstructions. It is a shame that this material is not more clearly presented on the website, along with a more accessible precis of the project's methodology; these improvements might give this research project more of the public attention it deserves. To get the most out of this fascinating digital resource, I would have also appreciated better instructions on how to explore the 3D interactive views and inspect the different layers of the virtual model.

Viewing the reconstructions completed to date, it becomes clear that the virtual buildings are shown as isolated objects floating within a grey vacuum, with little indication of their urban surroundings and environmental context. In contrast, the project called Paris 3D Through the Ages, by Dassault Systèmes (2013), which had greater financial resources, includes reconstructions of entire urban neighborhoods across different historical periods and features seductive fly-through sequences, complete with animated details of street life. Paris Past and Present consciously excludes elements of daily life, and indeed, almost any environmental aspects such as sky, ground and greenery. It is frustrating that the website documentation does not sufficiently explain why the project team chose to exclude adjacent structures and spaces. Website users have to view Cohen's lecture to learn that the team chose not

to incorporate contextual elements as it would introduce highly speculative material that distracts from the historical integrity of the reconstructions. This methodological strategy should be more clearly indicated on the website as I am not fully convinced that the focus on archaeological precision — and the rather austere digital models that result from this approach — is the most appealing way to get more students interested in medieval architecture. I would like to see more use of digital technologies to evoke the material qualities of these spaces, and an attempt to recreate more immersive, multi-sensory environments, opening new opportunities to engage with histories of sensory perception.

Paris Past and Present represents an important trailblazer of architectural research and education in the digital humanities. The archaeological attention embedded in these reconstructions will become a valuable resource for scholars of medieval Paris, although further work to incorporate the environmental qualities of these virtual spaces would make the project more engaging for a wider audience. Introducing art history students to medieval architecture through design practice is an outstanding learning methodology that merits wider attention and could be adapted to strengthen students' knowledge of architecture and construction of other periods. I hope the project can find sufficient resources to improve the dissemination of the research and do justice to Paris Past and Present.

Competing Interests

The authors have no competing interests to declare.

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