open access applications that are constantly improved in a flexible manner and to develop a model for the sustainable preservation of the aggregated historical collections beyond the current period of funding. Our system is hosted on AWS where services and applications are packaged in Docker containers which are portable and can run on any infrastructure. The system architecture is structured in a way where applications and services are decoupled and deployed in separate layers. The Integration Layer hosts the data serialisation, aggregation, and semantic enrichment services while in the Presentation layer, we expose Sloane Lab's knowledge base for interrogation and interactive visualisations using the Metaphactory platform. At any given point the data workflow can be deconstructed and re-integrated with different platforms or technologies.

Participatory co-design: methodologies to facilitate the use and interpretation of aggregated collections (Q6)

Alda Terracciano, Marco Humbel, Daniele Metilli, Jawad Sadek, Foteini Valeonti, Alicia Hughes, Victoria Pickering, Andrew Flinn, Nina Pearlman, Andreas Vlachidis and Julianne Nyhan

The challenge for aggregating collections is not only based on a lack of technology or legal constraints. 'Soft factors', such as trust in technology, policies and incentives for participating in aggregated collections play an important role too. Moreover, developing a system for participatory modelling based on co-creation is a key priority to democratise the ways digital tools are created by shaping them around users' needs and aspirations. The Sloane Lab achieves this by "[…] opening up a space for intercultural exchange […]" (Terracciano et al., 2017), and reframing practices of participatory co-design of digital environments with communities of interest and heritage institutions. The method references Third Paradigm HCI (Harrison et al., 2011) and theories of co-creation of meaning that can facilitate a polyphonic, synchronic dialogue amongst different viewpoints, design elements and participants on issues related to the architecture of aggregators, their interactive elements and the historical significance and typology of material, "[…] to develop responses to research hypotheses and questions, to explore alternatives, and to reconfigure assemblies" (Bannon et al., 2018: 31). The discussion will cover selection of co-design participants, nature of activities planned around specific interests and abilities, and the incremental, iterative circular system for the participatory activities, meaning that the data created for and resulting from one activity feeds into the following one, both for the purpose of enriching information on a specific area, and to facilitate the flow of information across different users/co-design participants.

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On Making in the Digital Humanities: The scholarship of digital humanities development in honour of John Bradley

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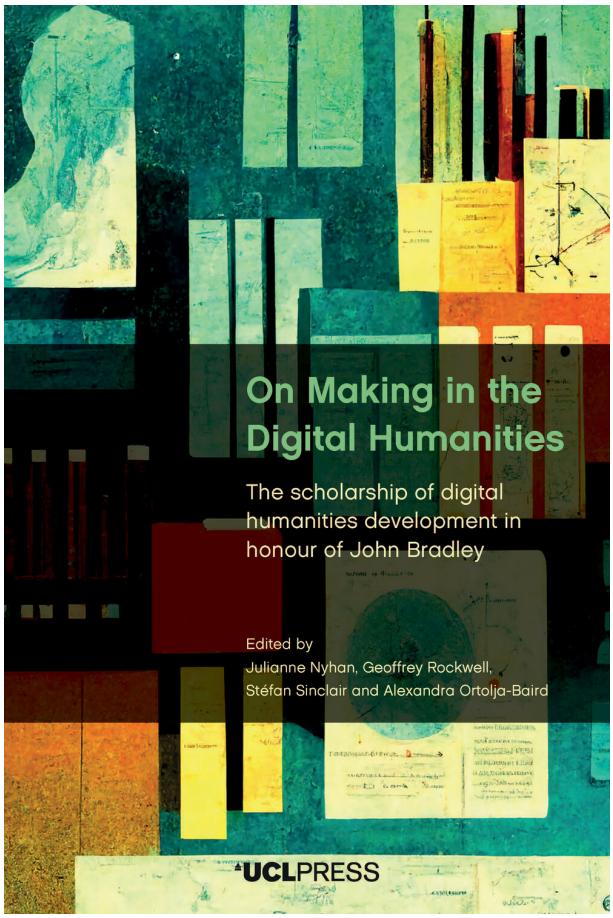
Panel Overview

The making of digital scholarly artefacts has distinguished the digital humanities since, according to some genealogies of the field, Father Busa decided to use information processing technology as an alternative way to make concordances in the late 1940s (Jones 2016; Nyhan and Passarotti 2019). One story we tell about the digital humanities is that it is a field that values practices of making digital artefacts as scholarship. Yet we rarely hear from the hybrid teams who make these artefacts about the messy business of making together. For all of digital humanities' attention to the artefacts it makes, and its computational techniques of making, it has given less attention to the processes, actors, ecologies, histories and ideologies of making. Drawing on our forthcoming edited collection, On Making in the Digital Humanities: The scholarship of digital humanities development in honour of John Bradley, this panel will bring together papers on the practices of making in the digital humanities, organised around and inspired by the interdisciplinary career of John Bradley. In so doing, the panel places the conference theme "collaboration as opportunity" at its heart,

exploring the processes, negotiations and challenges of collaboration, creativity and making in interdisciplinary DH settings.

The papers offer situated, self-reflective perspectives on the development of scholarly work in hybrid teams within DH, from which we learn more of the cultural, technical, critical, human and historical contexts and processes that shape the field. The papers combine technical reflections about how to best use computing for a particular task with critical reflections on the very nature of making. This reveals a number of themes:

1. *Projects have primacy*: Making in DH is often conceived as something that takes place in a project. Yet while the project has primacy in the poiesis of DH, the unit of a project is at once both distinct from the wider discipline and constitutive of it.
2. *Making involves people*: Making digital artefacts requires diverse skills. Most projects are developed by teams trained in different traditions who must communicate across their disciplines. This has also led to the emergence of a hybrid DH specialist who bridges disciplines but does not fit comfortably in traditional departments.
3. *Making shifts praxis*: What is the relationship between making and theory in DH? The papers describe how theories of humanities phenomena led to and tested design decisions.
4. *Making is collaborative and more than programming:* What matters in DH is the breadth of possible contributions through making, and recognition that it is not discourse alone that is scholarship.
5. *Making involves maintaining*: As many early DH centres and associated projects have begun to disappear, sustainability is paramount. Many projects are experimenting with new forms of infrastructure to sustain digital scholarship, while others have themselves become infrastructure thus revealing how tools make projects possible.
6. *Making is neither neutral nor without history*: Each project discussed has ist own history of making. We need to confront how making is shaped by complex and sometimes problematic historical entanglements, like the colonial origins of the western museum and the information biases that have shaped ist collections.
7. *Making takes change*: Digital resources are typically built on a stack of computing infrastructure, making them sensitive to changes in that underlying computing. DH takes advantage of new solutions in computing, but it is also potentially distracted by fashions in computing that may or may not survive.



Panel Papers

1. Alexandra Ortolja-Baird, Geoffrey Rockwell, Julianne Nyhan

Introduction to On Making in the Digital Humanities

Making in the digital humanities is increasingly understood to be a rich, complex and sometimes even dark process, that can be used to create or imagine lost and new worlds, to sometimes reamplifying the worst tendencies of the digitally mediated world we already have, as well as offer new spaces for the inclusion and agency of communities and individuals previously excluded. In this panel, we will position making as a category of analysis and discussion. Making is a core and longstanding activity of the digital humanities that functions as a lens through which to explore many pressing questions of the wider field, including ist interrelationship with the humanities, while navigating dimensions that range from the individual contribution to the large-scale project. Seeking to contribute to ongoing conversations about this, we will explore synthesis literature from emerging, established and retired scholars who can offer rich and situated insights into the processes and entanglements of making in the digital humanities by asking the following questions: what is digital humanities making? How does making involve people? Where does making happen? What are the current challenges of making? And what is the future of making? The overarching contextualizations presented in this paper will be further illuminated, and indeed, problematised through the papers that follow.

2. Ariana Ciula (co-authored with James Smithies)
Sustainability and modelling at King's Digital Lab: between tradition and innovation
During his career at King's College London (1997-2016), Bradley developed, made directly, or contributed to the making of an impressive array of humanities computing or digital humanities (DH) projects. This panel contribution reflects on the challenges of keeping alive the final products of Bradley's (and other colleagues) making efforts, as well as some of the key processes that underpinned his remarkable work along two interconnected strands:
– the pathways to human, technical, political and financial sustainability that the King's Digital Lab (KDL) has undertaken since its establishment in 2015;
– an overview of the expert processes via which modelling activities undertaken by the KDL team continue to provide the keys to tailored yet scalable technical solutions affecting data storage and infrastructure, as well as user interfaces, data entry, and publication (cfr. Pasin and Bradley 2015).
A multi-layered picture of KDL socio-technical environment will emerge – as it has evolved from its legacy of making and as it continues to identify and design practical approaches to sustain itself. A complex and multifaceted interplay between innovation and tradition is evoked, affected by the socio-technical settings within which KDL operates, and permeable to institutional changes as well as to individual and collective approaches to making. As for systems and data, the KDL team's language and practices around modelling (as a non-neutral praxis of making) have evolved and continue to change but remain at the core of its contribution to the epistemology of DH.

3. John Bradley
Digital Humanities: Keeping the Tent Bigger
In much of the academic world these days, and indeed perhaps for the public in general, the Digital Humanities (DH) seems to have come to mean a specific type of research work: centred on big data and their associated statistical techniques. Over many years, however, my own career has illustrated that the DH encompasses a broad range of quite different kinds of research activities, including, for me personally, two kinds of what is conventionally thought of as "making" in the DH—software development and resource building—as well as some work applying statistical techniques to texts. Perhaps as a consequence, I believe that those within the DH itself, and those that provide research infrastructure to support it, would benefit from resisting the pressure to think about only one kind of research activity as DH. In my talk I will examine the four different kinds of research work that I was actually was involved in during my DH involvement since the 1980s, and consider in what differing ways they all might represent research in the Digital Humanities. All four of them involve the making of something, but the nature of these made things differ considerably, and the relationship between the maker and the made and between the made and the broader Digital Humanities world differs too.

4. Dauvit Broun (co-authored with Joanna Tucker)
The People of Medieval Scotland database as history
My contribution to the panel (based on the chapter written jointly with Joanna Tucker) will discuss the online database People of Medieval Scotland (www.poms.ac.uk) (PoMS) as an example of a non-narrative, non-lineal, decentred history, showing how John Bradley's 'factoid' prosopography enabled a new approach to understanding medieval transactional documents. This provides an example of how the process of making a DH resource collaboratively can involve rethinking the raw material of a humanities discipline, enriching our critical understanding of it as data. In this case this also led to fundamental questions about the relationship of online digital research tools to history as a discipline, asking whether it is an end in itself, rather than a means to an end, moving away from history writing as the apex of historical activity. We conclude that factoid databases such as PoMS can prompt a healthy re-examination of how we 'experience' the people from the past, and the role of historians (and other collaborators) in facilitating this experience.

5. Julianne Nyhan
The place of the 'techie' in histories of the Digital Humanities
Reflecting on his career, John Bradley wrote how:
. . . most institutions view the kind of technical contributions which [the Department of Digital Humanities, King's College London] makes as a kind of support work – perhaps, in extreme cases, as similar to what is done to the academic's car by his garage mechanics. From this position arises, I believe, the application of the diminutive term 'techie' by some to describe those individuals doing this kind of work. (Bradley 2011, 11)

Digital humanities (DH) often categorises itself as an interdisciplinary and collaborative field that has been built by a wide range of actors, including technical experts, information professionals, curators, members of the general public and academics. Nevertheless, the contributions of some individuals, like the technical experts referred to in the quote from Bradley above, have sometimes been overlooked or held in lower esteem than the contributions of academics (e.g. Griffin and Hayler 2018). Perhaps unsurprisingly, then, histories of Digital Humanities have often foregrounded successful academics, techniques and technologies, while neglecting the contributions of other categories of DH collaborator or co-worker, like Research Software Engineers. Yet, Mahoney has argued: **"**Whatever one wants to say about such abstractions as the Turing machine, it is hard to know how physical computers and the systems running on them could be anything other than socially constructed. Computing has no nature. It is what it is because people have made it so **"** (Mahoney 2011, 109). Here I argue that the writing of inclusive studies of the history of DH should be a priority for those who wish to understand how DH 'people', across the piste, have helped to make computing, and in turn the Digital Humanities, **"**so **"**.

6. Geoffrey Rockwell
Thinking-Through Making with Stéfan Sinclair
What is the play and constraints of making software things in the digital humanities? Starting with HyperPo, Stéfan Sinclair wove the making of text analysis and visualization tools into his research. Voyant Tools (voyant-tools.org) evolved out HyperPo which, as the name suggested, was an experiment with the potential of hypertext together with reflections on OuLiPo, the loose French group that worked with constraints in writing. Working on HyperPo and later Voyant, Sinclair reflected on the play and constraints of thinking-through tools. In this final presentation Rockwell will reflect back on the collaborative play and constraint in making. Specifically he will discuss:
– Thinking-through tools as a form of play where prototypes are hypotheses tested differently in the making and later in use.
– Constraints in making and the problems around sharing, maintaining, and explaining tool projects.
– Spyral, the notebook programming extension to Voyant that Stéfan developed for replication and reflection back on making. Spyral was designed both for replications, but also so that others new to programming could transition from using Voyant to extending it.

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Readers, Tropes, and Translations: Directions for Digital Research into Youth Literature

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As Wouter Haverals and Vanessa Joosen note in a recent article on the Dutch children's author Guus Kuijer, there has been little work done at the intersection of digital humanities and children's literature, despite the presence of digitized collections such as the Baldwin Library of Historical Children's Literature, the Auslit digital collection of storytelling, and the Digital Library for Dutch Literature (25). Putting distant reading into the section headed "Unmapped Territories", *The Edinburgh Companion to Children's Literature* (2017) begins the short chapter it devotes to the subject with the tension between the expectation that research into child-