

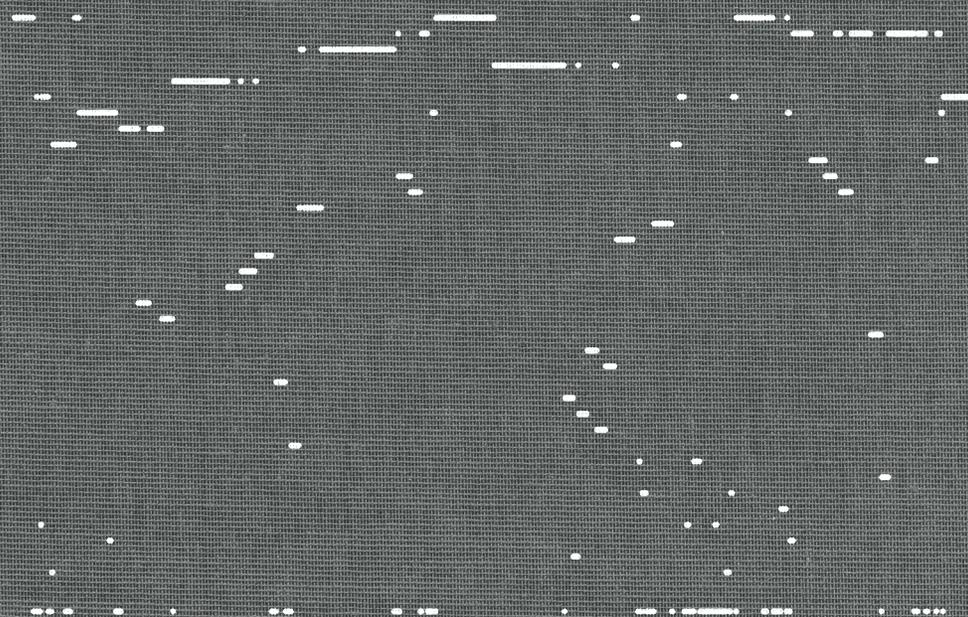
This multi-component output investigates the complex questions and problems that make the collection, analysis, and visualization of data meaningful for dance historical analysis. While digital research methods have impacted most humanities and arts disciplines, the field of dance studies has yet to fully identify how it can benefit from these analytic approaches, which also limits its participation in ongoing interdisciplinary conversations.

Across the three phases of work are a core set of concerns regarding the ways in which digital methods are particularly suited to accounting for the scale and distribution of information necessary to better understand the translation, circulation, and transmission of dance. We therefore combine methodological approaches from the interpretive humanities with others drawn from data analysis and the digital humanities. The core of the research sits on the foundation of a creative and curatorial 'digital humanities practice' that contributes to an understanding of how digital humanities can both address and open up intellectual and methodological problems that matter to us as dance scholars. The inquiry develops through an iterative process of manually curating datasets, crafted from undigitized materials held by seven archives across the United States, which finds meaning and expression in tandem with exploratory visualization. At the same time as this practice supports all written components, we also argue that it manifests as research in itself that depends on a deep engagement with and interpretation of archival materials.

Earlier seed-funded phases of the project (2014–16 and 2016–18) laid the foundation for the ongoing third phase, which is supported by a three-year AHRC Research Grant (2018–21, AH/R012989/1). Although the research is ongoing, interest has been significant, resulting in nine invited talks at the time of writing. All datasets and print publications since 2016 are equally co-authored by Harmony Bench and Kate Elswit.

Digital Methods for Dance Historical Inquiry

Kate Elswit



Printed materials which comprise or support this submission can be found inside the box. Further materials are located online.

Within this publication, references for components of the submission are found in the right margin using a lettering system A–J. Items marked with an * are components of the output, all other items are contextual.

For online materials, live links are provided in the PDF of this publication found on the USB drive  embedded in the box's interior lid. Online items can be accessed by clicking the reference letter in the right margin. All online items are also available at www.dunhamsdata.org/REF2021

A* Peer-reviewed article by Harmony Bench and Kate Elswit. 2016. 'Mapping Movement on the Move: Dance Touring and Digital Methods', *Theatre Journal*, 68(4): 575–96

B* Peer-reviewed article by Harmony Bench and Kate Elswit. 2020. 'Katherine Dunham's Global Method and the Embodied Politics of Dance's Everyday', *Theatre Survey*, 61(3), 305–330

C* Manually curated dataset of Katherine Dunham's Everyday Itinerary:

C1* Printed version of manually curated dataset of Katherine Dunham's Everyday Itinerary (also available online from the NADAC repository at <https://doi.org/10.3886/ICPSR37698.v2>)

C2a* Interactive timelines to explore Everyday Itinerary (1950–3)

C2b* Interactive timelines to explore Everyday Itinerary (1947–60)

C3* Spatialized sequence of Dunham's 1950–3 destinations

D* Peer-reviewed article by Harmony Bench and Kate Elswit. 2020. 'Dance History and Digital Humanities Meet at the Archives: An Interim Project Report on "Dunham's Data"', *Dance Research*, 38(2): 289.95

E* Public materials regarding ongoing research:

E1* Poster presented at the Association for Computing Humanities

E2* Video introductions to forthcoming interactive visualizations

E3* Invited talk at University of Tennessee at Knoxville, plus forthcoming material

F Dunham's Data website and research blog, available at www.dunhamsdata.org

Key blog posts:

F1 Blog post: 'Datasets are Research'

F2 Blog post: 'Checking In: The Flows of Dunham's Performers'

F3 Blog post: 'Tracking Dunham's Everyday, 1950–53'

G Moving Bodies, Moving Culture Research Blog (2014–15)

H Selected social media conversations that demonstrate the reach of the ongoing Phase 3 research

I List of conference presentations and invited talks

J List of ongoing and forthcoming works related to Phase 3

Kate Elswit

DIGITAL METHODS FOR DANCE HISTORICAL INQUIRY

The Royal Central School of Speech and Drama,
University of London

Further information on these materials can be found on the reverse of the box's interior lid.

DIGITAL METHODS FOR DANCE
HISTORICAL INQUIRY

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www.cssd.ac.uk/research

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Images:
COVER Timeline for cities in which Dunham
stayed over seven nights in total, 1950–3.
This plots stays and returns in thirty-
six key locations, while grouping the
remaining forty-seven cities into a
single “other cities” category below;
FIGS 1, 3–5 © Data: Harmony Bench and
Kate Elswit; Visualization: Antonio
Jimenez-Mavillard, 2019
FIG 2 © Dance in Transit & Dunham’s
Data (Kate Elswit and Harmony Bench).
Data: Bench and Elswit. Visualization:
Center for Regional and Urban Planning,
OSU, 2018
FIG 6 © Curation and visualization:
Harmony Bench and Kate Elswit, 2019

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first award-winning book on archives
of watching in early twentieth century
Germany, to her more recent work
on dance and data, her research
articulates how information is stored
in and transmitted through bodies in
performance. She is committed to
multiple possibilities, both implicit and
explicit, for working between practice
and research.

Acknowledgements: Harmony Bench
has been collaborating with Kate Elswit
since 2015. She is Associate Professor
of Dance at The Ohio State University
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I Overview

This multi-component output supported by contextual information represents three stages of work. The overall project considers the questions and problems that make the analysis and visualization of data meaningful for dance historical analysis, particularly in the context of case studies highlighting dance's transnational circulation. In pursuing this research through a creative and curatorial practice, we consider what the field of dance studies brings to ongoing discussions in the digital humanities around the ways in which digital methods can evidence and elaborate bodily experience. My collaborator Harmony Bench and I laid the foundation for the incorporation of digital methods into the study of dance history during the first stage of digital humanities practice (2014–16), with my research funded by a University of Bristol Digital Priming Grant (*Moving Bodies, Moving Culture*, approx. £5000), which resulted in the first peer-reviewed publication in *Theatre Journal* (2016). This work was developed further through a second stage (2016–18) interim project funded by a Battelle Engineering, Technology, and Human Affairs (BETHA) Endowment Grant from The Ohio State University (*Dance in Transit*, approx. £25,000), and provided the foundation for the ongoing third stage. The third stage (2018 onward) is funded by a three-year Research Grant from the Arts and Humanities Research Council (*Dunham's Data: Katherine Dunham and Digital Methods for Dance Historical Inquiry*, AH/R012989/1, approx. £575,000), and has to-date resulted in a peer-reviewed publication in *Theatre Survey* together with an original, manually curated Everyday Itinerary dataset, and timeline visualization of that data. The timeline of research (see also v. Timeline) is narrativized in the interim project report and supported by the list of published aspects of ongoing work. Further work in progress is provided as contextual information on the project website and blog, and in the list of forthcoming essays, datasets, and visualizations.

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II Questions, aims and objectives

Overarching questions:

What kinds of questions and problems make the analysis and visualization of data meaningful for dance historical analysis? Particularly in the context of transnational circulation?

How can digital methods evidence and elaborate bodily experience, and what can dance studies bring to such ongoing discussions in the digital humanities?

While digital research methods have impacted most humanities and arts disciplines, the field of dance studies has yet to fully identify how it can benefit from these analytic approaches, which also limits its participation in the ongoing interdisciplinary conversations that are advancing other fields. However, when adapted to dance's specific questions, concerns, and traces, digital methods can further dance studies' ability to understand the global circulation and diffusion of artists, practices, and ideas. Likewise, dance-based approaches to embodiment can help the digital humanities to address a critical problem in the field, which is how to curate and represent data in a manner that attends to the complexity of bodies and embodied experience.

The 2016 article lays out a foundation for the use of digital methods in dance history, more specifically the curation and spatial analysis of historical data in relation to the transnational circulation of dance. The subsequent materials all come from the ongoing project *Dunham's Data: Katherine Dunham and Digital Methods for Dance Historical Inquiry*. This project extends the core research and methodology questions listed above through the case study of African American choreographer, activist, and teacher Katherine Dunham. A bespoke 'Everyday Itinerary' dataset has been manually curated from archival materials to represent where the choreographer Katherine Dunham was every day for 1461 days during the four years from 1950–3. The accompanying 2020 article takes a critical mixed methods approach that scales up from the itinerary of Dunham's daily locations over four years, to the politics of the everyday they cumulatively reveal; it develops the 'everyday' as an intersectional analytic through which to understand what we identify as

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Overview

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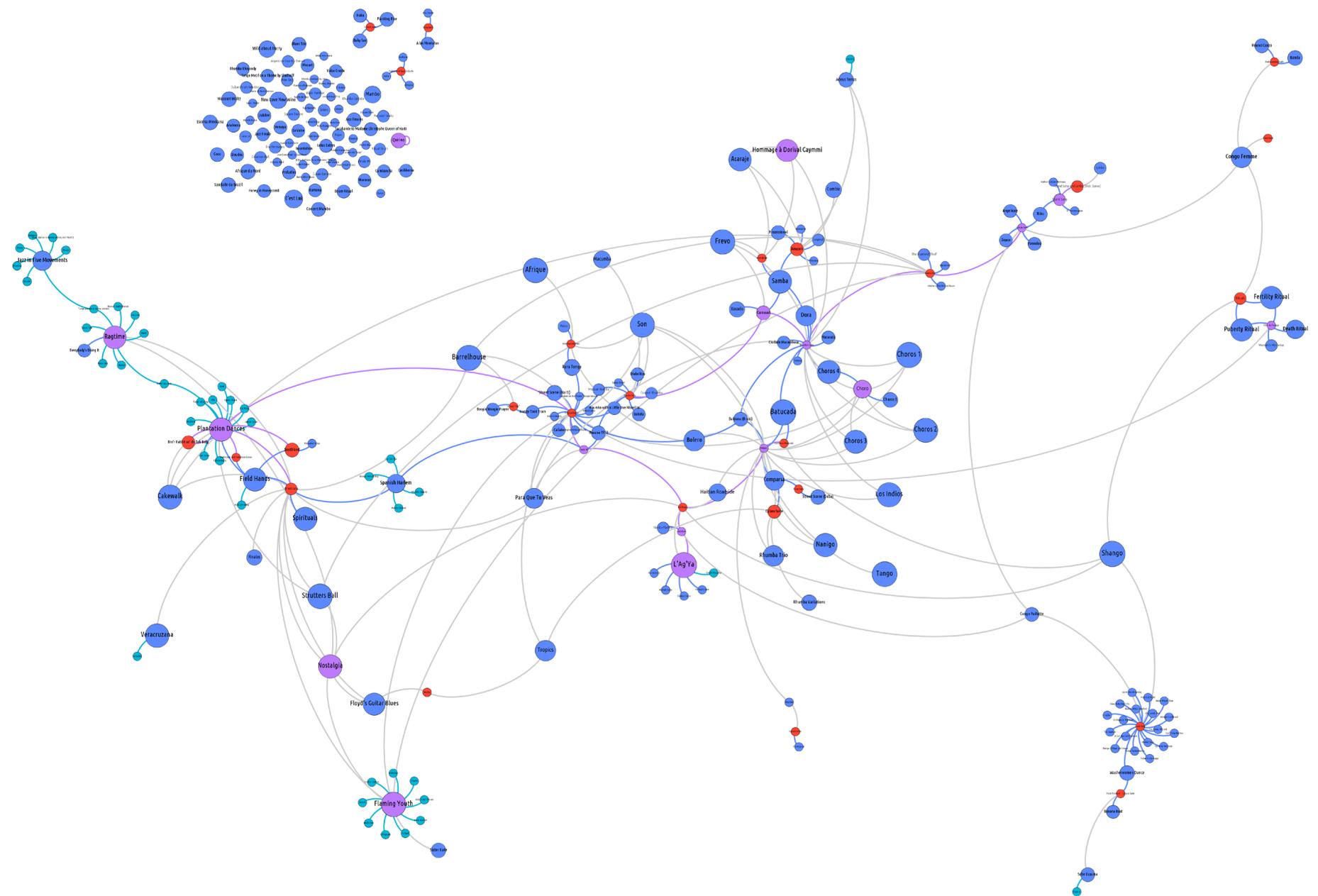


FIG 1 Dunham Company Repertory: Containers, Pieces, and Dances-in-Dances: In progress. Each color represents a relationship. The majority of the nodes are blue, which indicates a stand-alone piece. Red indicates a container, which holds many pieces. Purple indicates a piece that sometimes appears in the data as stand-alone, and sometimes as a container. Turquoise indicates a named social or popular dance in a piece. This visualization illustrates the complex relationships in Dunham's repertory, as well as the instability of what we generally think of as a "work." A demo of this data as an interactive visualization can be viewed at <https://www.dunhamsdata.org/blog/work-in-progress-videos-1>

the ‘global method’ that ties Dunham’s transnational mobility to her practices of ‘making-do’ as an African–American female artist in the mid–twentieth century, and the ways the pursuit of solvency propelled her, her performers, and her work into the world. The interim project report and contextual materials on the project’s research blog, [F1](#) [F2](#) [F3](#) and lists of published and forthcoming ongoing work [E1](#) [E2](#) [E3](#) J demonstrate the ongoing development of this research trajectory, including an increasing focus on the expressive and representational questions raised by the visualization of dance data.

III Context

This is the first large–scale project that employs digital methods for dance historical analysis. In the overview of the methodology (see v.), we elaborate how we do so through a digital humanities practice, which draws together conversations about researching through doing in both performance (Nelson 2013) and also data studies (Drucker 2009; Grusin 2014). A key context of the research is how such methods for curating, analysing, and visualizing data can be adapted to questions that are meaningful in the field of dance. Previous dance–oriented digital projects have tended toward curation and dissemination in online artist or collection–driven archives (*Siobhan Davies Replay* 2009; *Jacob’s Pillow Dance Interactive* n.d.), as well as analysis of contemporary dance by means of video annotation, and other transformations of embodied data into visual objects (*Synchronous Objects* 2009; *Using the Sky* n.d.; Varela and Barazza 2020). In this work, we engage with examples of digital analytic methods from theatre history (Bollen and Holledge 2011; Caplan 2016; Miller 2016), at the same time as we adapt them to dance–specific questions that centre the embodied circulation and transmission of movement.

We look in particular to the transnational circulation of movement — which has been an imperative in the field of dance studies since the 1990s (Savigliano 1995; Noland and Ness 2008; Srinivasan 2012) — and consider how digital methods may support different scales of research. Whereas performance research often takes place at a mid–range scale, in which arguments are made through the exemplary anecdote, we work at both micro and macro ends of that spectrum; for example, by engaging with the transmission of embodied knowledge across hundreds of locations and

hundreds of performers over thousands of days. In addition to drawing on examples of digital methods in theatre (see also Balme 2015), this work converses more broadly with a range of digital models for engaging with human experience, coming from digital humanities, geo– and spatial humanities, and cultural analytics (Cope and Ellwood 2009; Knowles, Cole, and Giordano 2014; Posner 2016). Our work since 2016 has focused on a case study of dance’s circulation and transmission rooted in African–American dance history, and engages digital methods to address African diasporic practices transnationally and transhistorically on a broad scale, while not losing sight of the particularities of specific connections and discontinuities that characterize their transmission (Clarke 2004; McKittrick 2006; Parham 2019).

In so doing, the research continues to investigate the unique analytical methods that dance not only requires but also offers to interdisciplinary study, in particular, the potential of dance studies to answer the call from feminist and anti–racist digital humanities to ‘bring back the bodies’ (Johnson 2018; Losh and Wernimont 2018; D’Ignazio and Klein 2020). As we explore in a forthcoming essay, embodiment in digital humanities often performs important metaphorical labour, by ‘standing for identities, subjects, or something vaguely instantiated in the material world’; however ‘it tends not to engage with the physicality of embodied experience, nor with the ways such physicality in turn enables bodies to operate as portals for the development and transmission of culture’ — and this nuanced attention to multi–faceted embodiment through what we call ‘visceral data’ is where we see an opportunity for dance to intervene in these debates (see Bench and Elswit (2020) and list of ongoing and forthcoming works). By expanding the ways in which digital methods engage with bodies, we build a new trajectory by which dance can meaningfully engage in disciplinary and interdisciplinary research.

IV Methodology

The interdisciplinary research methodology incorporates approaches from interpretive humanities with those drawn from data analysis and digital humanities. Underpinning all three phases of this project are the questions of how dance can make use of digital humanities tools that are developed through a close engagement with archival materials to manually curate datasets suitable to analysis

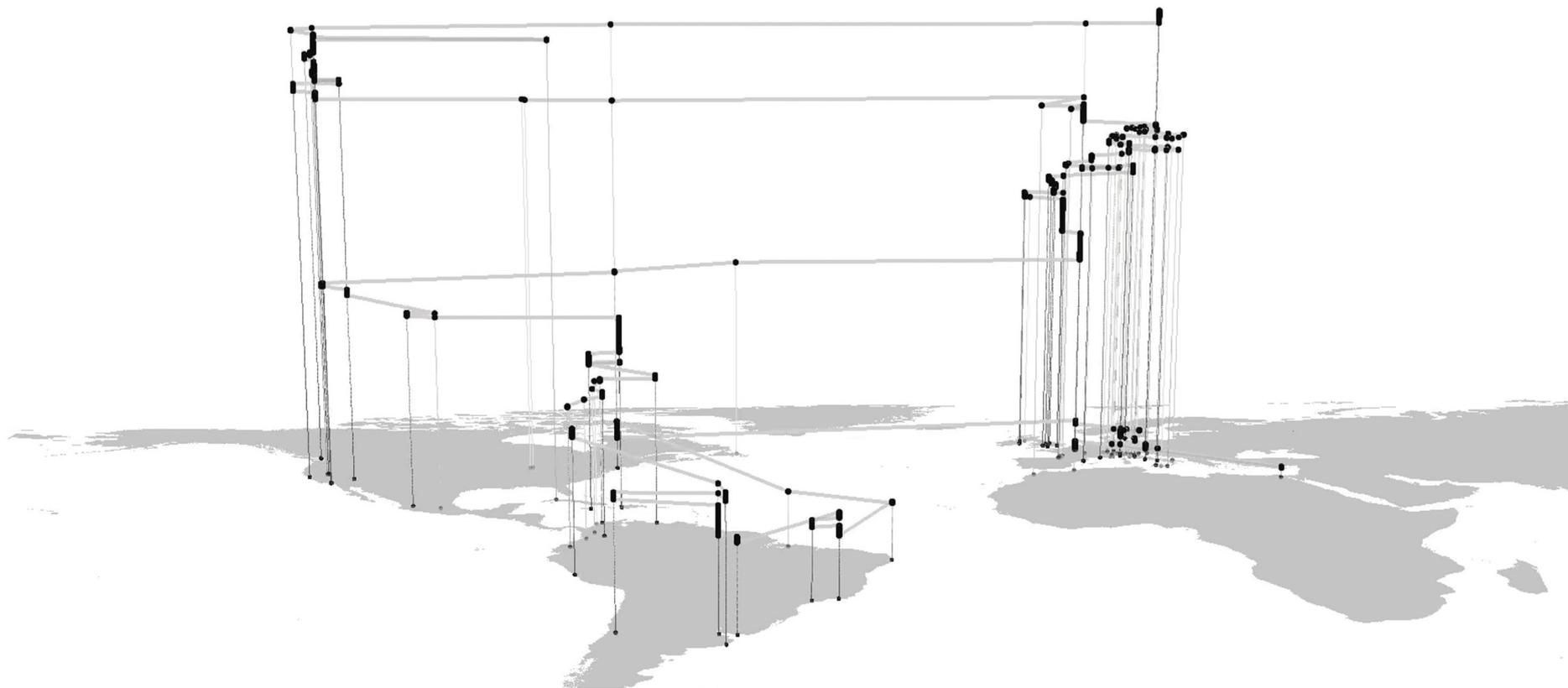


FIG 2 Spatialized sequence of Dunham's 1950–53 destinations:
This space-time aquarium shows Katherine Dunham's locations between the first of January 1950 and the thirty-first of December 1953. We have used a variety of archives to locate where Dunham was 98% of those 1461 days, which shows 134 trips in four years. 1950 is at the bottom, and the timeline grows to the end of 1953. A video flythrough is available at <https://www.dunhamsdata.org/blog/tracking-dunhams-everyday-1950-53>

and visualization that engages with problems that matter to dance and performance scholars. (The term ‘manually curated’ is used to designate a bespoke dataset that is crafted by researchers in service of a specific project, rather than using or adapting pre-existing datasets [see [peer-reviewed article, 2020](#)]). We advocate for a digital humanities practice by arguing that the debate regarding hands-on technological work in the digital humanities could benefit from the conception coming out of theatre, dance, and performance concerning the ways in which ‘practice-based research cultivates a fluid back-and-forth exchange between embodied knowledges and textual practices, or indeed embodied texts and knowledge practices’ (see [peer-reviewed article, 2016: 595](#)). For us, this has to do with the ways in which ‘research practices co-articulate with scholarship and process with outcome’ (see [peer-reviewed article, 2016: 594](#)). Across this project, we navigate among archival research, the creation of new datasets, and the visualization of these in an exploratory way that feeds back into a variety of interconnected outputs in multiple modalities. This digital humanities practice is iterative and reflexive, and the [related blog posts and essays](#) draw out both methodological and historical findings from the work of building and visualizing the datasets created in the course of our research process.

In Phases 2 and 3, our digital humanities practice has been driven by the rigorous creation of datasets based on primary sources in Katherine Dunham’s archives. Drawing almost entirely from materials that Dunham herself chose to save, these datasets document Dunham’s daily whereabouts, the works in her repertory, and the people in her employ. The [Everyday Itinerary dataset](#) will encompass Dunham’s daily locations, travel, and performances for approximately 30 years of her performing career, of which we currently have 90% of the 5110 days from 1947–60 documented. Whereas the [Everyday Itinerary](#) accounts for Dunham’s own daily travels, the [Check-In dataset](#) accounts for the comings and goings of her almost 200 dancers, drummers, and singers over that time, helping to discern who was in the studio and theatre together. The [Repertory dataset](#) catalogues the various titles and descriptions by which over 200 pieces of choreography might be known, the fluid relationships among them, and all of their associated performers and years of performance. While Dunham’s archives are substantial, they remain partial, and so every datapoint requires evaluation, with discrepancies and competing narratives offering further insight into Dunham’s history. In ‘Visceral Data for Dance Histories’, we give the following

example of how these concurrently developed datasets support one another: ‘when we find a program in Italian that does not list a theatre or year, we first look to an evolving dataset of Performer Check-Ins to begin to identify the timespan during which named performers were employed by Dunham; we then return to our [Everyday Itinerary dataset](#) to determine exactly when we have identified that the company was performing in Italy within those date parameters, and we may also further refine that dating using newspaper reviews that reference specific pieces of repertory; such dated programs, in turn, provide further information for other datasets, including additional [Performer Check-Ins and Repertory](#)’ ([Bench and Elswit, forthcoming](#)). Our intentional data creation, which transforms archival documents into structured, usable datasets, has been [described by others](#) as a model of ‘slow DH’.

The curation of these datasets and scholarly arguments based on them develop in tandem. We structure these datasets and collect materials iteratively, alongside computational analyses and visualizations carried out by ourselves and by others, most recently Digital Humanities postdoctoral fellow Antonio Jimenez-Mavillard. This is an exploratory process by which we test a variety of existing methods including network graphing, statistical analysis, and mapping, against the datasets in process, and adapt both the methods and the data to the types of historical questions we want to ask. The analyses and visualizations help us to validate and further develop the datasets and vice versa. Many of the problems that we are trying to solve involve reference to more than one dataset at a time, and joining datasets enables us to ask questions at even greater scales — for example, information about itinerary plus when performers joined plus their passport nationalities enables us to trace the ways in which Dunham picked up performers as she travelled around the world (see [peer-reviewed article, 2020](#)). Our print outputs engage with both the underlying methodologies as well as the historical questions that emerge. In our most recent phase, we are also experimenting with types of visualizations to not only develop inquiry through this data, but also to serve as visual arguments that themselves convey a sense of motion through dynamic interface design.

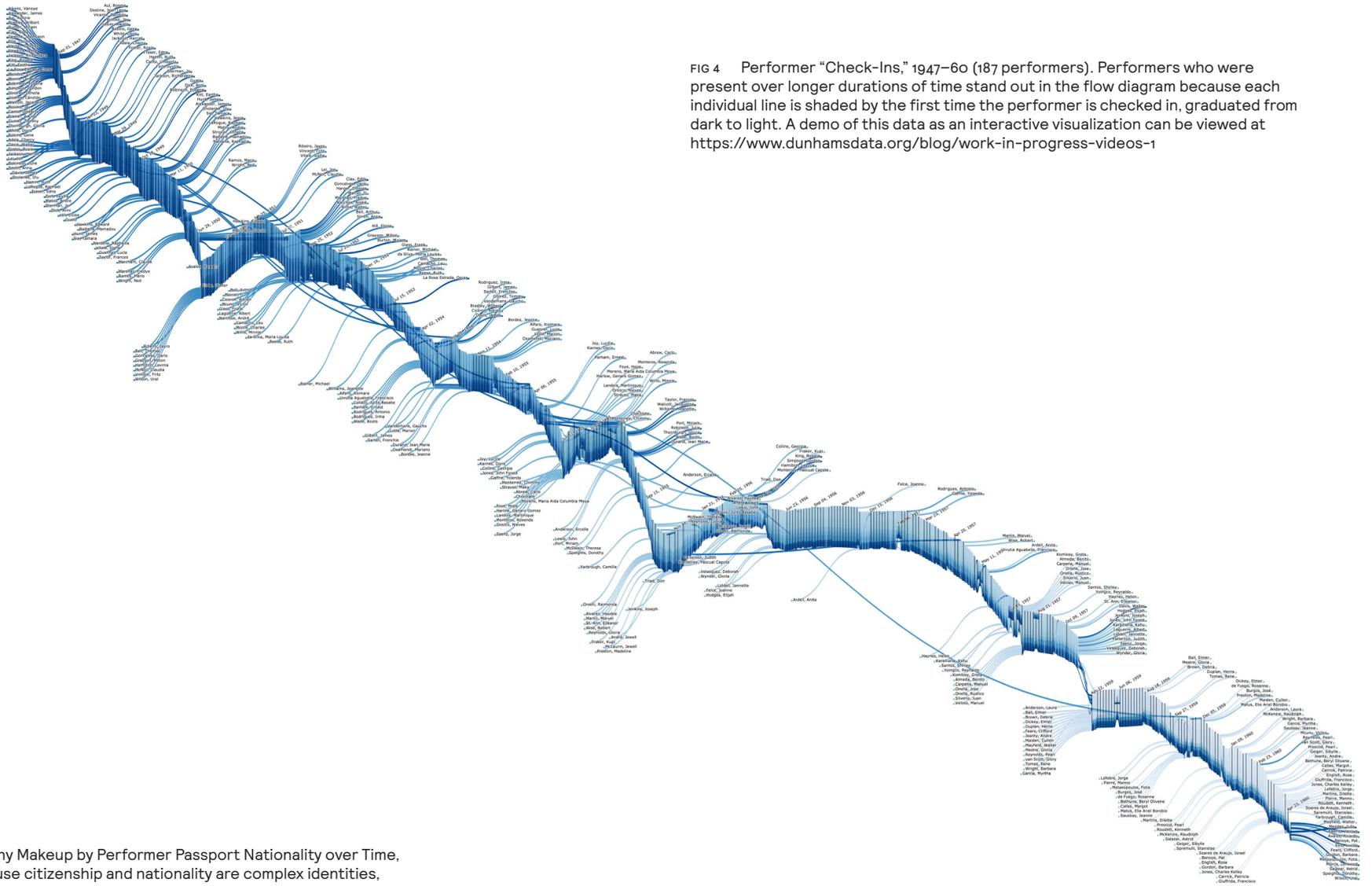
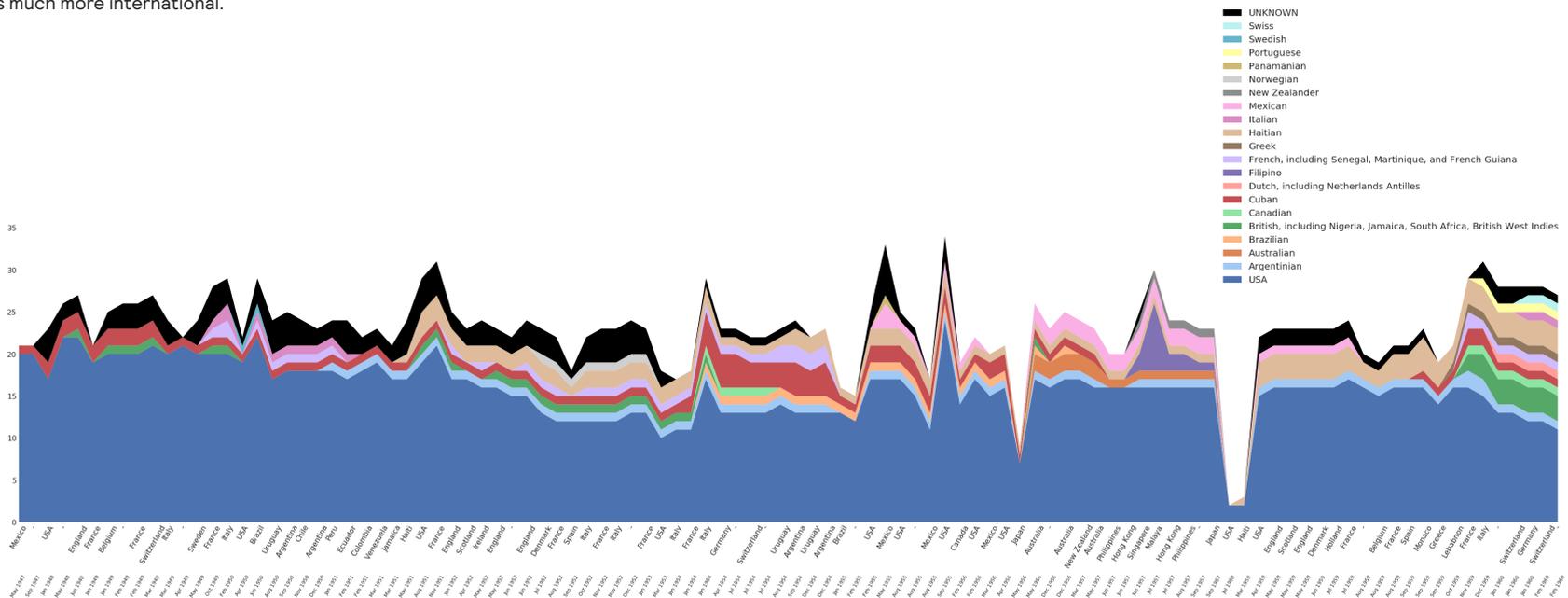


FIG 4 Performer “Check-Ins,” 1947–60 (187 performers). Performers who were present over longer durations of time stand out in the flow diagram because each individual line is shaded by the first time the performer is checked in, graduated from dark to light. A demo of this data as an interactive visualization can be viewed at <https://www.dunhamsdata.org/blog/work-in-progress-videos-1>

FIG 3 Company Makeup by Performer Passport Nationality over Time, 1947–60. Because citizenship and nationality are complex identities, we sort this stacked area graph by the passports under which performers traveled. As Dunham’s international tours began, the majority of performers traveled under US passports, but by 1960, the representation was much more international.



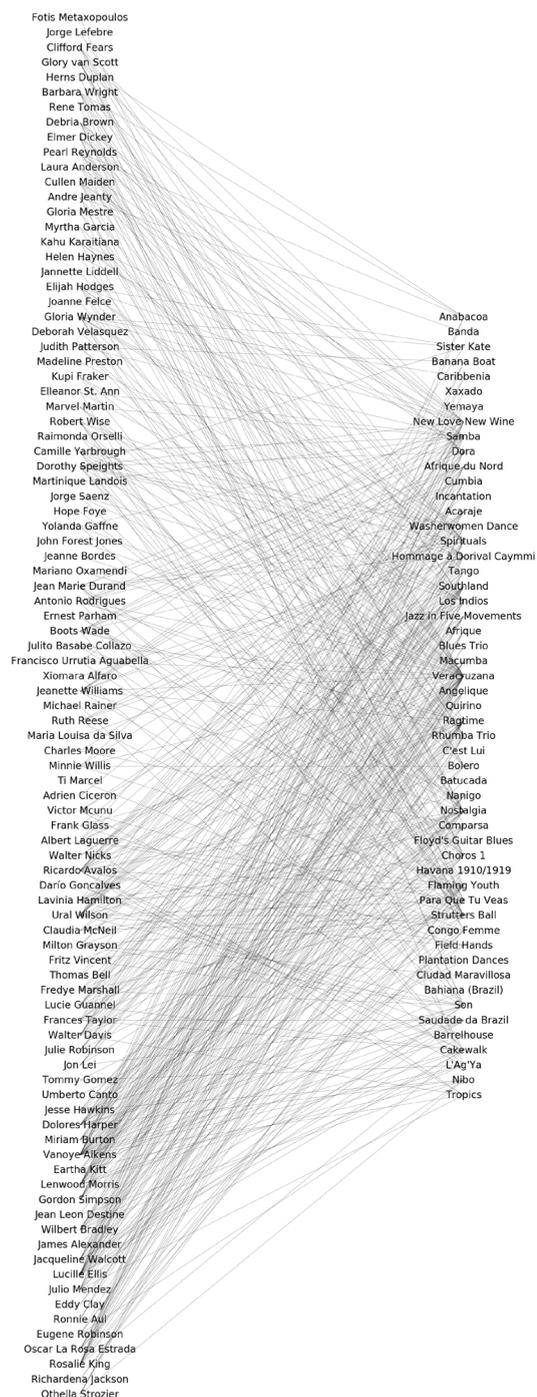


FIG 5 Sketch for a Bipartite Repertory Diagram (1947–60). Performers (left) cohere across time through the embodied knowledge of individual dances in company repertory (right).

V

Timeline

The following lays out the key phases of research

(see printed list of conference presentations for dates of all talks).

I

Phase 1

2014	September	began <i>Moving Bodies Moving Culture</i> blog;
2015	Spring–Fall	received University of Bristol Digital Priming Grant to expand <i>Moving Bodies Moving Culture</i> blog, which was solo authored, but with archival materials chosen for peer-sharing with Harmony Bench; archival research at Rockefeller Archives Center, New York Public Library, and New York City Ballet archives;
	November	first co-authored blog post with Harmony Bench (for the American Society for Theatre Research);

2016		by invitation, co-authored essay for <i>Theatre Journal</i> based on ASTR presentation.
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Phase 2

2016	February	received Battelle Engineering, Technology, and Human Affairs (BETHA) Endowment Grant from The Ohio State University for Dance in Transit;
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2016–18		preliminary archival research at Library of Congress, New York Public Library, Southern Illinois University, and Missouri Historical Society;
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2017–18		developed AHRC application;
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2018		began to build Everyday Itinerary dataset, 1950–3.
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Phase 3

2018	May	received AHRC Research Grant for Dunham's Data: Katherine Dunham and Digital Methods for Dance Historical Inquiry (begun August 1 2018);
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Our peer-reviewed article on phase one was published in late 2016 and has been already cited six times to date in peer reviewed publications. Additional material from phases two and three are only just published and forthcoming, previewed by public materials, and phase three in particular has catalysed online discussion. 19 presentations have taken place, including nine invited talks in four countries, in academic and non-academic contexts, ranging from African diasporic dance and global theatre histories, to digital humanities and movement computing. As of 2020, the datasets themselves from phase three have been acquired by the National Archive of Data on Arts and Culture, which is supported by the United States' National Endowment for the Arts, and will be permanently housed there.

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