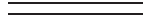## The State of Renaissance Studies II

THEATER HISTORY IN 3D: THE DIGITAL EARLY MODERN IN THE AGE OF THE INTERFACE

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In her essay for the twenty-fifth anniversary special issue of *English Literary Renaissance* (1995), Leah Marcus took the risk I take in my contribution to this fiftieth anniversary issue: writing about how early modern studies has been transformed by and has in turn impacted the computer age. The topic is tricky because digital technology changes so rapidly, quickly dating or disproving the kind of speculative or visionary claims that the anniversary essay genre expects. For instance, Marcus' 1995 essay remarked on the conversion of literary and critical texts into CD-ROM format, a format that turned out to be so short-lived that many of today's students have never even heard of it, let alone considered using it for their digital scholarly projects.[1] The essay also conjectured that scholars would be "slow to surrender the familiar tactile and visual elements of book reading to the very different demands of the computer" (396), which "cannot be held comfortably in the hand" (397). Who could have anticipated that about 15 years later, Apple would release the iPad, the hand-held device on which I read Marcus' essay recently, using my Apple "pencil" to make notes on the screen in just the way I would have were I reading a printed version of her text. The experience of reading computer-generated texts today has come closer to the experience of reading printed texts than anyone could have suspected it would become twenty-five years ago.

Marcus hardly could have known what was around the corner in 1995, but the value of her essay is that its primary focus is not prognostication about technological unknowns. Instead, it takes stock of how changes in digital technology were intersecting in the mid-nineties with more traditional areas of scholarly inquiry, explaining why early modernists were

well positioned to contribute to research in the computing age. Specifically, the author argues that scholarly use of computing technologies and digital publishing energized interest in the history of the book, a subject on which early modern scholars were authorities. Marcus' approach provides a model for how to assess and speculate about the status of digital scholarship in early modern studies, although the twenty-five years of technological change since the essay's publication leads to new questions and findings. If in 1995, the use of computers to produce our texts made scholars even more conscious of the history of writing and print, how might the dizzying array of new technologies that have emerged just in the last decade impact scholarly questions in 2020? If in 1995 scholars were inspired by and responding to "radically new technology for producing and disseminating written materials" (391), then how are scholars today inspired by and responding to technologies that are doing many more things than that? And, finally, if in 1995 early modernists were in a privileged position to contextualize the significance of computerized books, since it was during the era we study that the printed book emerged, is there anything that our perspective and training as early modern scholars brings to the much-altered, current digital landscape?

Before answering these questions, we need to reflect on how that digital landscape has changed. To be sure, since 1995 all sorts of new technologies for creating and disseminating printed texts have emerged, from the slew of devices for digital reading to the explosion of new publishing platforms, both print (e.g. print on demand) and digital (e.g. editions built using Scalar, born digital books, and the open access publishing movement). But what arguably most characterizes experiments with textual form over the last few decades is the increasing emphasis on interactivity. Digital texts are designed not to be read cover to cover, assuming a reader who knows how the interface works. Rather, they are to be explored interactively, and they often give readers new or more expansive opportunities for how to engage with a text. Digital texts are designed with a human user, not just a reader, in mind. They are not only textual objects but also interfaces between digital technology and this embodied reader. If 1995 marked an important moment in the age of the digital text, 2020 marks a critical time in the age of the interface.

Early modernists' expertise in the history of print and the book only goes so far in the age of the interface, and so we may wonder whether early modernists have any sort of privileged stance from which to contribute to the changing (inter)face of digital scholarship. I would maintain that we

do, not because the period we study is so important to the history of the book, but because the early modern period is important to the history of interactive media. For one thing, it was during the late sixteenth century that the commercial theater emerged in England, a form of interactive media that, as I have argued elsewhere, is a critical part of the history of today's interactive media.² It is not surprising, then, that some of the most innovative recent digital projects in early modern studies have been oriented around the history of theater and performance. To be sure, textual scholars continue to develop inventive digital editions that take advantage of new platforms for digital publication and reading, but it is theater and performance scholarship, I would submit, that has the most to gain from and perhaps to contribute to the age of the interface. If, as Mark Hansen has argued, experiments with new virtual interfaces foreground "the primacy of the body as ontological access to the world," then scholars who are trained to think about how bodies interact with spaces, objects, and other bodies are ideally positioned to take advantage of new technologies.³

Indeed, the human body, imaginatively and sometimes even physically, is a central player in this new generation of early modern digital scholarship, much of which was not conceivable twenty-five years ago. Good examples include digital projects engaged in geospatial mapping of historical places, the most prominent of which is the *Map of Early Modern London* (MoEML), directed by Janelle Jenstad. MoEML aims to "map the spatial imaginary of Shakespeare's city," offering users a digital edition of the well-known 1561 Agas woodcut map of London that is interoperable with encyclopedia entries about places on the map and marked-up early modern digital texts rich in toponymical references. Although the Agas map is arguably at the center of MoEML, the project is as much concerned with people's embodied experience of London life as it is with the city's spaces and places. MoEML's mission statement begins by noting that "Shakespeare and his contemporaries traversed London on foot," which explains why plays and other early modern texts "assume intimate knowledge of the streets, alleys, and topography of the city."⁴ The project takes the human body as its locus of orientation, even as it adopts a distant bird's-eye view of London's geography. As is evinced by the mission

2. Gina Bloom, *Gaming the Stage: Playable Media and the Rise of English Commercial Theater* (Ann Arbor, 2018).

3. Mark B. N. Hansen, *Bodies in Code: Interfaces with Digital Media* (New York, 2006), 5.

4. See mapoflondon.uvic.ca/mission_statement.htm.

statement's citation of Michel de Certeau's concept of "practitioners," the project is concerned with how early modern people used, navigated, and transformed London streets and buildings. To put this in different terms, the project uses new digital interfaces to explore—and enable users to explore—the interface between early modern human bodies and the geographical spaces they inhabited.

Although MoEML supports a range of research queries, theater and performance are its central concerns. That focus is borne out by the project's current development direction: a collaboration between MoEML and *Internet Shakespeare Editions*, and its sister sites *Queen's Men Editions* and *Digital Renaissance Editions*, to make these sites interoperable. This will allow editors of digital editions of plays to annotate toponyms that appear in the plays, while also helping MoEML to expand its databases.[5] The centrality of theater and performance to MoEML is partly driven, to be sure, by the fact that early modern plays, especially city comedies, are such a rich source of toponyms and because civic performances, such as mayoral shows and pageants, are critically tied to London spaces in which they were performed. But, arguably, the project's entire conception relies on an understanding of civic history as an interface between people and spaces—in much the way theatrical and other forms of embodied performance are. MoEML is so innovative in its computing interface design, I would submit, in part because its main contributors are scholars of early modern theater and performance and thus have been trained to historicize and think about the interfaces of performance. Their contributions to digital scholarship on geographic information systems (GIS) stem from their expertise in early modern histories of theater and performance.

The prominent role of early modern theater historians in the age of the interface is perhaps even more evident in digital projects that attempt to create or play with three dimensional virtual spaces using technology— such as 3D modeling, animated flythrough videos, virtual reality—that has only become available (or at least easily accessible) to digital humanists in the last fifteen years. Theater historians have been drawn to 3D modeling because it offers an unparalleled way to explore how actors and audiences interfaced with each other and/in theatrical spaces that are no

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5. Janelle Jenstad and Diane K. Jakacki, "Mapping Toponyms in Early Modern Plays with the Map of Early Modern London and Internet Shakespeare Editions Projects: A Case Study in Interoperability," in *Early Modern Studies After the Digital Turn*, ed. Laura Estill, Diane K. Jakacki, and Michael Ullyot (Tempe, 2016), 237–58.

longer extant. For example, Joanne Tompkins and her colleagues at Or-
telia have built a 3D digital model of the historic Rose Theatre, populated
by figures of actors and audience members, that attempts to capture the
way the theater looked in different weather and lighting conditions.[6]
The project opens up an entirely different methodology for performance
history research. Tompkins used the model to experiment with the size of
props required for an early modern production of *Dr. Faustus*. Digitally
modeling the entanglements—or, we might say, interfaces—between hu-
man actors and objects in the intimate Rose Theatre space exposed, among
other things, that the hellmouth could not have been brought out through
the trap door but must have come from the tiring house.[7]

   The possibilities of 3D theater modeling have also inspired scholars
working on the performance of early modern drama in modern theaters.
The *Designing Shakespeare* project lead by Christie Carson documented
the performance of Shakespeare's plays across a forty-year time span in
London and Stratford-upon-Avon. Alongside the more typical objects
one would expect in a multimedia archive (theater reviews, photographs,
video clips, and interviews), the database includes nine Virtual Reality
Modeling Language (VRML) models (created by Chris Dyer) of some
of the key theater spaces in which these performances were staged. Unlike
photographs and videos, which capture a performance from particular
angles, digital models enable the researcher to examine how something
looked from a variety of viewing perspectives.[8] Jennifer Roberts-Smith
and her colleagues have taken this idea further in their *Simulated Environ-
ment for Theatre* (SET) project. Whereas each of the models in *Designing
Shakespeare* offers three, fixed-in-place virtual actors on the stages, SET's
models allow digital actors/avatars to roam. Indeed, the goal of SET is to
allow users to block a scene or an entire production digitally. This enabled
the team to produce an innovative performance edition of *Richard III* in
which the text spoken by the characters appears on screen close to the av-
atars of the actors who would speak it and only at the moment in the

   6. See ortelia.com/project/recreation-of-the-rose-theatre/.
   7. Joanne Tompkins, "Making the Invisible Visible: Virtual Stage Props and Christopher
Marlowe's *Dr. Faustus*," in *Performing Objects and Theatrical Things*, ed. Marlis Schweitzer and
Joanne Zerdy (Houndmills, 2014), 161–72.
   8. Christie Carson, "A Report on Virtual Reality (VR) in Theatre History Research: Creating
a Spatial Context for Performance," *Early Modern Literary Studies* 13 (2004), parag. 9, extra.shu.ac
.uk/emls/si-13/si-13toc.htm.

imagined production when the lines would be spoken. Roberts-Smith and her team argue that unlike other editions that relegate theatrical production and reception to appendices and notes, prioritizing text over performance and ontologically separating the two, SET editions ensure that the text cannot "exist without a performance and avatars to embody it in playback."[9]

Whereas these projects invite users to navigate 3D renderings of theaters via a 2D interface of the screen, other theater history scholars have been experimenting with or thinking toward virtual and augmented reality interfaces. Roger Clegg and Eric Tatum created a 3D model of the historic Rose Theatre and its environs that is based on extensive analysis of a range of source materials. In his recent born-digital book *Reconstructing the Rose: 3D Computer Modeling Philip Henslowe's Playhouse*, Clegg provides a flythrough video of the model, which he hopes might be integrated into a virtual reality or augmented reality exhibition for the Rose Theatre Trust.[10] *Reconstructing the Rose* takes advantage of new digital interfaces in its mission, research methodology, and even its choice of press, EMC Imprint, which publishes peer-reviewed, born-digital books. Meanwhile, the *Shakespeare-VR* project directed by Stephen Wittek offers a flythrough of a live video of the American Shakespeare Center's Blackfriars Theatre. Although this is a 2D video, users who view the video through a head-mounted display can have the illusion of being inside the 3D theater space.[11]

Whatever the dimensions in which they are rendered or experienced, these projects all imagine bodies articulated in space, re-dimensionalizing scholarship on the early modern period through digital technologies that mimic theater's own three-dimensionality. These scholars are using the affordances of innovative digital interfaces to think anew about the interfaces of early modern theater. At risk of sounding like a technological determinist, I think it is safe to say that projects like these were far less likely, if at all possible, twenty-five years ago. Speaking for myself and the digital game *Play the Knave* that I developed with colleagues at my institution, I can certainly confirm that the interfaces of theatrical performance informed our choice of digital platform, but also that the affordances of

9. Jennifer Roberts-Smith et al., "SET Free," *The Shakespearean International Yearbook* 14 (2014), 82.

10. Roger Clegg, *Reconstructing the Rose: 3D Computer Modeling Philip Henslowe's Playhouse* (Santa Barbara, 2019), reconstructingtherose.tome.press/.

11. For a video showing captured footage, see www.youtube.com/watch?v=PjUmz7MIeVg.

the technology we selected ultimately shaped the project's design in crit-ical ways. In *Play the Knave* users create a digital production of a scene from Shakespeare or of any text they write and upload, selecting 3D avatar ac-tors, a 3D model of a theater stage, and music or atmospheric sound-track.[12] Players perform their virtual production karaoke style, animating their avatars by enacting the scene through their own vocalization and body movement. We use a Microsoft Kinect camera to capture the move-ment of the player's physical body in real life space, mapping that onto the movement of the digital avatar on screen. Our goal from the project's in-ception had been to create a "theater-making game," but our access to and expertise with Kinect lead us to develop the feature of the game that most excites players: the motion capture interface that makes it seem that the avatar is mirroring the player's movements in real time.[13]

The presence of theater and performance scholars at the center of so many novel digital projects in 2020 signals an intriguing shift in how early modernists are contributing to research in the computing age. The im-plications of this shift can be appreciated by looking briefly at Jerome McGann's "Radiant Textuality," which appeared just a year after the Marcus essay I discuss in my opening. McGann risked an even bolder pre-dictive stance than Marcus and I do. Surveying the status of cyberspace, McGann imagined that electronic publishing would allow for a reimag-ining of the way we work. Scholarly texts could include image and clips, and could be more open-ended, cumulative, and collaborative. He pre-dicted that this "radiant textual network"—a "highly flexible environment for pursuing knowledge"—would allow "criticism and interpretation [to] break free of the atomic forms—the monograph and the scholarly/inter-pretive essay—that have guided our work for so long."[14] McGann's prog-nostication hasn't fully come to pass as of yet. Although scholarship circu-lates digitally in a range of ways, monographs are still the gold standard for tenure and promotion at Research I universities, and those of us working in the digital humanities know full well that we are best positioned to get institutional credit for our digital projects if we publish essays about them. That said, the digital theater projects I have explored in this essay bring us even closer to the future McGann imagined, and perhaps even beyond it.

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12. See www.playtheknave.org.

13. Gina Bloom, "Videogame Shakespeare: Enskilling Audiences through Theater-Making Games," *Shakespeare Studies* 43 (2015), 114–27.

14. Jerome McGann, "Radiant Textuality," *Victorian Studies* 39 (1996), 379–90.

These projects expand the "radiant textual network" to include human bodies—those of the actors and audiences that inhabited the spaces where early modern plays were first performed and of actors and audiences who continue to embody early modern drama today. These projects put pressure on the meaning of "the text," asking us to think about the human body as a critical component of any textual system. They urge us to conceive of textual systems as interfaces.

There are some downsides to this shift, for it is easier to preserve texts—even those produced as part of a radiant textual network—than it is to preserve the technologies that power experiments in the interface. Many of the projects I have discussed are downloadable applications. When computer operating systems upgrade or hardware is discontinued, these projects are at risk of phasing out unless they can be updated. I was fortunate to have downloaded the VRML models for *Designing Shakespeare* when they were available, but when I returned to the project website to write this essay, they were no longer there. The same was true for SET, as the creators appear to be preparing an updated version. *Play the Knave* is only accessible currently to people who can get their hands on a Kinect camera, hardware that is no longer being manufactured by Microsoft.[15] Even web-based projects, like MoEML, can have limited life spans, since automated archival systems like the Wayback Machine do not archive deep web structures or databases.

Early modernists, prone to fetishizing textual archives, may bemoan this situation. Our inability to access these projects easily is, from the archivist's perspective, a grave loss. The projects are victims of a quickly moving digital age that renders great projects obsolete before their time. But my training as a scholar of early modern theater history and performance leads me to a very different conclusion: the creation of theatrical performances by human bodies for human bodies means that early modern drama is never and can never be fully archivable or traceable. To be sure, early modern scholars work on the traces, but no scholar of early modern theater and performance, even those with the best digital models and tools, can capture and relive performances that occurred four hundred years ago. Those of us who work on the history of theater and performance are quite used to obsolescence as a condition of scholarly production. We

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15. UC Davis's ModLab offers an equipment loan program so that scholars and teachers who don't have the equipment necessary can borrow a Kinect or a full "Knave Kit" containing everything needed to run the game.

work on interfaces between bodies and spaces that no longer exist. This puts us in an especially good position, then, to study the fleeting life of digital works, and to create them. Indeed, early modern scholars' expertise in the history of theater and performance may be precisely the background required for producing cutting edge digital projects in the age of the interface.

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