

Type of Report: Final Performance Report and White Paper

NEH Grant Number: HT-251006-16

Project Title: Early Modern Digital Agendas: Advanced Topics: Network Analysis

Project Director: **Jonathan Hope**, Professor of Literary Linguistics,
University of Strathclyde, and
Ruth Ahnert, Senior Lecturer in Renaissance Studies,
Queen Mary University of London

Grantee Institution: Folger Shakespeare Library

Date of Submission: 21 December 2018

Submitted by: **Owen Williams**, Administrative Project Director for Early Modern
Digital Agendas, and Associate Director for Scholarly Programs,
Folger Institute, Folger Shakespeare Library

Abstract: This final performance report and white paper focuses on the major activities and accomplishments of “Early Modern Digital Agendas: Advanced Topics: Network Analysis,” a ten-day institute hosted at the Folger Institute of the Folger Shakespeare Library from 17 to 28 July 2017. It describes the audiences, the results of summative evaluations, the continuation of the project, and the ongoing impact through grant products. It concludes with a list of advice for those who want to offer similar programs.

Contents

Introduction.....	3
Description of Project Activities	3
Accomplishments	7
Audiences	7
Evaluation	8
Institute Strengths.....	9
Institute Co-Directors.....	9
Visiting Faculty	9
Host Institution	10
EMDA2017 Participants	10
Reunion Workshop	11
Institute Challenges and Solutions	12
Continuation of the Project	12
Grant Products.....	12
Long-term Impact.....	13
General Advice.....	14
Before the program	14
During the program.....	14
After the program.....	14
Appendices of Supporting Materials.....	15

Introduction

From the inception of the first Early Modern Digital Agendas institute in the summer of 2013, the Folger Institute's goal has been to support an active and sustained afterlife that presents the best digital work that early modern scholars have developed and use to advance their research. This report focuses on the third institute, "Early Modern Digital Agendas: Advanced Topics in Network Analysis" (EMDA2017), which the Folger Institute hosted from 17 to 28 July 2017 at the Folger Shakespeare Library.

For two weeks, EMDA2017 created a forum for advanced digital humanists at the Folger Institute, a center for advanced study and research in the humanities at the Folger Shakespeare Library in Washington, DC. Under the joint direction of **Jonathan Hope**, Professor of Literary Linguistics at the University of Strathclyde, and **Ruth Ahnert**, Senior Lecturer of English, Queen Mary University of London, it afforded fifteen academic faculty, non-faculty professionals, and graduate student participants the opportunity to apply advanced network analysis techniques to their own projects and to help their peers conceptualize other projects. With the guidance and support of expert visiting faculty, participants were introduced to and guided through the specifics and practical applications of network theory, including the importance of data cleaning, ways to connect different types of nodes, and which technologies and applications offer the most affordances.

As in the previous EMDAs, participants investigated tools developed by visiting faculty to manage, analyze, and visualize data in new ways. In this more focused exploration, however, additional "build sessions" were interspersed to guide the participants' experiential learning of the most advanced quantitative and social network analysis techniques available. These sessions assisted participants through the process of selecting their source material, extracting data, building and structuring their database, cleaning their data, and visualizing and analyzing their data with off-the-shelf tools. Participants then learned to write their own code in order to perform tailored network analysis. This work culminated in their final presentations, in which they demonstrated the data sets and analyses they had built during the Institute or responded to the ideas they had encountered in relation to their own future plans.

An overarching theme governed these three institutes: intensive and high-level learning and reflection were designed to move participants from the practical to the critical to the theoretical and back again. Along this continuum, discussion in this particular iteration recursively circled around several fundamental issues: what specific questions can be asked with digital humanities techniques, and how should we evaluate the quality of the answers? How are these advanced techniques being applied now in the field of network analysis, and how might they be used in the future to open up new and even more interesting questions?

Description of Project Activities

Folger Institute staff made every effort to communicate the programmatic shape of EMDA2017 to participants before their arrival, and we seem to have accomplished that goal. All announcements and targeted email messages directed potential applicants to [Folgerpedia](#), a dedicated Folger wiki that allows the Institute to easily create and update information. According to Google Analytics, the [EMDA 2017 article](#) recorded almost 1,600 unique pageviews with an average time on page of two minutes and fifteen seconds during the months leading up to the application deadline. (To date, that article has received over 2,300 unique pageviews.) The posted materials also contained a "[Dear Colleague](#)" letter written by the Institute's Project Directors and a detailed

[schedule](#) (as originally outlined by the visiting faculty during the proposal stage). Eligibility rules and a link to the [application guidelines](#) were prominently featured for prospective applicants, which received 966 unique pageviews and an average time on page of 3:27 during the months before the deadline.

An article on Folgerpedia, the encyclopedia of all things Folger, began as our promotional site. The daily curriculum, [the list of visiting faculty](#), and [the list of participants](#) were all provided there for the participants' reference well before their arrival. This was complemented by two listservs: an organizational one to which only members of the visiting faculty were subscribed and one for both participants and visiting faculty. A Dropbox with updated session-by-session plans (appended to this report as **Appendix B**), links to required software, and scans of the assigned readings held these resources in one accessible place. As one participant noted, "The general high standard of organization, from the ease of finding the accommodation on the first evening, to the communication of plans and what was expected of participants in advance, was particularly noteworthy."

The EMDA2017 institute was typical among Folger scholarly offerings in inviting the most "generous" and "expert" visiting faculty available (adjectives that came up several times in the participants' evaluations). The visiting faculty was welcome to attend as much of EMDA2017 as their schedules would allow, and many of them accepted the offer. In previous EMDA institutes, most visiting faculty had stayed for a day or two around the sessions they presented. During EMDA2017, however, many of the faculty chose to stay for the two-week institute in its entirety, with the aim of contributing to ongoing discussions, adding extra guidance, and furthering the debate. Network analysis is a small and emergent sub-field of DH and there was a clear sense that the faculty were keen to expand their community. While we did not initially anticipate for so many of the visiting faculty to stay for the institute's duration, we were happily able to use Folger apartments and guesthouse rooms to extend their travel allocations.

From the start, community formation was understood as a crucial task. These efforts paid off in terms of respectful and engaged discussion, offers of technical project assistance on multiple occasions, and collaborative approaches to research. As one participant explained, "Overall, the co-directors and visiting faculty were all remarkably collegial, welcoming, and generous. The co-directors kept the discussions on point and lively. The wide range of experience with digital tools amongst the participants meant that ideas, solutions, and encouragement were always readily available."

Following a day of orientation and community-formation, the institute itself began with a two-part day providing radically different perspectives on the scholarly landscape of networks. The first half was devoted to the most prominent, non-DH approach to networks, Actor Network Theory (ANT), led by **Michael Witmore** (Director, Folger Shakespeare Library), **Mattie Burkert** (Utah State University), and **Ellen MacKay** (University of Chicago). A second, complementary session introduced the field of network science and the ways that it has begun to shape scholarship in the arts and humanities. It was led by **Maximilian Schich** (University of Texas-Dallas), **Sebastian Ahnert** (Cambridge University), and **Scott Weingart** (Carnegie Mellon University). Together these two sessions opened up the theoretical underpinnings of EMDA2017 with a discussion of what the term "network" means to different scholars. Some participants were resistant to what they saw as the overtly theoretical nature of this opening, being keener to move on with the practical elements of the curriculum. However, as the Institute continued, and particularly in the

final summary discussions, we found ourselves returning to the theoretical, methodological, and ethical issues and critiques raised in this session. This was a key aim of the Institute; while avowedly practical in many respects, the organizers sought to underpin practical learning with theoretically-informed critique. It may be important for organizers of future Institutes to recognize that producing a genuinely critical engagement can require moving participants out of their comfort zones.

The rest of the first week focused on guiding the participants through the necessary steps to conduct network analysis: selecting source material, extracting data, building and structuring a database, “cleaning” data, visualizing and analyzing data with off-the-shelf tools, and writing tailored code. When two scheduled presenters were unable to join the institute due to illnesses, **Scott Weingart** returned on Wednesday to offer a demonstration of how to make “node” and “edge” lists: the latter is a list of all of the connections or ties in one’s network of nodes. Since this is the starting point for all network computations, it was important to devote session time to these concepts early in the institute. As his example, Weingart asked the participants to read three days’ worth of entries from Samuel Pepys diary and to then make an edge list for all the interactions they observed. With this approach, Weingart established a precedent that resonated with many of the participants, with one commenting, “I found it particularly useful that the various faculty would highlight the practical questions that we needed to ask about our data: what will be our nodes, our edges? How can we take apart a dataset to see what it can tell us? How can we use a dataset to give us answers that it might not have been designed to give?”

Radically extending this relatively simple exercise, **Ruth and Sebastian Ahnert** introduced a much more complex example with reference to their 37,101 name fields drawn from the State Papers archive. Participants recognized that creating datasets by hand or modifying existing legacy archives often require different types of attention and larger project teams to acquire and structure the data. The following morning, **Blaine Greteman** (University of Iowa) underscored the toleration scholars must have for dirty data to perform network analysis. One explained why this was important: “A highly nuanced and detailed discussion surrounding epistemological challenges of relying on [dirty] data—and the ways we can acknowledge shortcomings and intelligently counteract them—is essential to any digital humanities work today, and EMDA provided an excellent space within which to discuss this idea.” Participants were then given a behind-the-scenes introduction by the programmers involved with one of the most familiar network analysis projects in early modern circles, the [Six Degrees of Francis Bacon](#) (SDFB) project created by **Dan Shore** (Georgetown University) and **Christopher Warren** (Carnegie Mellon University). The participants were invited to improve the underlying data with their subject matter expertise during an “add-a-thon,” and SDFB team members report that more than eighty new historical figures were added, which greatly enhanced existing networks relationships and opened up new groups for analysis. Many reportedly enjoyed collaborating on this project since it gave them a sense of the ways SDFB structures its data and presents its network.

At the end of the first week, visualization experts **Isabel Meirelles** (OCAD University, Canada) and **Nicole Coleman** (Stanford University) circulated a questionnaire containing items like primary field of study, the most recently read Shakespeare play, and favorite cocktail. The group’s results were presented with an assignment: use pencil and paper to develop an analogue visualization that displays your findings. Discussing the thinking behind this simple visualization prepared the room for the afternoon’s session, which explored what digital tools like Palladio (designed by Coleman and her Stanford team) can help scholars “see” in their data. One evaluation response

singled out this paired presentation: “I was particularly interested in the discussion surrounding visualizations and their impact on scholarship, and there was a fascinating debate about what visualizations can and cannot do in terms of scholarship.” Considering what is lost and gained resurfaced throughout the institute, often at the instigation of the visiting faculty.

This reflective theme was picked up in the session on Monday morning of the second week that encouraged participants to discuss what they had learned thus far and the ways this had modified their approaches. Ruth and Sebastian Ahnert guided the discussion through a straightforward but crucial question: how can quantitative methods and traditional modes of scholarship and analysis interact? In the afternoon, two members of the Stanford Literary Lab were scheduled to join the institute, but family complications prevented their attendance. This allowed **Anupam Basu** (Washington University in St. Louis), **Jonathan Hope**, and **Michael Witmore** an extended opportunity to present their collaborative work on the ways network-based approaches might be brought to bear on large-scale text analysis and classification problems.

The participants’ evolving skill sets and reflection during the first week meant they were equipped to move from Palladio, which is relatively intuitive, to a more complicated but powerful network visualization tool, Gephi, in the second week. This transition was technically challenging for many, but **Silke Vanbeselaere** (Google) expertly handled their questions and helped them understand how they could visualize their own data with a masterful tutorial. In the afternoon, **Sebastian Ahnert** introduced participants to some basic Python coding that nevertheless enabled them to run powerful algorithms on their network data. While this crash course on the NetworkX library was only a sampler of what Python-oriented approaches might offer, several evaluations indicated that it helped them decide whether or not their projects would benefit from further development of their coding skills.

During Wednesday morning, EMDA2017 welcomed **Howard Hotson** (Oxford University) and **Marie-Louise Coolahan** (National University of Ireland-Galway), both of whom run major DH projects involving huge networks, to discuss the ways they design for open-access interoperability. In the afternoon, **Laura Mandell** (Texas A&M University) turned the participants’ attention to the affordances of Linked Open Data, which more than one participants recognized as having “a massive impact in libraries and archives,” while scholars are “not necessarily as aware as they could be of it as a technology or as a conceptual issue that will be shaping their research.” The takeaway for one participant was immense: “Something else worth noting was the opportunity to learn how to structure a DH research question —something which might seem obvious but actually was one of the more valuable aspects of the two weeks.”

In the institute’s final day and a half, the participants demonstrated lessons learned during the previous two weeks and showcased their progress on their individual projects in 20- or 30-minute presentations. They discussed how they applied the techniques and methodologies explored in the institute’s building sessions to their own projects, including bipartite and multipartite networks of printers and publishers; visualizations of diplomatic routes; the circulation of suppressed texts; unbalanced network triads; and dynamic early modern women with high network centrality. Professor Hope and Dr. Ahnert praised the participants’ presentations and their various sophisticated approaches to data collection and cleaning, analysis, and visualization of complex networks and looked forward to seeing these projects again during the May 2018 reunion workshop.

The institute concluded with a powerful debate about the broader ramifications of so-called technological progress. As the participants recognized, there are shortcomings with any network-heavy approach: texts serving as imperfect proxies for people or events; a necessary reliance on available or extant data that often skews results; and the impulse to make psychological inferences about a historical person from a representation of one curated network. In this extended summative discussion, participants pondered how network analysis should be defined. Is it a tool, a toolset, a mindset, an instrument, a discipline, a collaborative activity, an expression of an underlying theory, a practice, a field, a scholarship-sharing medium, a model, or a performance of the archive? And how do the various techniques of Network Analysis limit, expand, or shape what we can do with particular types of data? Perhaps most importantly, what does it provide to those who use it? Does it offer representations of knowledge, with the analysis of that knowledge serving as the interpretation of that transformation, or does it merely present relationships between entities?

Accomplishments

The suite of EMDA institutes have as their overarching goal the convening, fostering, and sustaining of the best work being done in early modern digital humanities. For this instance, we had selected one deeply promising subfield, network analysis, to explore in depth. The EMDA2017 institute was typical among Folger Institute scholarly programming in inviting excellent and complementary co-directors and providing the tools to organize and implement an ambitious program in line with well conceived goals. Carefully selected participants worked with generous visiting faculty to make hands-on discoveries that advanced their own network-oriented research projects.

As one participant put it in an evaluation, “This EMDA institute was crucial for the development of my digital project. I went in with one conception of what I was doing, and came out with another, much more realistic. I also learned a good deal about the digital tools available to me, about the discipline of network analysis, and about the intellectual environment in which it’s done.” Another said, “My experience with EMDA2017 was tremendously engaging and useful. I enjoyed the camaraderie that the faculty and Folger staff worked so hard to create and the experience has already gone far to shape my research agenda, as well as ensuring that I will begin to use what I have learned in my teaching. I now feel more confident that I will be able to effectively develop a significant digital project and successfully apply for internal funding at my institution.”

From the beginning, this institute was conceived of as a hands-on, practical foray into a field. The fifteen advanced scholars admitted to EMDA2017 arrived with network analysis projects already in hand. We offered them an expansively defined training institute populated with world-class visiting faculty that instilled a working knowledge of the methods and models that are pushing the interpretive horizons of early modern studies.

Audiences

Like its predecessor, EMDA2017 brought together an impressive and knowledgeable group of scholars and digital practitioners from a variety of campus settings. Their network analysis projects, which were digitally and generically diverse, drew from the best work currently being done in digital humanities. At the time of the institute in the summer of 2017, the participants who joined us represented ten states—California, Colorado, Iowa, Indiana, Missouri, Nebraska, New Jersey, North Carolina, South Carolina, and Virginia. Also admitted were three foreign nationals from the

United Kingdom, one Canadian, and one Dutch national working on her Ph.D. in Italy. They included three full professors; one associate professor; one lecturer; two assistant professors; one senior research fellow; and one adjunct professor. These scholars were joined by six graduate students, three Ph.D. candidates and three Ph.D. students, who contributed perhaps the most advanced digital expertise and may also reap great benefit from the institute. Significantly for this highly technical gathering, this was the first EMDA institute that was majority female, with ten women among the fifteen participants. As one said in an evaluation, “I had an enriching experience at EMDA, and the seminar allowed me to work on the digital project that will be an important part of my dissertation. I came in with some knowledge of networks, but I left with a broader understanding of different tools, methods, and dialogues within the field.” (**Appendix C** provides the list of admitted participants with their academic ranks, departments, and institutional affiliations at the time of EMDA2017. **Appendix D** presents the self-introductions of the participants, visiting faculty, and associated staff.)

In the months following the institute, the participants continued to share resources and develop ideas with each other, as we anticipated they would. Many of those scholarly partnerships are finding their way into wider circulation in digital showcases at academic conferences. This spring, EMDA2017 participants have taken advantage of the annual meetings of the Shakespeare Association of America, the Renaissance Society of America, the American Society of Eighteenth-Century Studies conference, the Mid-Atlantic Conference on British Studies, and more modest scholarly gatherings to convene professionally and socially while presenting some of the most exciting Digital Humanities work currently under development. We at the Institute will add these projects to the growing list of EMDA2017 products on the NEH’s website as they are forwarded to us. They show the range of expertise that was assembled for EMDA2017 and the many connections that participants made with the approaches presented by expert visiting faculty and with each other.

EMDA2017 participants and faculty members are at the forefront of digital knowledge creation and the application for early modern digital scholarship. With each presentation or demonstration at these “mainstream” conferences, scholars representing more traditional fields and approaches have another opportunity to recognize how their current research may benefit from new techniques that are becoming much more commonplace through the outreach of the generous scholars gathered by the three EMDA institutes. We are proud to have identified and convened so many members of the rising generation of digital humanities scholars.

We recognized that engaging discussions like this one would never fit within the available session time, and those who were not in the room wanted to eavesdrop on the conversation, too. Approximately 3,905 tweets or retweets tagged with #EMDA17 were recorded during the course of the two-week institute, many live-tweeted by our Technical Assistant for Digital Presence, Caitlin Rizzo, with the twitter handle @EMDigAgendas (first used during the 2013 institute). Most of these occurred during sessions, for an average rate of well over 375 tweets or retweets per meeting day. (The archive of #EMDA17 tweets can be accessed [here](#), a searchable version can be accessed [here](#), and a visualization is available [here](#).) During the institute, participants and visiting faculty collaboratively developed a shared glossary of the technical terms used in advanced network analysis.

Evaluation

At the conclusion of EMDA17, its participants evaluated the program using a form that protected their anonymity. Program-specific questions were devised with advice from NEH staff to

evaluate the program as a whole, as well as the quality of the visiting faculty and the usefulness or applicability of the software and digital examples they presented or demonstrated for early modern scholarship. Several of these were incorporated above, and their complete evaluations are included in **Appendix E**.

Institute Strengths

In their evaluations, participants indicated a number of program strengths. These included the institute's co-directors, the visiting faculty, the host institution, their fellow participants, and the opportunity to participate in the NEH-funded reunion workshop.

Institute Co-Directors

Professor **Jonathan Hope** (Professor of Literary Linguistics, University of Strathclyde, UK), the director of the previous two EMDA institutes, was joined by a co-director, **Dr. Ruth Ahnert** (Senior Lecturer of English, Queen Mary University of London) for EMDA2017. Professor Hope supplied a steadying presence while Dr. Ahnert was generous with her knowledge of ways to apply network analysis to early modern data. Professor Hope has a general expertise in Digital Humanities, but relatively little experience in network analysis, in which field Dr. Ahnert is a world leader (as evidenced by her recently being named PI for the major research project, [Living with Machines](#)). This combination worked well in demonstrating that not everyone in the room was an expert, and creating a space in which it was perfectly acceptable to ask basic questions. One participant's evaluation said, "I was very grateful for the guidance of Ruth and Jonathan. . . . They struck the right balance between networks as an overarching methodology and the specific application of network analysis to early modern studies. They also simply created a collaborative, friendly environment to do work, as did the Folger staff." While many evaluation responses praised their combined leadership, this one perhaps said it best, "The co-directors were excellent in their preparation, organization, and commitment."

Visiting Faculty

Because EMDA2017 focused on a specialized field, we were able to engage visiting faculty who not only led lively discussions of pre-circulated readings and demonstrated their own tools, software, and approaches, but who were also great instructors. One participant explained, "All the faculty teaching specific tools or techniques had excellent pedagogical skills, something which is not always the case when teaching technical subjects or programs." Matching generous technical expertise with strong teaching abilities is a hallmark of Folger Institute programming.

As is always the case with extended programs like EMDA2017, the organizers ensured that the participants and visiting faculty had multiple informal opportunities to get to know each other and to continue conversations. One participant found it noteworthy that the visiting faculty were able to stay for most of the institute: "This was not something I had come across before, being used to the only interaction with guest speakers being in the half hour or so following a conference paper etc. In this case, having the faculty around served a few valuable purposes: it made it easier to ask specific questions related to individual research that may benefit from one-on-one conversation, and it meant that several skilled technical faculty were on hand to provide technical advice on software or programming languages that we were using." In every instance, the invited faculty were excited to help the participants further their projects, anticipate pitfalls, and find the resources required to succeed.

While not technically visiting faculty, many participants attributed at least part of EMDA2017's success to its technical assistants, **Caitlin Rizzo** and **Pierce Williams**. Together they helped the organizers realize the institute's organizational and programmatic goals. As one evaluation said, "EMDA technical assistants provided top grade support to get finicky software (like Gephi) installed and working on everyone's machines." Others added, "The support team was fantastic, and overwhelmingly helpful"; "The technical support was far beyond what I would have expected. All of the Folger staff was truly outstanding"; and "The IT support within the seminar was also excellent, and very approachable." Our technical assistants were crucial in advance coordination with visiting faculty, as well as in the preparatory moments before the institute and during the institute itself, in reconnecting dropped wireless connections, in loading and troubleshooting presentations, in assisting with software uploads and debugging, and in live-tweeting as @EMDigAgendas. (Their technical report is found in **Appendix F**.)

Host Institution

The Folger prides itself on being an attentive host for all of our scholarly visitors, and EMDA2017 was no exception. The participants noticed our efforts, graciously using adjectives like "excellent on all counts," "impeccable," and "stellar." One said, "The Folger Institute was an exemplary host. The meeting space was congenial and the staff attentive, focused, and expert—and always present. We were clearly in good hands. There were just enough social events, and all of them were conveniently located. Obviously, the Folger Institute knows what it's doing." Another added, "The Folger Institute was incredibly welcoming and gracious. I do not think their hospitality could have been any greater."

While there were several minor complaints about the spartan quality of the dorm-room accommodations that were arranged at a nearby university, those who took advantage of them did agree that they were reasonably priced and convenient to the Folger. We expect that finding suitable lodging for short-term stays will continue to be a challenge in the Washington area, and the Institute is committed to securing the most affordable accommodations that are both safe and convenient to the Folger.

EMDA2017 Participants

EMDA institutes invariably assemble impressive and knowledgeable scholars. Moreover, they regularly find intellectual resources among their new colleagues and the visiting faculty. In this instance, the more specialized field of network analysis enabled lots of cross-over building and collaboration on similar projects; taking lessons learned from someone who had tried a particular tool or approach before fully committing to it undoubtedly saved several scholars time while improving their results. As one said of their colleagues, "To a person, other participants have offered to stay in touch and be available in the future; this seems to have been a pre-set for the workshop. That built-in collegiality was probably the best thing that the Folger could have done to ensure an afterlife for EMDA—and that's what it did." We at the Folger strive to sustain these connections. From the start of every EMDA institute, Professor Hope has emphasized community formation as a crucial building block. "I have met a lot of interesting people and I know that they are always available when I need help, which makes the EMDA so good." These efforts paid off in terms of respectful and engaged discussion, offers of technical project assistance on multiple occasions, and collaborative approaches to research.

Reunion Workshop

On 21-22 May 2018, the Folger Institute hosted a two-day workshop and reunion for the EMDA2017 participants. EMDA2017 co-directors **Jonathan Hope** and **Ruth Ahnert** welcomed the participants during a Monday morning session that described the aims of the reunion workshop. They invited brief progress reports from the participants on their ongoing projects with a PechaKucha-style lightning round. Mid-morning offered an opportunity for an informal “build-time” session. At a working lunch, Folger staff walked the participants through evolving Folger guidelines concerning our ability to host digital assets created by external makers like themselves via the evolving Miranda digital asset platform, generously supported by the Andrew W. Mellon Foundation. In the coming months, Miranda will be ingesting everything, from Folger Consort audio clips to full-text images of books and manuscripts in the Folger’s collections to contributed datasets that other scholars may build upon.

Monday afternoon was devoted to collaborative small group work involving participants’ current perspective on the field of network analysis with particular topics assigned by the co-directors for investigation. These included developing a working definition of network analysis; the various ways different network analysis techniques shape what can be done with particular types of data; and a provisional answer to what network analysis provides to its users in the humanities.

Following a social event on Monday evening, Tuesday morning was devoted to reports from these small groups and discussion on the state of the larger field. Late on Tuesday morning and through a working lunch, participants updated the group on the current status of their digital projects through presentations, and each received constructive feedback and offers of resources and support.

Following lunch, on Tuesday afternoon participants were asked for advice on ways to strengthen the Folger’s role as a digital hub that points to the resources, professional networks, and innovative ideas that have proven most useful for early modernists. Following Folger tea on Tuesday, Professors Hope and Ahnert reprised the closing discussion of the initial institute by revisiting the question of how network analysis should be defined and what role it plays in current DH projects.

These reunions are a very significant part of the success of EMDA, particularly because knowing about them at the initial institute means that participants are immediately thinking about and planning for the medium-term, rather than just being focused on the short-term of the two-week institute (which could otherwise evaporate quickly after the intensity of the main event). As co-director Jonathan Hope has said, “I think the real on-going success of EMDAs in terms of continuing collaborations and information community is due in no small way to the reunions – and specifically the mind-set they produce of looking beyond the Institute from the start.” Such reunions not only offer digital humanities scholars and network analysts an ever expanding and distributed community of practice, but they also serve as a place to renew and revisit conversations, and the continued conversation among advanced DH practitioners who are on the theoretical and practical cutting edges of the field is itself an objective of the EMDA institutes.

Institute Challenges and Solutions

During and after EMDA2015, participants called for more dedicated build time to take advantage of the new software and approaches to which they were being introduced. EMDA2017 was designed with that call squarely in the middle of its rationale. Another lesson learned from EMDA2013 and EMDA2015 is that the more field specific the topic, the more advanced it can be, as practitioners develop their projects in light of new approaches. Again, EMDA2017 created the opportunity for guided exploration of the applications for network analysis.

Another call was for the potential hosting of datasets that might be of use to scholars working on similar projects. At least a partial solution to the inevitable request to host and maintain the products created by these advanced practitioners is the creation of Miranda, a Digital Asset Platform currently under development and outlined by the Folger Director of Digital Access, Eric Johnson, during the reunion workshop. While it is still in the prototype phase, it will soon allow for the ingestion of objects created by our users and commits us to maintaining them for future scholarly re-use.

Continuation of the Project

Through three successive EMDA institutes, the Folger Institute has emerged as a stakeholder in DH knowledge production and dissemination. The impact of “Early Modern Digital Agendas” has reached well beyond the dedicated community of scholars gathered for multi-week advanced topic institutes at the Folger Shakespeare Library. We reach out to former participants and visiting faculty for advice on what they see emerging in the larger DH field, and we will continue to develop proposals if and as warranted with the most suitable partners available. These proposals must foster significant conversations that are situated within the scope of our institutional resources and in alignment with our mission.

The Folger itself is scheduled to undergo extensive renovations as early as January 2020 for a period of at least eighteen months. While this has led to a hiatus in the onsite convening of DH scholars at the Folger, the development of several offsite programs through universities with which we have long-established partnerships enables the continuation of important work in the field. Scholars at universities here and abroad are looking to the Folger not just for our unparalleled collections; we have become known – through the EMDA institutes, our Mellon-support Digital Media and Publications division, and many initiatives and freely available tools and corpora – as an institution with whom partnerships produce tangible benefits. While we will have the opportunity to explore advanced DH programming partnerships offsite in the next few years, projects like Early Modern Digital Agendas have produced a template that will serve us and our colleagues well.

Grant Products

In the days following EMDA2017, a [glossary](#) of terms related to network analysis was posted on Folgerpedia for an interested audience. Co-director Ruth Ahnert also produced a “notes from the field” post for the Folger research blog, [The Collation](#), which appeared in early October 2017. More than simply a recapitulation of the institute, the co-director’s post disseminated the potential of network analysis to a much wider scholarly audience and explained to scholars who might not be familiar with its techniques how their scholarly work might benefit. With these various modes of outreach, participants collectively extended the conversation and communicated hundreds of

resources, perspectives, and questions to scholars and practitioners who followed EMDA2017 remotely.

Due to the advanced nature of the participants' projects, the grant products from the EMDA2017 institute have mostly been individual efforts rather than collaborative products like the Folgerpedia [wiki articles](#) produced by the EMDA2013 cohort. Many of the participants have produced and presented exciting work, and those that have been reported have been added to the NEH's [grant products](#) website. Institute staff will continue to add to this list as products are unveiled or published.

Long-term Impact

From its inception, the Folger Institute's goal for Early Modern Digital Agendas has been to support an active and sustained afterlife to guide those who are starting or continuing their engagement with digital humanities, who hope to advance current expertise, and who wish to become a part of the most advanced group of early modern DH scholars. With this program, the co-directors agreed to delve deeply into one field identified as particularly conducive to a mix of what one participant called "thinking and doing" sessions to examine one of the most "quantitative turns" in early modern digital humanities.

EMDA2017 has the potential not only to shape the ways people are using advanced network analysis methods and developing new network tools and projects for the humanities, but also to determine the future trajectory of a field that we might term "cultural network analysis." The application of computational methods from the fields of network science with aesthetic principles from the field of design technology gives us new ways to engage with some of the thorniest questions at the heart of early modern studies; they also allow us to pose questions impossible to even imagine before the age of digitization. This, however, is a field still in its infancy in terms of the humanities: one that has yet to establish protocols, best practices, or even the language by which we invoke technical processes and methods.

General Advice

As with the White Papers for EMDA2013 and EMDA2017, the Institute would like to share a distilled list of advice for those considering a program along the contours of the EMDA institutes.

Before the program

- Assemble a project team with both technical and logistics strengths who can solve problems collaboratively
- Ensure that a welcoming and intellectually generous director invites colleagues who are ready to share their knowledge in engaging and collegial ways
- Select participants who play well with others
- Ask participants through which channels they prefer to receive information, and use those channels
- Remember the human: anticipate participant and faculty needs as much as possible, and be flexible in meeting new requests, as these may point to new directions that your organization wants to encourage

During the program

- Schedule casual social interactions as often as possible, but don't feel the need to control or oversee additional ones; the more comfortable participants feel working with each other and the visiting faculty, the better program outcomes will be
- Keep sessions on time, and schedule generous breaks between sessions; encourage your participants to use them to step away from the intellectual action so that they can think freshly and productively
- Be alert to unspoken needs
- Draw on expertise beyond the project team as needed, creating opportunities to widen the circle of involved experts

After the program

- Arrange to bring participants back together after the initial program
- When you make requests of participants after a program's conclusion, remember to build in additional time (i.e., if they are good enough to be admitted to your program, they likely have extremely busy lives)
- Put participants in touch with emerging projects that may be able to utilize their expertise; keep networks active and participatory

Appendices of Supporting Materials

Appendix A

September 2016 and January 2017 Folger Research eBulletin Announcements

Appendix B

Updated Session-by-session Schedule

Appendix C

List of EMDA2017 Participants

Appendix D

Self-introductions of Admitted Participants and Visiting Faculty

Appendix E

Full Participants Evaluations

Appendix F

EMDA2017 Technical Report

If you are having trouble viewing this message, [see it in your browser.](#)



Research Bulletin

As are so many of you, the Folger Institute is geared up for the fall term. We've got a new cohort of fellows in residence and a great group of scholarly programs just underway. Our excitement about the new year and our many new members of the Folger scholarly community is tempered, however, by the sad need to note the deaths of so many Folger readers recently. Last year, we mourned the passing of Tom Berger, Elizabeth Eisenstein, and Lisa Jardine. More recently, we've learned of the deaths of Paula Blank, Margaret Hannay, Russ McDonald, Dale Randall, and Claire Sponsler. And we remember Paul Ruxin, former Chair of the Folger Board of Governors, and William Craig Rice, the former Director of the NEH's Education Division. We will miss them. No doubt we will continue to look for them around the Reading Rooms, as we commemorate them and so many others who contribute to our conversations over time.

Kathleen Lynch

Executive Director of the Folger Institute

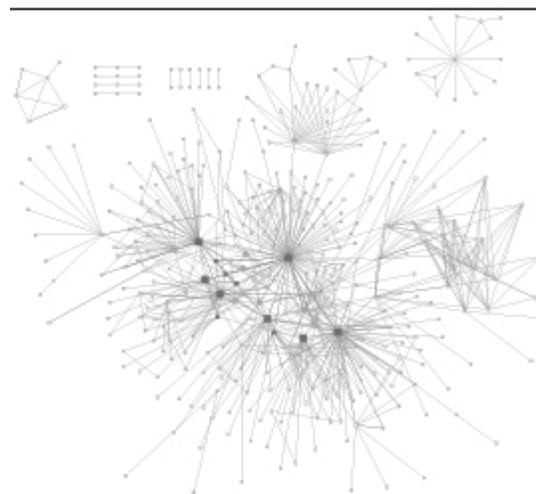
[Explore the Folger Institute](#)



2017-18 Fellowships: Apply Now

The 2017-18 Folger Fellowships Application portal is open! We're accepting applications for long-term fellowships: up to \$50,000 for residencies of six to nine months. Apply online...

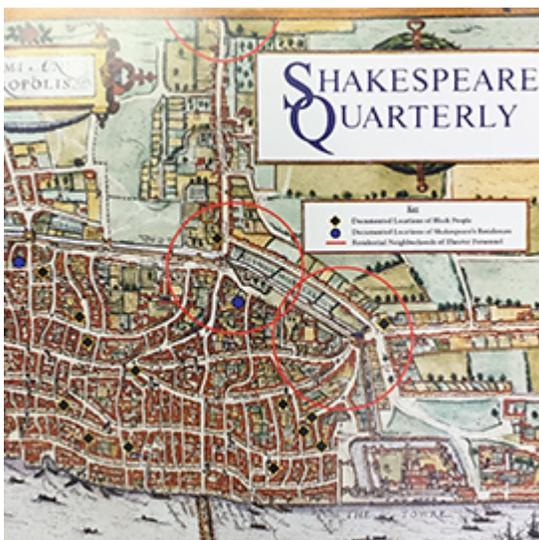
[Read More](#)



NEH Award for Early Modern Digital Agendas

The Folger Institute was awarded \$170,000 from the National Endowment for the Humanities! In July 2017, this grant will fund our Early Modern Digital Agendas project as it analyzes early modern networks...

[Read More](#)



NEW: *Shakespeare Quarterly* Issue on Early Modern Race

Editors Peter Erickson and Kim F. Hall outline the future of early modern race studies in this important new issue...

[Read More](#)



Joseph Roach on Literary Celebrity

Our Shakespeare Anniversary Lecture series culminates with Joseph Roach, “Stars Down to Earth: Materializing Celebrity” on Tuesday, Oct 4, at 7:00pm. Tickets on sale now...

[Read More](#)



NACBS 2016 Tours the Folger

On Thursday Nov 10, NACBS attendees are invited to the Folger for a special tour and collections viewing. Want to see examples from our nineteenth-century costume collection? Eager to have a look at our early modern maps? Or our eighteenth-century lampoons? Sign up online...

[Read More](#)



Database Trial: Early European Books

Preview the Early European Books (EEB) database at the Folger this fall. Similar to EEBO, but covering pre-1701 printed books from five major international libraries (including The Royal Library in Copenhagen, The National Central Library in Florence, and The National Library in the Hague), these images of early modern books are digitized, high-res, and in full

color. Access is onsite at the Folger through Dec 31, 2016. Come visit!

[Read More](#)

Folger SHAKESPEARE
LIBRARY
Advancing knowledge & the arts



Research Bulletin Editor:
Dr. Amanda E. Herbert
Assistant Director, Fellowships
Folger Shakespeare Library
201 E. Capitol St SE
Washington, DC 20003

Image Credits: 1) Detail from Margaret Cavendish, *Nature's Pictures...* (London, 1656), Folger Shakespeare Library 2) Network analysis image courtesy of Ruth Ahnert and Sebastian Ahnert 3) Detail from the cover of *Shakespeare Quarterly* Vol. 67, No. 1 (Spring 2016) 4) Thomas Bowles, *The South West Prospect of London...* (London, c. 1805), Folger Shakespeare Library 5) Joseph Roach, photo courtesy of www.folger.edu 6) Screen capture of Early European Books, <http://eeb.chadwyck.co.uk/home.do>.

If you are having trouble viewing this message, [see it in your browser.](#)

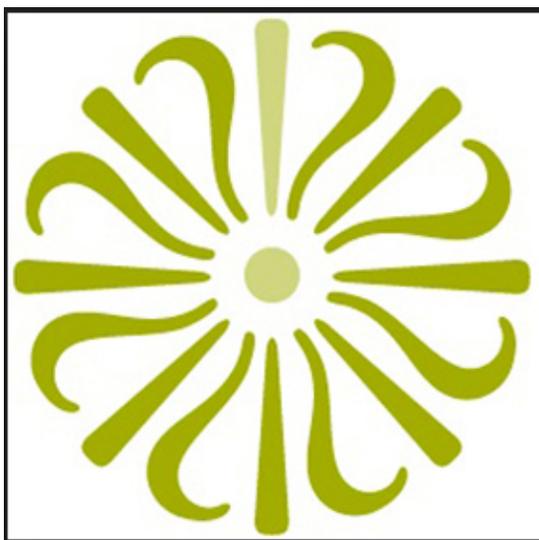


Research Bulletin

All of our first folios are now back home from the national tour, where they were viewed by more than 500,000 people in all fifty states, Puerto Rico, and the District of Columbia. For a few more days, these travelers are on display in the Folger Great Hall---where the histories of individual copies are sketched out and new chapters to their collective journeys are now added to those histories. The Folger made many new friends on the road, and this exhibition sparked many exciting partnerships. So many host venues launched creative partnerships far beyond what we imagined. For the Institute, those partnerships are still playing out through a series of NEH “micro-grants” that we were able to offer to college faculty associated with the tour. We fully expect new chapters in Shakespeare studies and teaching approaches to open through the work of our dedicated teachers at all levels, librarians, and theater professionals throughout the year. Our anniversary lectures are available as podcasts, joining a growing list of exciting [Shakespeare Unlimited](#) podcasts. We round out our anniversary “year plus” of scholarly events in April 2017, with a birthday lecture by Folger Director Michael Witmore on Monday, 24 April. As we embark on year 401, his topic is “The Wonder of Will,” our theme for the 400th anniversary. Save the date to join us—or look forward to the podcast.

Kathleen Lynch

Executive Director of the Folger Institute



Early Modern Digital Agendas: Advanced Topics in Network Analysis

Following the success of EMDA 2013 and EMDA 2015, the NEH’s [Office of Digital Humanities](#) has generously funded a third Early Modern Digital Agendas institute for the summer of 2017, to focus on one especially promising field: **network analysis**. The two-week institute will run from **17-28 July 2017**, and all applications are due on **1 March 2017**...

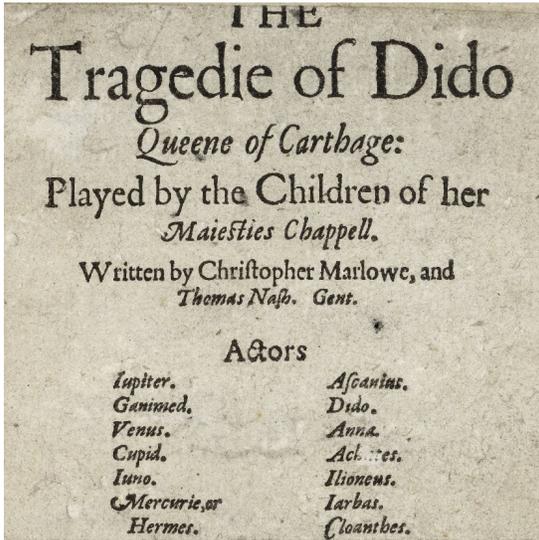
[Learn More](#)



New Folger Fellowship with the Society for the Study of Early Modern Women

In partnership with the Society for the Study of Early Modern Women and in memory of Dr. Margaret Hannay, the Folger Institute is pleased to announce a new fellowship opportunity open to scholars studying women, genders, and sexualities, anywhere in the early modern world. Apply now...

[Learn More](#)



**Marlowe in the Digital Anthology:
First editions released!**

The Folger's Digital Anthology of Early Modern English Drama is delighted to announce our first release of plays by Shakespeare's contemporaries: seven documentary editions of the earliest surviving printed copy of [the plays of Christopher Marlowe](#). Explore the overthrow of a corrupt king and his followers in *Edward II*, civil and religious unrest in the *Massacre of Paris*, or how the invocation of devils was depicted in the earliest *Doctor Faustus*. You can now read and download these early texts in HTML, PDF, and flexibly encoded XML for free: watch this space for our next release in the new year!

[Learn More](#)



EMMO Beta Launch

The IMLS-funded Early Modern Manuscripts



**Complete set of Folger Editions eBooks
now available!**

The Folger Shakespeare Library is pleased to announce that the entire New Folger Library Shakespeare Editions series is now available in eBook format for iBooks, Kindle, Nook, and more. These new eBooks offer all of the classic features that have made the Editions #1 in American classrooms, including explanatory features, supplementary readings, and images from the Folger Shakespeare Library's collections. Now, these editions are available with all the benefits of the eBook format, including resizable text, full-text search, and note-taking capabilities. Have a look at the entire series of Folger Editions formats, including print books, eBooks, audio productions, and apps...

[Learn More](#)



Joe Roach's Folger Podcast

In early October, [Joseph Roach](#) presented "Stars

Online (EMMO) project at the Folger is thrilled to announce the beta launch of our free, searchable repository of manuscript images, metadata, and transcriptions. Please have a look and let us know what you think...

[Learn More](#)

Down to Earth: Materializing Celebrity Culture,” as part of the 2016 Anniversary Lecture Series. The lecture is now available as a podcast. Listen here...

[Learn More](#)



201 E. Capitol St SE
Washington, DC 20003

Research Bulletin Editor:
Dr. Amanda E. Herbert
Asst. Director, Fellowships
Folger Institute, Folger Shakespeare Library

Image credits: 1) Image courtesy of the National Endowment for the Humanities; 2) Wenceslaus Hollar, "Portrait of a young African woman" (1645), ART Vol. b35 no.46, Folger Shakespeare Library; 3) Christopher Marlowe, *The Tragedie of Dido Queene of Carthage* (London, 1594), Folger Shakespeare Library; 4) Image courtesy of Folger Library Shakespeare Editions; 5) EMMO Homepage, image courtesy of the Folger Shakespeare Library; 6) Joseph Roach, image courtesy of the Folger Shakespeare Library.

**Revised Daily Schedule of
Early Modern Digital Agendas: Network Analysis**

Day 1 | Monday, 17 July 2017 | Welcome and Introductions

Morning (9:30-11:30)

The morning will begin with an orientation necessary for work in a restricted-access, non-circulating, rare book library; Dr. Williams will organize a tour of the Folger Shakespeare Library as well as offering an introduction to what is expected of its readers. Participants will confer with the institute's Technical Assistants to configure wireless protocols and troubleshoot software uploads. Following these orientations, the co-directors and participants will convene for lunch with selected Folger staff.

Afternoon (1:00-3:00)

The first afternoon session will be crucial for community-building and accomplishing the agenda of the rest of the institute. Priorities include: (1) establishing a level of critical discussion which theorizes and contextualizes DH within the broad field of the humanities; and (2) establishing sub-groups within the institute which allow for the development of good inter-personal relations, the sharing of knowledge, and the creation of a supportive context in which participants' network analysis plans can be refined. The fifteen participants will meet in five sub-groups of three. In each sub-group, participants will introduce themselves and describe their work, their research interests in network analysis, and their experience in early modern studies and DH. The institute will then reconvene as a whole, and each person will introduce another member of their sub-group. The aim of these introductions is to establish a network analysis problem for each participant for which the participant will develop a solution, a visualization, a guided approach, or a list of resources over the coming weeks.

Post Tea (3:30 -4:30)

Professor Hope and Dr. Ahnert will draw upon the participants' collective introductions to scope out the group's sense of current issues that might be addressed through network analysis—both theoretical and practical—that are of current concern in early modern digital humanities. Dr. Ahnert will then provide an introduction to networks, outlining basic terminology and concepts so that we can begin our exchanges using a shared language.

Day 2 | Tuesday, 18 July 2017 | Latourian Networks and the Quantitative Turn of Network Science**Morning (9:30-11:30) | Actor-Network Theory**

Bruno Latour has been described as the “Prince of Networks.” Latour is one of the primary developers of Actor–Network Theory (ANT), an approach to social theory that treats objects as part of social networks. Although it is best known for its controversial insistence on the capacity of non-humans to act or participate in systems or networks or both, ANT is also associated with forceful critiques of conventional and critical sociology. In this session, Folger Director **Michael Witmore** will join with Professor **Ellen MacKay** (Indiana University) and Professor **Mattie Burkert** (Utah State University) to discuss how ANT may inform the work of early modern scholars in particular.

What are the two to four major themes, questions, or objectives that focus your presentation?

While the discussion will likely range over a number of topics, we would like participants to think about a couple of issues in particular as they read:

- 1) Both Law and Latour emphasize that ANT trades in description rather than explanation. Is this a useful approach for early modern studies and/or digital humanities? What does / would DH scholarship focused on description rather than explanation look like?
- 2) Does ANT give us a way of thinking about “noise,” the stuff that doesn’t fit within the pattern?

Are there any Core and/or Supplemental Readings that you want the participants to have read beforehand?

Yes, see three readings in the Dropbox folder

Afternoon (1:00-3:00) | The Rise of Network Science

Dr. **Maximilian Schich** (The University of Texas at Dallas) will provide an overview of the rise of the multidisciplinary field of Complex Networks, and its growing entanglement with the arts and humanities in recent years. In the second half of the session, experts Dr. **Sebastian Ahnert** (University of Cambridge) and **Scott Weingart** (Carnegie Mellon University) will join Max to share their experience coming from different perspectives including the sciences, art history, and the history of science.

What are the two to four major themes, questions, or objectives that focus your presentation?

- What do we mean by the words “rise”, “multidisciplinary”, “complex”, “networks”, and “science”?
- What projects exist at the intersection of networks and culture?
- What is the difference between network visualization and network analysis?
- What can we gain and what do we lose by understanding systems as networks?

Are there any Core and/or Supplemental readings that you want the participants to have read beforehand?

Barabási, Albert-László. “Linked: The new science of networks.” (2003)

Post-Tea (3:30-4:30) | The Landscape of Network Approaches

The participants will discuss where they would (or desire to) position themselves within the landscape of existing and emerging network-related approaches, from Actor Network Theory (ANT) to Complex Network Science. What are the relative virtues of these frameworks, and what are the drawbacks?

What are the two to four major themes, questions, or objectives that focus your presentation?

- What are the challenges of promoting network approaches to a wider humanities audience?
- How about quantitative versus qualitative insights?
- How about advantages and disadvantages of computational methods?
- How to navigate the landscape and acquire the necessary skills?

Day 3 | Wednesday, 19 July 2017 | Guided Build Session 1: Extracting and Structuring Data**Morning (9:30-11:30)**

In the first of our guided “build” sessions **Scott Weingart** (Carnegie Mellon University) will discuss the process by which scholars might turn historical texts into network data. Topics will include suitable source material, manual data collection/curation, database structure and format, and automated methods of data extraction.

What are the two to four major themes, questions, or objectives that focus your presentation?

- How can we configure research questions into forms that can be explored using a network graph?
- What are the principles of relationality that underly such graphs?
- What are the differences between bimodal and monomodal graphs?

Should particular software be purchased and installed on their laptops? Should access be arranged for exploration of closed or proprietary resources?

For this session participants will need to make sure they have a Google accounts so they can access Google Sheets, & Google Fusion Tables.

Afternoon (1:00-3:00)

Following lunch, participants will have a two-hour session to build their own databases with guidance from Weingart and Drs Ahnert. Participants who already have datasets may use this time to re-format their data for network analysis or enrich this data with additional information.

Post Tea (3:30-4:30) Drs. Ahnert will discuss the issue of dirty data, workflows, and tools for data-cleaning. The Ahnerts will introduce their own “Disambiguation Engine” and OpenRefine (formerly GoogleRefine). What are the two to four major themes, questions, or objectives that focus your presentation?

- the problems with working with pre-existing datasets;
- the ways in which data can be ambiguous or erroneous;
- the process of deduplication and disambiguation; and
- dealing with gaps and uncertainty in the data.

Day 4 | Thursday, 20 July 2017 | Data Cleaning and Crowdsourcing

Morning (9:30-11:30)

The morning's session will follow from the previous post-tea discussion of dirty data and methods for cleaning (and enriching) datasets. It will include introductions to two early modern network projects: Shakeosphere, created by Professor **Blaine Greteman** (University of Iowa) and the Six Degrees of Francis Bacon project, created by Professor **Dan Shore** (Georgetown University) and Professor **Christopher Warren, Jessica Otis, and Scott Weingart** (Carnegie Mellon University). This will be followed by a roundtable discussion on the uses of speculative, dirty, or heuristic network data and whether "clean" data is a false promise. It will also introduce the role of crowdsourcing and the challenges that crowdsourcing introduces.

What are the two to four major themes, questions, or objectives that focus your presentation?

- Why use dirty data?
- Network Inference
- Crowdsourcing - the scholarly hive mind

Are there any Core and/or Supplemental readings that you want the participants to have read beforehand?

Christopher Warren et al., "Six Degrees of Francis Bacon: A Statistical Method for Reconstructing Large Historical Social Networks," *Digital Humanities Quarterly* 10, no. 3 (July 2016): <http://digitalhumanities.org/dhq/vol/10/3/000244/000244.html>.
 Lawrence Stone, "Prosopography," *Daedalus* 100, no. 1 (January 1, 1971): 46–79, doi:10.2307/20023990
 Stephen Tabor, "ESTC and the Bibliographical Community," *The Library* 8 (2007): 367-386. (available in Dropbox)

Are there digital projects, tools, or collaborations with which the participants should be familiar before your presentation?

- Six Degrees of Francis Bacon (<http://www.sixdegreesoffrancisbacon.com/>)
 - Assignment: make one or more contributions to Six Degrees of Francis Bacon
- Oxford Dictionary of National Biography (<http://www.oxforddnb.com/>)
- ESTC (<http://estc.bl.uk>)
- Shakeosphere <https://shakeosphere.lib.uiowa.edu> (go to the "Social Network Analytics" tab; enter a smallish date range like 1600-1610; enter the name of a printer, publisher, or author active during that time to see their network and explore; choose "statistics over time" to track 1-4 individuals over time)

Should particular software be purchased and installed on their laptops? Should access be arranged for exploration of closed or proprietary resources?

ODNB is subscription access, and the Folger subscribes.
 They should "request an account" from the main Shakeosphere page, so that they can edit the files.

Afternoon (1:00-4:30)

A "Six Degrees of Francis Bacon" add-a-thon will offer the group a change of pace and the practical experience of crowd-sourced dataset production.

Day 5 | Friday, 21 July 2017

Morning (9:30-11:30) Thinking through Visualization

Isabel Meirelles (OCAD University, Toronto) and **Nicole Coleman** (Stanford University) will lead a series of hands-on activities and conversations addressing the challenges and opportunities of data visualization in humanities research. The core themes are: visual rhetoric, visual literacy, and the importance of editing.

What are the two to four major themes, questions, or objectives that focus your presentation?

- Visual rhetoric
- Visual literacy
- The importance of editing

Are there any Core and/or Supplemental readings that you want the participants to have read beforehand?

Wainer, Howard. "Understanding graphs and tables." *Educational researcher* 21.1 (1992): 14-23.
Rosenberg, Daniel. "Against Infographics." *Art Journal* 74.4 (2015): 38-57.
Tversky, Barbara. "Visualizing thought." *Topics in Cognitive Science* 3.3 (2011): 499-535.

Are there digital projects, tools, or collaborations with which the participants should be familiar before your presentation?

Humanities + Design a Research Lab at Stanford University: <http://hdlab.stanford.edu/>

Afternoon (1:00-3:00)

Guided Build Session 2: Visualizing your Data in Palladio

The afternoon session will build upon the morning hands-on activities with a deeper look at the relationship between data models, method, and visual argument.

Post-Tea (3:30-4:30)

Time will be provided for participants to continue experimenting with Palladio and to discuss in their small groups how such tools might help their research process.

Day 6 | Monday, 24 July 2017 | Quantitative Network Analysis in Humanities Research**Morning (9:30-11:30)**

After Professor Hope and Dr. Ruth Ahnert outline expectations for the participant presentations on Thursday and Friday, the Drs. Ahnert will introduce Quantitative Network Analysis (QNA). They will explain the ways in which network connectivity can be quantified, showing how various network measurements can highlight the different roles that individual nodes play in network. They will illustrate these approaches with examples from their own research on Tudor correspondence networks.

What are the two to four major themes, questions, or objectives that focus your presentation?

- What is quantitative network analysis?
- How can we use it address humanities research questions?
- How can quantitative methods and traditional modes of scholarship and analysis interact?

Are there any Core and/or Supplemental readings (for example a monograph, or two (or three) articles or chapters for each category) that you want the participants to have read beforehand?

Ruth Ahnert and Sebastian E. Ahnert, 'Protestant Letter networks in the Reign of Mary I: A Quantitative Approach', *ELH* 82:1 (2015), (available in Dropbox)

Matthew Lincoln, "Social Network Centralization Dynamics in Print Production in the Low Countries, 1550–1750," *International Journal of Digital Art History* 2 (2016): 134–157 Available at: <http://matthewlincoln.net/assets/docs/Lincoln%20-%202016%20-%20Social%20Network%20Centralization%20Dynamics%20in%20Print.pdf>

Afternoon (1:00-4:30)

Anupam Basu (Washington University in St. Louis) will be joined by **Jonathan Hope** and **Michael Witmore** to present their collaborative work. While networks are often used in the humanities to represent data that is primarily structured in terms of relationships between nodes, graph theory has been adapted in recent years to a wide variety of purposes. Basu will discuss the ways in which network-based approaches might be used for large-scale text analysis and classification problems.

Day 7 | Tuesday, 25 July 2017 | Guided Build Sessions 3 & 4**Morning (9:30-11:30) Guided Build Session 3: Gephi and Visualization**

Silke Vanbeselaere will offer an introduction to several off-the shelf tools that are used to conduct network analysis, and provide a focused tutorial on Gephi. Under her guidance participants will be able to begin visualizing and measuring their network datasets.

What are the two to four major themes, questions, or objectives that focus your presentation?

- An overview of the tools available for network visualisation and analysis.
- An introduction to Gephi and its uses for historical research.
- Hands-on practice analysing your data in Gephi.

Are there any Core and/or Supplemental readings that you want the participants to have read beforehand?

Lemercier, C., 2008. "Formal network methods in history: why and how?" *Neurocomputing* 71, 1257–1273.

Robert Michael Morrissey (2015) "Archives of Connection," *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, 48:2, 67-79, DOI: 10.1080/01615440.2014.962208

Rossi, F., Villa-Vialaneix, N. & Hautefeuille, F., (2014). Exploration of a Large Database of French Notarial Acts with Social Network Methods. *Digital Medievalist*. 9.
DOI: <http://doi.org/10.16995/dm.52>

Should particular software be purchased and installed on their laptops?

Participants should download the [Gephi](#) (which is free and should work on both pc and Mac) before the session.

Afternoon (1:00-3:00) Guided Build Session 4: NetworkX

Drs. Ahnert will provide an introduction to the Python package for network analysis, NetworkX

What are the two to four major themes, questions, or objectives that focus your presentation?

- a basic introduction to Python and programming;
- an introduction to NetworkX Library, and how to import and analyse network data.

Should particular software be purchased and installed on their laptops?

Before the session, participants should set up a free PythonAnywhere account at <https://www.pythonanywhere.com/>

Drs. Ahnert and the technical assistants will be available 30 minutes before the session begins.

Post-Tea (3:30-4:30)

Participants will have a chance to continue analyzing their networks using Gephi or the NetworkX library. The visiting faculty will be available for personal guidance and instruction.

Day 8 | Wednesday, 26 July 2017 | At-Scale Research and its Implications

Morning (9:30-11:30) and Afternoon (1:00-3:00)

On Wednesday, Professor Hope will redirect participants' attention to the challenges digital tools and methods pose to literary studies and scholars. He will also broaden the scope of the institute's agenda to the larger (period) ecosystems of DH. Challenges range from the practical ones of how scholars collaboratively conceive a digital project and organize its workflow, interoperability, and sustainability, to fundamental questions about the basis, aims, and procedures of literary studies. To facilitate discussion, participants will be joined by directors from three large-scale projects.

Professor **Howard Hotson** (Oxford University) is director of the European Cooperation in Science and Technology (COST) Action "Reassembling the Republic of Letters, 1500-1800," an EU project aimed at providing "A digital framework for multilateral collaboration on Europe's intellectual history." Professor Hotson will discuss the ways that this project envisaged the open-access, open-source, transnational digital infrastructure capable of reuniting the scattered archives of the Republic of Letters. He will be joined by Professor **Marie-Louise Coolahan** (National University of Ireland-Galway), who will describe her work on two interconnected projects that involve network analysis and naturally raise issues of interoperability: "The Reception and Circulation of Early Modern Women's Writing, 1550-1700" (RECIRC) and "New Approaches to European Women's Writing" (NEWW).

What are the two to four major themes, questions, or objectives that focus your presentation?

Two major topics will be addressed in this session: applications of network analysis and collaborative, sustainable infrastructures.

Applications of network analysis will present experiments with Gephi visualization and analysis conducted by the RECIRC project, assessing the merits of textual versus social networks and the challenges of moving from project to public interfaces.

High tech projects and large-scale datasets make collaboration indispensable. The higher the tech, and the bigger the data, the larger such collaborations must be. Such logic rapidly outgrows the resources of individual projects and institutions, and appears to require the emergence of deep collaboration which is normally extramural and often international. Such deep collaboration also holds out the best hope of sustainability, since only systems which are constantly being used and developed can be sustained in an era of constant technological change.

- How do we move from the current posture of multiple, independent, sometimes competing projects to a more collaborative and sustainable model?
- What are the prospects for building comprehensive basic digital infrastructures, populated, built and developed by diverse but complementary project?
- What aspects of current academic practice – from research assessment regimes to funding models to citation standards – will need to be altered to make 'at-scale' work of this kind possible?

This session, problems and potential solutions, will be discussed by two people currently overseeing multiple overlapping projects in the early modern field.

Are there digital projects, tools, or collaborations with which the participants should be familiar before your presentation?

We would like to direct any additional reading time toward the hinterland of our projects, so that

participants may familiarise themselves with these. Therefore, we ask that participants consult these links:

- For the RECIRC project: www.recirc.nuigalway.ie.
- For the latest version of the NEWW Women Writers VRE: <http://resources.huygens.knaw.nl/womenwriters>.
- For the previous version of the NEWW Women Writers online database: http://www.womenwriters.nl/index.php/Database_WomenWriters.
- For the Cultures of Knowledge project: <http://www.culturesofknowledge.org/>;
- For Early Modern Letters Online: <http://emlo.bodleian.ox.ac.uk/>.
- For the COST Action Reassembling the Republic of Letters: <http://www.republicofletters.net/>.

In addition, there are two readings that contextualize RECIRC's network experiments: Erin McCarthy's blogpost, 'Exploring data visualizations and putting the "digital" in "digital humanities"' (<http://recirc.nuigalway.ie/2017/06/recirc-visualizations/>) and Evan Bourke's article, 'Female Involvement, Membership, and Centrality: A Social Network Analysis of the Hartlib Circle' (see pdf attached).

Post-Tea (3:30-4:30)

Professor **Laura Mandell** (Texas A&M University) leads discussion on how network analysis is affecting the Digital Humanities as a whole, considering how projects might link up (share data and tools), what the emerging protocols are for interoperability, and how to conceptualize linked data as a mode of scholarly communication.

Day 9 & 10 | Thursday & Friday, 27 & 28 July 2017 | Participant Presentations and Looking Ahead

Day 9 | Participant Presentations

Morning (9:30 to 11:30)

Participants will have the morning to prepare their presentations. Visiting faculty will be available for technical assistance in the Board Room.

Afternoon (1:00-4:30)

Nine participants will have up to twenty minutes each to share their discoveries and the current state of their network analysis work.

Day 10 | Participant Presentations and Next Steps

Morning (9:30 to 12:30)

Six additional participants will have thirty minutes each to share their discoveries and the current state of their network analysis work.

Afternoon (2:00 to 4:30)

In this closing session, participants will discuss what they have learned, speculate on what needs to be done or made available to researchers in the field of network analysis, and describe what they have been inspired to investigate further. It also looks ahead to the workshop scheduled for the following May.

4:30

Cocktails and closing dinner in the **Elizabethan Garden**. (Or **Foulke Conference Room** in **301 East Capitol Street, SE**, if it is raining.) Please let Elyse know if you plan to bring a guest.

Early Modern Digital Agendas: Network Analysis

Directed by Jonathan Hope and Ruth Ahnert

Participants

David Baker	Professor – English and Comparative Literature	University of North Carolina
Marie Alice Belle	Assistant Professor – Translation Studies	Université de Montréal
Rebecca Emmett	Lecturer – History	Queen Mary University of London
Michael Gavin	Associate Professor – English	University of South Carolina
Genelle Gertz	Professor – English	Washington and Lee University
John Ladd	Ph.D. Candidate – English Literature	Washington University
Thea Lindquist	Professor – University Libraries	University of Colorado, Boulder
Jillian Linster	Visiting Assistant Professor – English	University of Iowa
Catherine Medici- Thiemann	Adjunct Professor – Women's and Gender Studies	University of Nebraska- Lincoln
Rachel Midura	Ph.D. Candidate – History	Stanford University
Yann Ryan	Ph.D. Student – School of English and Drama	Queen Mary University of London
Melissa Schultheis	Ph.D. Student – English	Rutgers University
Matthew Symonds	Senior Research Fellow – CELL	University College, London
Ingeborg van Vugt	Ph.D. Student – History	Scuola Normale Superiore di Pisa – University of Amsterdam
Tara Wood	Assistant Professor – History	Ball State University

Early Modern Digital Agendas: Network Analysis

Directed by Jonathan Hope and Ruth Ahnert

Ruth Ahnert

Senior Lecturer – Renaissance Studies

Queen Mary
University of London

I'm Ruth Ahnert, one of the co-directors of EMDA2017. It's an absolute honour to be invited back to the Folger in this capacity after being visiting faculty at EMDA2015. The Folger is one of my favourite places in the world. For those of you who have not visited before - you're in for a treat.

I am a senior lecturer (equivalent to US associate professor) in Renaissance Studies at Queen Mary University of London (QMUL). My background is in Tudor literature and culture, and I have published on prison literature, trial narratives, Psalm translation, including my monograph, *The Rise of Prison Literature in the Sixteenth Century* (CUP, 2013) and edited collection *Re-forming the Psalms in Tudor England* (as a special issue of the journal *Renaissance Studies*, 2015). Since January 2012 I have been collaborating with Sebastian Ahnert, a physicist at the University of Cambridge (and also my husband), using mathematical tools to examine the social and textual organization of letter collections. In 2015 we published an article on Protestant letter networks dating from the reign of Mary I, and we are now undertaking a study of the letters collected within the archive of Tudor State Papers (accessed via State Papers Online), which you'll be hearing a bit about during EMDA. This work, which has been funded by Stanford Humanities Center, the Folger Shakespeare Library, the Arts and Humanities Research Council (UK), and the QMUL Innovation Grant, will lead to a book and online resource provisionally entitled *Tudor Networks of Power*. We are also working on a collaborative manifesto with Mark Algee-Hewitt (Stanford), Nicole Coleman (Stanford), and Scott Weingart (Carnegie Mellon) on the use of network analysis in the humanities. My work on the Protestant letter network has also led to another more traditional project: an edition. I am working on the two-volume *Letters of the Marian Martyrs, 1553-1558* with Thomas Freeman (Essex), due to be published with Oxford University Press in 2021.

I'm also involved in a number of centres and projects that seek to bring together collaborators interested in network analysis. With Joad Raymond I'm Director of the Centre for Early Modern Mapping News and Networks; I'm on the steering committee of QMUL's Digital Initiative Network; and I'm a sub-chair of one of the working groups for the COST action 'Reassembling the Republic of Letters'. With Elaine Treharne I am also series editor of the Stanford University Press's Text Technologies book series (so talk to me if you're looking to pitch a book on the continuum between book history and digital humanities!).

I'm looking onward to welcoming those of you who I have not yet had the privilege of meeting, and reacquainting myself with those of you I have. I've read about all your fantastic projects and I look forward to seeing some of this data in action during our "build" sessions.

Sebastian Ahnert

Fellow – Sainsbury Laboratory
and Cavendish Laboratory

King's College, Cambridge

I'm a physicist interested in network analysis (among other things) at the University of Cambridge, where I head an interdisciplinary research group at the Sainsbury and Cavendish Laboratories. While much of my work lies on the interface between physics and biology, I've collaborated with Ruth Ahnert (QMUL, and co-director of EMDA 2017) on historical correspondence networks since 2012. As Ruth already mentioned, our latest project is *Tudor Networks of Power*, which aims to connect quantitative network analysis of the

sixteenth-century State Papers Archive with historical research questions about the people and events behind the data.

As someone who also taught at EMDA 2015 I very much look forward to returning for the 2017 edition, and to meeting you all!

David Baker Professor – English and University of North Carolina
Comparative Literature

I teach early modern literature in the Dept. of English and Comparative Literature at the University of North Carolina at Chapel Hill. My research so far has been grounded in history and historiography. I've written two books. The first was on the so-called "British History," which tried to de-center England (and its literature) in this period and to put it in relation to Ireland, Scotland, and Wales, and the second drew on economic historians to consider the literary implications of modeling economic "demand" in early modern England. It's the approach behind the first book that's motivating my current project: two collaborators--Willy Maley (University of Glasgow) and Patricia Palmer (Maynooth University)--and I are building a web application that we're calling MACMORRIS. It's devoted to early modern Ireland and is meant to be both an archive of relevant texts, Gaelic and English, and a "who's who" of the people involved, Gaelic and English. We also want MACMORRIS to offer analytical tools to users, visualizing the networks that link figures within and without early modern Ireland. At this point, we have a prototype version that was built at the Digital Innovation Lab here at UNC-CH. I'm looking forward to a deep dive into network analysis, to learning more about what can be done with it, to thinking about its implications for digital historiography going forward.

Anupam Basu Assistant Professor – English Washington University in St. Louis

I am an assistant professor of English at Washington University in Saint Louis. I am working on a book on the representation of vagrancy, poverty, and homelessness in the popular literature of the period. This project has a small computational element that traces the evolution of certain words and concepts over time in the EEBO-TCP corpus to show how a key set of terms that are central to the "literature of roguery" are later appropriated into other emerging discourses. My work on EEBO-TCP is based around a set of databases available at <http://earlyprint.wustl.edu/>, a site that allows the large scale exploration of n-gram usage in the early modern printed corpus as well as keywords in context searches. This summer, I have also started on a set of projects to clean up the metadata for EEBO-TCP, particularly the printer/publisher fields, and the subject and genre information. While I have worked on networks of collaboration in the early modern theater before, more recently I have become interested in using networks to explore relationships between and within texts. I am looking forward to discussing the intersections between network theory and text analysis in the next couple of weeks at EMDA.

Marie Alice Belle Assistant Professor – Translation Studies Université de Montréal

I am an associate prof. in Translation Studies at the Université de Montréal. My research so far has focused on the material and social history of translation in early modern Britain (with particular emphasis on the Classics). I am coming to the end of a 4-year project on "Translation and the Making of Early Modern English Print Culture, 1473-1660" (in coll. with Brenda Hosington, see www.translationandprint.com). Part of the project consisted in the creation of a catalogue of printed translations for the years 1641-1660, to be made available online in the summer/ fall 2017 as a continuation of Hosington's *Renaissance Cultural Crossroads* catalogue. While working on the project (and the catalogue) I have become increasingly interested

in the material and social networks that underlie the production of printed translations. I have been studying the ways in which such networks are constructed by translators and printers, both through discursive strategies and through the material features of the printed (translated) book, and I have started using visualizations to capture the webs of agents involved in the interlocked cultures of translation and print in the period. I'd like to explore more ways of documenting and representing such networks via digital analysis and visualization tools.

Mattie Burket

Assistant Professor – English

Utah State University

I'm delighted to be one of the EMDA faculty co-leading the session on Actor-Network Theory.

I am an Assistant Professor of English at Utah State University, with research interests in seventeenth- and eighteenth-century British literature and culture. My Ph.D. is from the University of Wisconsin-Madison, where I was involved with the Visualizing English Print project; some of [my text mining work](#) using that group's prototype tools appears in *Early Modern Studies after the Digital Turn* (Iter, 2016). At present, I'm finishing up a book manuscript on the interactions of the London theaters and financial markets from 1688 to 1763. I'm also leading an ongoing project to recover and re-engineer the *London Stage Information Bank*, a lost 1970s database of performance records from the reference book *The London Stage, 1660-1800*. (A paper on our progress so far is forthcoming soon in *Digital Humanities Quarterly*.) We aim to produce a web-facing database that not only allows users to perform targeted queries and conduct exploratory computational inquiry, but also foregrounds the history of the data's mediations and transformations. Right now we're thinking about how best to structure our data to facilitate network analysis and to ensure interoperability with other, related theater resources (such as the Comédie Française Register Project). I'm looking forward to being part of conversations about best practices for this kind of work going forward at EMDA!

Nicole Coleman

Digital Research Architect – Library

Stanford University

I am the Digital Research Architect for the Stanford University Libraries and Research Director for Humanities + Design research lab at Stanford — which began with the Mapping the Republic of Letters project. At H+D we have had a unique opportunity to bring humanities faculty and students into collaboration with design researchers and engineers to experiment with the design of instruments to support and enhance the humanities research process. Some of the resulting tools are Palladio, Palladio Bricks, and Breve. That work would not have been possible without financial support from the NEH and encouragement from the community of experts who contribute to the review process. Thank you, NEH, and specifically the Office of Digital Humanities. I look forward to sharing those tools and even more importantly the lessons we learned while building them, with all of you.

Much of the work I have done in the past decade involves design strategies for digital humanities research. I am inspired by the contribution that digital humanities continues to make to information visualization in particular, expanding the analytic approach beyond statistical methods to include a humanistic emphasis on the individual, the idiosyncratic, and on complexity. Network visualization is central to our current grant funded project at H+D, FI:BRA. And nuanced network analysis techniques are critical to libraries and archives where they will inevitably play a significant role in information access, generally.

Marie-Louise Coolahan Professor – English National University of Ireland, Galway

I'm a professor of English at the National University of Ireland, Galway, specialising in women's writing, early modern Ireland and textual transmission. I worked with the *Perdita Project* on women's manuscripts from 1996 (as the PhD student) - which produced a bibliographical database (<https://web.warwick.ac.uk/english/perdita/html/>) as well as an Adam Matthews-produced facsimile resource. Currently, I'm leading a project called *RECIRC: The Reception and Circulation of Early Modern Women's Writing, 1550-1700* (www.recirc.nuigalway.ie), which is funded 2014-2019. This is a quantitative analysis of how women's writing was read and circulated. We've been storing and sharing results in a web-app database and have begun to play with data visualisations, as we've started to parse and analyse our results. I've also been involved in the *NEWW Women's Writing* project, which used an open online database for sharing results (http://www.womenwriters.nl/index.php/Women_writers%27_networks).

Rebecca Emmett Lecturer – History Queen Mary University of London

I'm an Anglo-Scottish historian with a particular interest in publishing and investment in the book trade between 1570-1640. I'm currently based at Queen Mary in London. I have worked on James VI's royal printer, Robert Waldegrave, and his collaborator Thomas Man. In piecing together Waldegrave's career I came to the conclusion that it was vital to situate him within the wider network of stationers in London, and that is how I found myself dabbling in network visualisation. I am hoping to learn how best to prepare and use investment data gathered from the books produced by Thomas Man and his peers, with a view to exploring their professional network through the books they produced collaboratively. Up until now I have mostly been drawing my network visualisations by hand, so I am really looking forward to learning how to make the most of the tools available to do this digitally!

Michael Gavin Associate Professor – English University of South Carolina

I'm a professor of English at the University of South Carolina. My training is in 18C British literature, but all my work in recent years has been in humanities computing. As far as networks go, I published an essay recently in *Eighteenth-Century Studies* that looks at Restoration-era literary criticism using a network model of the book trade (using data from the EEBO-TCP collection). It was a fun piece that combined SNA community detection with topic modeling and some simple semantic analyses to trace different segments of the print marketplace. I've been working lately on network models of spatial concepts and I have another piece I'd really like to write that looks at networks that accrue over long stretches of time as a technique for period detection and, more generally, as a way to think about how time is represented in a corpus. I wrote a blog post on this topic about a year ago and finally have time this month to start thinking about it for real. Here's a link to that post, for the curious: <http://modelingliteraryhistory.org/2016/01/29/using-networks-to-re-think-periodization-2/>

Anyway, I have a fair amount of experience working with networks and other computer methods. I like to geek out on the math aspects of the work, and I have been particularly enamored of late with spectral graph theory, although it's such a complex topic I feel as if I'm barely scratching the surface. I've co-written several pieces in the last couple of years and am always happy to help out on projects. I participated in EMDA2015 and worked with a group of participants to write a piece for *Debates in Digital Humanities*, and I'd be thrilled to get a chance to do something similar this year.

Blaine Greteman

Associate Professor – English

University of Iowa

I'm at the University of Iowa, where I'm faculty in Renaissance Lit and our Nonfiction Writing MFA program. I have sort of a weird background: after studying literature, I was a journalist at *TIME* for a few years, then a policy director for a congressman/Senate candidate, and then back to academia. I mention that because in my subsequent writing I've been interested by how much our paths are influenced by the people we know or meet (I landed my job at *TIME* after meeting an editor at a dinner party; I ended up a "Miltonist" because during my Sophomore year I got a work study helping out with the *Milton Quarterly*). This is not to dismiss individual agency, but to say that all my research has been invested in understanding how choices are complicated or enabled by larger social structures.

To that end (and again, influenced by conversations with Dan Shore, who lived nearby) I started the "Shakeosphere" project. In a nutshell, we mined the ESTC for the names of early modern printers, publishers, booksellers, and authors, to see how these people are connected and to study those connections. I'll talk more about the data pipeline and the tools involved (PostgreSQL, NetworkX) but you can access some of it through our public site: <https://shakeosphere.lib.uiowa.edu>

Genelle Gertz

Professor – English

Washington and Lee University

I'm Genelle Gertz, Professor of English at Washington and Lee University. I have published a book on heresy procedures, trial narratives and women's writing (*Heresy Trials and English Women's Writing*, CUP, 2012) and articles on topics ranging from how heresy trials must have shaped Shakespeare to pieces on seventeenth-century nun Barbara Constable as well as a study of the continuities between medieval and seventeenth-century women prophets. I am working on a book project called *Lost Mystics*, about the demise of English women mystics in the sixteenth century, followed by their resurgence in the Civil War period. I am using social network analysis to build an understanding of the reception of women's revelations among networks of transmitters. For our seminar I will be learning new methods for improving my data (currently visualized in Palladio) and interpretation built from Thomas Cromwell's interrogations of the mystic Elizabeth Barton. You likely know her from Hilary Mantel's *Wolf Hall* (and I would love to discuss Mantel and Tudor historical fiction generally with anyone in the group); I am interested in developing a sense of the "edges" of Barton's network in order to track how mystic revelations were circulated, whether they were current in particular orders, and whether other ties such as kinship and geography, influenced the reception of women's revelatory writing.

I also became chair of my department seven days ago, so I have been writing reports, setting deadlines, overseeing office transitions, etc. I look forward to immersing myself in a seminar with the rest of you. I have much to learn, and I find your work interesting and impressive.

Jonathan Hope

Professor – Literary Linguistics

University of Strathclyde

I'm the co-director for EMDA2017 - delighted to be returning for my third EMDA, and even more delighted to have Ruth sharing the load this time.

I'm Professor of Literary Linguistics at Strathclyde University, Glasgow, Scotland. My research brings together linguistics, literature, and digital humanities/quantitative approaches. I've published on: authorship attribution; the history of pronouns in English; Shakespeare's grammar; Renaissance theories of language; Middleton's language; stylistic analysis; and digital approaches to Shakespeare, Early Modern Drama, and Early Modern Print in general.

Much of this work has been collaborative with Mike Witmore, and you can download examples here: http://winedarksea.org/?page_id=1990

Visualising English Print 1450-1700, a major project supported by Mellon, has just wrapped, and you can see, and download, the results here: <http://graphics.cs.wisc.edu/WP/vep/>

Network analysis is a new field for me, so I'm looking forward to being the guy asking dumb questions, and bugging you all for help. The EMDA formula is pretty simple: we select a bunch of very smart people and put them in a room together, throwing in a series of great faculty. In the background, Owen and his team make sure everything runs perfectly. I hope you are excited!

Howard Hotson Professor – Early Modern Intellectual History St. Anne's College,
Oxford University

John Ladd Ph.D. Candidate – English Literature Washington University

I'm a PhD candidate in English at Washington University in St. Louis and currently spending the year as postdoc for Six Degrees of Francis Bacon at Carnegie Mellon University. My research focuses on networks of collaborative authorship in the seventeenth century, and as part of my dissertation I'm working on an analysis of dedicatory practice in EEBO-TCP by building a bipartite network of books and the people mentioned in their dedications. At Six Degrees I oversee day-to-day programming and data management activities as we reassemble the social network of early modern Britain and prepare for a redesign of the web application with new analytic and visualization techniques.

I'm attracted to the flexibility of network analysis as a mode of research. I've used networks to explore questions about book history and social relations, as well as to analyze topic modeling results, to visualize Library of Congress subject headings, and to trace patterns in part of speech usage. I typically use Python and D3 as my main tools for this kind work.

Thea Lindquist Professor – University Libraries University of Colorado, Boulder

I am a professor and director of the Department of Open & Digital Scholarship in the University Libraries at the University of Colorado Boulder. I am also an historian working on the prosopography and networks of the early Stuart diplomatic service. This work hearkens back to my dissertation work on Anglo-Habsburg relations in the 'Thirty Years' War, combined with interests I developed as a librarian in online historical sources, digital research methods, and knowledge representation. Looking at the networks among the diplomats is an important part of this work, as it will help show the the extent to which the service was professionalized in the early to mid 17th century.

I am excited to learn more at the institute about the best ways to clean, analyze and curate the data I have assembled from a variety of sources, including the ODNB and SPO4. I would love to brainstorm ways to extend these networks further, e.g., to look at court ties or kinship relations. Since one of the goals of the project is to produce a combined, enhanced data set on early Stuart diplomats to which related projects can readily link, I am also looking forward to our conversations around using data standards and models that encourage sharing and interoperability.

Having the time and the space to focus on the network analysis portion of my project with such a talented group of colleagues and experts (and potentially, collaborators) is such a luxury. I am very excited to meet

you all, and am grateful to the NEH, the Folger, our directors, and the institute's faculty for offering us such a fabulous opportunity!

Jillian Linster

Visiting Assistant Professor – English

University of Iowa

I am a visiting assistant professor of English at the University of Iowa, where I recently defended my dissertation. That project, in part, examined the network of medical practitioners in early seventeenth-century London and their relationships to the literary sphere through shared publishers, audiences, and rhetoric.

I am currently involved in a DH project called “Remappings,” working with PIs Kathy Lavezzo (UIowa) and Lisa Lampert (UC San Diego). I am assisting with the research and development of an interactive map charting the real and virtual/imagined presence of Jews in medieval and early modern England.

I am also at work on my own project, a digital scholarly edition of Helkiah Crooke’s *Mikrokosmographia* (1615), the first comprehensive anatomy manual published in English (and a much-used primary source for historical and literary scholars). My concurrent monograph project tells the story of that book’s production, reception, and legacies. Through this seminar I am hoping to expand the network-related aspects of my research to illustrate and analyze the substantial cultural correspondence of early modern medical literature and its authors, printers, and readers. I look forward to the rich learning and collaborative opportunities in store!

Kathleen Lynch

Executive Director – Folger Institute

Folger Shakespeare Library

I’m Kathleen Lynch, Executive Director of the Folger Institute. I think my role in EMDA 2017 can best be described as well-wisher and lurker. I have been cheerleading the organization of this program as I’ve followed the conversations Owen’s been having with Jonathan and Ruth--and then seeing the circle widen to include a fantastic faculty and exciting participants.

I have done no quantitative network analysis, and I have no particular dataset to work with. But I have been working for a while on some mechanisms of association among the mid- to- late seventeenth century godly (especially through the genre of the narrated “experience” as a way of joining a gathered church).

I am fascinated by what I see as a current critical unravelling of some denominational boundaries, especially around baptists and whether or not they were outside the pale of acceptable religious dissent. My own way into some of these questions is around the language of “visibility.” There’s a theology of visibility. There’s a forensics of visibility, as heresiographers and others tried to root them out. How might we describe the performativity of visible sainthood? Where do we situate that embodied godliness? And what happens if we map these various approaches onto each other?

Ellen MacKay

Associate Professor – English

Indiana University

I am Ellen MacKay, associate professor of English at the University of Chicago—a position that I haven’t actually started yet. Until June I was at Indiana University, where for the last 18 months I headed the Institute for the Digital Arts and Humanities (IDAH). I am looking forward to co-helming the discussion with Mike and Mattie tomorrow.

At Chicago I am a PI on a DH project that will use the Oriental Institute's OCHRE database to curate infinitely expandable and linkable variorum editions of Genesis, Gilgamesh and Hamlet (with the aim of adding more plays down the line). At the moment I am searching out first/best translations of every linguistic stripe to add to our trove of criticism/analysis, and I am also investigating methods of digital remediation for deaf, blind, and deaf/blind users.

I am writing a book on audiences and the early modern period's oddly liquiform accounts of theatrical collectivity. My aim is to assess what it says about the early modern conception of theatrical experience, and the conception of the English commonity more largely, that playgoers in the aggregate should be viscosimetrically depicted, on a gradient that ranges from mist to goo. Part of my process of research has involved assembling an ANT-like testimonial of theatrical sociality from the records of the period. Latour, and the larger field of digital network analysis, has been helpful as I think about how the pressure of abstract forces is exerted through individuated entities.

As an EMDA13 alum, I am delighted and grateful to be back in the Folger's petri dish of early modern studies' digital efflorescence. I look forward to seeing you at the reception tonight.

Laura Mandell	Professor – English	Texas A&M University
Catherine Medici-Thiemann	Adjunct Professor – Women's and Gender Studies	University of Nebraska-Lincoln

I am a historian and women's and gender studies scholar and am currently a lecturer in women's and gender studies at the University of Nebraska where I earned my Ph.D. in 2016. My work examines the political lives and agency of women in Elizabethan England and Ireland and my dissertation looked at the political lives and legacies of Jane Dudley, Mary Dudley Sidney, and Katherine Dudley Hastings. My work on the Dudley women has appeared in essays in *Scholars and Poets Talk About Queens*, the *Ashgate Research Companion on The Sidneys (1500-1700)*, *Volume 1 Lives*, and the forthcoming *Sibling Relationships in Early Modern England*.

My interest in networks comes out of my investigation of the women in the Dudley family and their place in the family political network. I wanted a way to track the network, but put off building the digital project until my dissertation was complete. I am interested in better representing of women's place in early modern networks and understanding the role of gender in these networks. I am starting a project on the Dudley-Sidney network based on the printed letters of the family.

My experience in Digital Humanities consists of a number of training boot camps, including one in network analysis and Gephi, and interdisciplinary courses. I also have experience in web development. I am working on a DH post-grad certificate through the Center for Digital Research in the Humanities at Nebraska. I'm looking forward to getting in depth training and expertise in network analysis.

I look forward to meeting and working with you all in the coming weeks.

Isabel Meirelles	Professor – Design	OCAD University in Toronto
-------------------------	--------------------	----------------------------

I am a designer and educator. Prior to my current appointment at OCAD University in Toronto (Canada), I taught for twelve years at Northeastern University in Boston (US).

It was at Northeastern University where I met Albert-László Barabási and started to learn more about network science, including meeting and collaborating with amazing researchers at his Center for Complex Network Research, of whom I would like to mention two. First, Maximilian Schich(UT Dallas), who

became a long-time collaborator, and will also be at EMDA2017. Together with Roger Malina (UT Dallas), we organized six editions of the Leonardo satellite symposium on Arts, Humanities, and Complex Networks at NetSci from 2010 to 2015. This effort included the publication of selected articles at the *Leonardo Journal* (MIT Press), later collected in an e-book of the same title. And, Ronaldo Menezes (FIT), with whom I have been collaborating in organizing the Art of Networks exhibition since 2012. The third edition will open next March during CompleNet 2018 in Boston.

My research focuses on the theoretical and experimental examination of the fundamentals underlying how information is structured, represented, and communicated in different media. I am the author of *Design for Information: An introduction to the histories, theories, and best practices behind effective information visualizations* (Rockport Publishers, 2013). With Nicole Coleman (Stanford University), we will be addressing the challenges and opportunities of data visualization in humanities research at EMDA2017.

I frequently collaborate with colleagues in the sciences and the humanities in interdisciplinary projects involving visualization of information. In addition, I have continued a creative design practice focused on print publications and interactive applications devised in collaboration with artists and art curators.

Rachel Midura

Ph.D. Candidate – History

Stanford University

I am a fourth-year history PhD student at Stanford University, where I work with Paula Findlen on knowledge networks in early modern Italy and abroad. I am just setting out on my dissertation, tentatively titled “The Published Courier: The Culture of the Post in Northern Italy, 1550-1720.” My research focuses on the impact of the Imperial, Venetian and Spanish posts on Northern Italian society and vice versa, particularly as intersected with diplomacy, espionage, journalism and travel literature.

I’ve worked with a couple branches of the Stanford Republic of Letters project, including the Grand Tour Workshop and Galileo Correspondence project. I am a fellow at the Center for Spatial and Textual Analysis (CESTA) at Stanford, and will be teaching my first undergraduate course in the coming fall (“Censorship & Propaganda: From Renaissance to Revolution”) which will have a strong DH component. I have worked primarily with Palladio and R, with some light exposure to a number of network and textual analysis platforms.

I’m looking forward to meeting everyone, and no doubt learning a lot!

Jessica Otis

Digital Humanities Specialist – Library

Carnegie Mellon University

I’m part of the *Six Degrees of Francis Bacon* (www.sixdegreesoffrancisbacon.com) team that will be presenting on the first Thursday.

I’m the University Libraries Digital Humanities Specialist and Assistant Professor of History at Carnegie Mellon University. I have a PhD in History and an MS in Mathematics from the University of Virginia. My research interests are in the cultural history of mathematics in sixteenth- and seventeenth-century England, specifically the numeracy and elementary mathematics of ordinary people rather than the scientific elites. I am currently analyzing plague outbreaks and quantification in the London Bills of Mortality, which is part of a larger Bills of Mortality Database project to make my data available to other scholars interested in using information from the Bills of Mortality for historical analysis. I come to network analysis via graph theory, however I have primarily been doing social network analysis for *Six Degrees*. I have also done some analysis of the social networks formed by academic conference tweeting.

Caitlin Rizzo Encoding Specialist – Digital Media Folger Shakespeare Library
and Publications

I'm currently a contractor at the Folger Shakespeare Library working with Mike Poston and Heather Wolfe on the Early Modern Manuscripts Online (EMMO) project. Specifically, I work as an encoding specialist, though I also do some work for the Folger's digital asset management project working with holdings data on a large scale. I'm very excited to be helping out as a technical assistant for EMDA 2017. I'll be managing our twitter feed for the next two weeks; hopefully, you'll see some follows from me soon as I start creating a network of our own.

Yann Ryan Ph.D. Student – School of English Queen Mary University of London
and Drama

I'm a PhD student at Queen Mary, University of London. My research is on foreign news in 1640s London: how it was gathered and published, but also how it was then read and distributed throughout the rest of Britain. I suppose I fell into network theory almost by accident: I began tracing the routes of news throughout Europe in a more traditional way when my supervisor steered me in the direction of the subject via books by Barabási and others. Since then it has become a big (and most exciting) part of my research, and I have a couple more ideas for interesting networks that don't necessarily involve news. In a more general sense, I'm also fascinated by visualisation as storytelling medium whether that be historical narrative or otherwise, and particularly how visualisations bring their own sets of problems and biases in the way they are both produced and interpreted.

I'm hoping the institute will help me to confidently use network analysis in my research, and give some formal theoretical background for my work to stand on. Most importantly, I'm excited to meet other people working in digital humanities and would hope to find some potential collaborators for some bigger DH projects over the next couple of years.

Maximilian Schich Associate Professor – Arts & Technology University of Texas at Dallas

My PhD is in Art History, with a slight over-expression of Classical Archaeology and a pinch of Cognitive Psychology. My interest in complex networks is rooted in a decade of consulting work, starting in 1996, dealing with "graph databases" (as they are now called), working with art and cultural heritage libraries, museums, and research projects. My work since 2007 includes several years of post-doc at Max-Planck in Rome, BarabásiLab in Boston and Dirk Helbing's group at ETH Zurich. Since 2013, I am an Associate Professor in Arts & Technology at the University of Texas at Dallas and, since 2014, a founding member of the Edith O'Donnell Institute for Art History. In the upcoming academic year, I am joining Zentralinstitut für Kunstgeschichte in Munich/Germany as a guest professor to summarize a decade of multi-disciplinary collaborative work dealing with "Complex Networks in Art Research" in a book project.

Melissa Schultheis Ph.D. Student – English Rutgers University

I'm a 2nd-year PhD student in English at Rutgers University. My research interests include gender and sexuality, nationalism, and the history of medicine, particularly reproduction and recipe books. I've spent the last few years working with the Early Modern Recipes Online Collective (EMROC) to research women's recipe books and transcribe them using the Folger's Early Modern Manuscripts Online and its Dromio interface. I am excited to begin thinking about the visualization of this data, and I look forward to helping

EMROC develop a search interface that allows users to search by ingredient, ailment, body part, recipe contributor, etc. I'm specifically interested in the presence of foreign ingredients in English recipe books, the way that consumption of foreign goods was thought to affect the body (both natural and political), and women's roles in disseminating ingredients/recipes and the ideologies that accompany their circulation.

I am excited to be a part of this year's EMDA and looking forward to considering ANT alongside EMROC's data to help historicize the agency of early modern humans and nonhumans engaged in 17C recipes and trace networks of early modern medical practitioners who appear in the margins of recipe manuscripts. And I'm thrilled to learn about other projects and meet everyone on the 17th! See you all soon!

Dan Shore

Associate Professor – English

Georgetown University

Dan Shore here, Associate Professor of English at Georgetown University and co-PI on the Six Degrees of Francis Bacon Project, which I look forward to discussing with you all. Working on Six Degrees has gotten me thinking not only about the kinds of social relations that networks seek to capture, but also about the media with and models which scholarly communities seek to aggregate and organize their shared knowledge.

At the moment my research appears to travel on two tracks. First, I'm an early modernist working on 17th-c literature and Milton, who is the subject of my first book, *Milton and the Art of Rhetoric*. This coming year I'm on research leave working on a third book called *The Limits of Experience in the Age of Milton* which argues that writers like Milton, Cavendish, Traherne, and (possibly) Spinoza (among others) were interested in what Kant, more than a century later, would name transcendental inquiry – inquiry into the limiting conditions of possible experience. But whereas for Kant those limits were given solely by the nature of the transcendental subject, 17th-c writers sought them also or instead in the nature of God, matter, language, the gendered body, and the State.

My second research track, though it is also often concerned with early modern literature, is closer to linguistics and semiotics. I just turned in the ms of a book, *Cyberformalism* (out with JHUP late this year or early next), which uses big digital archives and corpus query tools to tell the long histories of complex and abstract linguistic signs. Humanists have too often assumed, explicitly and in practice, that language is made up of words alone, that only words have culturally relevant histories, and even that we can get to sentence or text meaning through knowing word meanings. (The “keywords” projects of cultural studies and recent digital methods like topic modeling and word2vec adopt this assumption.) My bigger research aim, in future work, is to show how grammar and linguistic creativity – the ability of each of us to say things we've never read or heard before – can be core questions in the humanities without the bio-universalizing baggage of much 20th-c linguistics.

Matthew Symonds

Senior Research Fellow – CELL

University College, London

I'm an historian specialising in the history of the book. I'm senior research associate at the Centre for Editing Lives and Letters, University College London (CELL, www.livesandletters.ac.uk). My job at CELL is often called Technical Research Director – I'm responsible for conceptualising (and very sometimes directly building) the technical infrastructure around our projects. CELL's been going for seventeen years now – for most of that time based at Queen Mary University of London -- and over that time we've built up a number of projects around correspondence (Francis Bacon, William Herle, Thomas Bodley). I'm also Co-PI on our current major project focussing on some early modern annotated books, *The Archaeology of Reading in Early Modern Europe* (www.bookwheel.org), a collaboration with Johns Hopkins and Princeton

universities. I'm interested in discovering ways to make new use of the data about early modern people and places, their correspondences, and their books and manuscripts.

Silke Vanbeselaere Independent Scholar Dublin, Ireland

Ingeborg van Vugt Ph.D. Student – History Scuola Normale Superiore di Pisa –
University of Amsterdam

My name is Ingeborg van Vugt, second-year PhD student in Early Modern History at the Scuola Normale Superiore in Pisa, in a joined degree with the University of Amsterdam. When I arrive at the Folger Institute, I would have just finished a three-months experience at the Six Degrees of Francis Bacon project at the Carnegie Mellon University.

My research focuses on the early modern history of knowledge and the Republic of Letters. In particular, I focus on the ways in which Italian and Dutch scholars managed to connect two distinct confessional areas, in my case the Dutch Republic and Tuscany, in order to facilitate the transfer of knowledge. I am interested in how correspondents between these two regions maintained a balance, between on the one hand, the liberty to distribute (prohibited) books and to express controversial ideas and, on the other, social control and the need to avoid tensions and objections.

I am interested in how network analysis can help me to answer and strengthen these historical questions, and I hope that the institute will help me to be more confident with the analytical aspects of studying and representing networks. Before, I have worked at a couple of digital humanities projects at the Huygens Institute for the History of the Netherlands, including *Mapping Nodes and Notes* and the *Clusius Correspondence project*, and the University of Amsterdam (CREATE).

Christopher Warren Associate Professor – English Carnegie Mellon University

My name's Chris Warren, and I'll be a member of the EMDA17 faculty as part of the Six Degrees of Francis Bacon team (www.sixdegreesoffrancisbacon.com). Like several other participants, I'm based at Carnegie Mellon University. These days I'm overly captivated by the financial and diplomatic networks at the center of the Trump/Russia story, but I've actually been thinking with and through networks in various ways since my days in DC journalism and as an MA student at Georgetown, when I first encountered Josh On's marvelous *They Rule* site (first released in 2001 and still hanging in there at http://theyrule.net/map_196). My 2015 book *Literature and the Law of Nations, 1580-1680*, looking at figures like Milton, Hobbes, and Grotius and the history of international law, incorporated print and citation networks in more or less traditional, non-digital ways, but a key aim of my turn to the history of international law has been to challenge nationalist myths of autonomous nation-states by embedding sovereignty within complex networks of relations. I like to think that Six Degrees is similar in spirit, only turning from international relations to interpersonal ones. Mapping networks is for me a quite political project that helps challenge presumptions of unfettered selves dominant in libertarianism and certain versions of liberalism, and I take inspiration from people like Frederic Jameson who see mapping, design, and visualization as cognitive aids to combat mystification.

I'm very pleased to say that I've collaborated already with many of this year's EMDA participants and faculty, and I'm incredibly excited to meet everyone else.

Michael Witmore

Director

Folger Shakespeare Library

I am Director of the Folger, and prior to that was Professor of English at the University of Wisconsin, Madison. For the last ten years, I have collaborated with Jonathan Hope in studies of Shakespeare and early modern drama. One important product of our collaboration has been the website at the University of Wisconsin, in conjunction with the Mellon funded Visualizing English Print project. That site has a custom text tagger and standardized versions of various corpora drawn from the TCP. (<http://graphics.cs.wisc.edu/WP/vcp>) My link to networks has been through Actor Network Theory and the work of Bruno Latour, whose work I engage in a recent article in a special issue of *New Literary History* on Latour (<https://muse.jhu.edu/article/631303>).

I am very much looking forward to EMDA 3 and the conversations to come.

Tara Wood

Assistant Professor – History

Ball State University

I am a contract faculty assistant professor of history at Ball State University. In December, I will finish a MLS in rare books and manuscripts at Indiana University, Bloomington. My dissertation focused on a gendered analysis of the dedications in printed books dedicated to Elizabeth I during her reign, particularly considering issues of patronage and nationalism. Since that time, I have turned my attentions to print culture and specifically to the book trade and how the printer's address to the reader shaped the reading experience. My dissertation work made clear that I needed to understand the wider networks of London's printers. Having wished for years that I could craft a database that could help produce visualizations of the intricate networks that made up early modern life, I am pleased to see so much of that work being accomplished now. I am looking forward to learning about potential ways to use data found in *Six Degrees of Francis Bacon*, along with *London Book Trades Wiki* as well as information gleaned from the printers' addresses to ask questions about personal and professional connection among printers and how those connections were employed in promoting individual agendas, but also the goals of the Stationers' Company.

I am fairly new to network analysis, though I have some experience from the early days of the digital humanities. I worked on the Virtual Jamestown project and I am the co-editor of the Salem Witch Trials Papers at the University of Virginia. I am familiar with Gephi and Palladio from a workshop at Ball State this spring. I am looking forward to meeting you all and delving into this new research agenda using network analysis tools to ask new questions.

**Participant Evaluations of
Early Modern Digital Agendas: Network Analysis**

Summarize your overall assessment of the experience and the effect you anticipate it will have on your teaching, scholarship, and/or development of digital projects.

The combination of hands on instruction and critical reflection was very effective. We learned technologies and theories but also conceptualized them within the framework of humanities practices. Well done!

It was an excellent experience, and I feel particularly prepared to begin addressing related topics as an instructor for my course this coming fall.

My experience with EMDA2017 was tremendously engaging and useful. I enjoyed the camaraderie that the faculty and Folger staff worked so hard to create and the experience has already gone far to shape my research agenda, as well as ensuring that I will begin to use what I have learned in my teaching. I now feel more confident that I will be able to effectively develop a significant digital project and successfully apply for internal funding at my institution. I have already begun discussing the use of Gephi and Palladio with two of my graduate students and I look forward to working with the digital scholarship lab on campus.

This EMDA workshop was crucial for the development of my digital project. I went in with one conception of what I was doing, and came out with another, much more realistic. I also learned a good deal about the digital tools available to me, about the discipline of network analysis, and about the intellectual environment in which it's done.

This experience has been invaluable, and I have gained confidence in using the range of tools we worked with. I am now in a position to develop my existing project in new ways, asking a new set of questions of my data, and working with Gephi and Palladio to develop different visualizations of the data. I am hoping to integrate these tools, as well as the Six Degrees project, into my undergraduate and postgraduate teaching, and to convince colleagues of the value of DH research. Not only is my original project far stronger through attendance at EMDA, but I am actively working on side projects, collaborating with other participants to ask similar but different questions of the data I have gathered.

EMDA2017 has been a very rewarding and useful part of my PhD training. Overall, it was an excellent program: very well-focused, led by a faculty with very rich and relevant experience, had a very high level of engagement and participation from the other attendees. There was an intelligent focus on the problems and challenges of DH in general and network theory in particular, and we were encouraged to think critically about the subject and think beyond using techniques naively and look into the 'black box' of algorithms and the tools we were taught to use. Independent thinking and collaboration was highly encouraged, and I made many useful contacts, potential collaborators, and received great advice for my development as a researcher. As somebody who was already interested in using network analysis in my PhD

thesis, the institute gave me the ability to use network analysis confidently in my work rather than in a superficial way. It has helped me to understand properly the tools I have been using, as well as given me information on new ways to do network analysis. I have already seen some ways in which I need to revise existing work to take into account new ideas, theories and practices I was introduced to. In the future I am interested in being involved in digital projects related to early modern news, and the institute, as well as providing contacts, gave me a sense of the digital toolkit necessary to successfully carry out digital scholarship in the future. As a starting point for digital humanities work it has been incredibly useful. Several specific tools and projects will be directly relevant to my teaching and I anticipate using them in seminars in the upcoming semester (Six Degrees of Francis Bacon, Gephi), and in a more general sense the institute has helped me to understand my approach to teaching digital humanities, which I hope to do in the future.

The institute was a fantastic experience! The opportunity to focus for two weeks solid on the theory and application of network analysis to my work has allowed me to take a more critical look at what I would like to do, and pick out the places that it will be most effective—this is the place what I learned will be most impactful on my scholarship. This is an ethos I will also take into my teaching and bring into the curriculum of our DH program, so it will have effects for many faculty and students on our campus.

This was an incredible experience, both challenging and rewarding. My experience of the fortnight is likely to have a significant impact on all three aspects of my academic practice. The most immediate impact is on my teaching: two of my courses next year, “The history of information in early modern Europe” and “DH for archival research,” will be overhauled in the light of EMDA. For the former, the study of social networks within early modern intellectual, diplomatic, and news networks has always been a topic: however, the way I teach will likely be very different, through (student-generated) visualizations as well as readings. Networks will be a new addition to the curriculum for the latter, as I feel I’ve now been equipped with enough of the technical skill to include it as a subject on this course introducing often classically-trained humanities scholars to technical approaches to the discipline. My experiences at EMDA have already had a real and revitalizing impact on my research on the earliest donations to the Bodleian Library: I am now shifting my focus from the bibliographical aspect of the project to the social relations embedded in the donations. While this will take time, I have already started work on a new article on the earliest women donors to the Library, using insights I could only have come to by participating in EMDA. A major part of my role at my research centre is the planning of digital infrastructures for research projects: the methods I learned at EMDA will no doubt feature heavily.

This was an extremely enriching institute, both in terms of intellectual stimulus and of hands-on experience. It will directly feed into my current research on early modern translation networks in Britain. I will also integrate some of the digital tools introduced during the institute into my teaching in translation history. At least one of my doctoral students will be trained in some of the tools and technologies presented at the Institute.

This was a wonderful seminar! It was very challenging in a good way: taught me new software programs and methodology.

Overall I had a positive experience. All of the people were really wonderful. Since I only teach undergraduate composition courses, I don't see this ever impacting my teaching much. However, it certainly has helped me recognize new aspects of my scholarship and influence both the ideas I have for digital projects and the way I go about the digital projects I currently have underway.

I had a great experience at the EMDA, which has prepared me to be more confident in teaching a network analysis course next year. In addition, the EMDA is a valuable addition to my curriculum vitae as it will strengthen an application for a scholarship.

I had an enriching experience at EMDA, and the seminar allowed me to work on the digital project that will be an important part of my dissertation. I came in with some knowledge of networks, but I left with a broader understanding of different tools, methods, and dialogues within the field.

Evaluate the effectiveness of the approach with respect to engaging participants in both critical discussion and hands-on interaction with digital collections and tools.

Research presented by the instructors was consistently excellent. What was more: several of the instructors stayed the full two weeks, enriching our discussions throughout.

Like many participants, I believed we could have used more hands-on time built into the schedule, however in any case I thought it was a critically important component.

I found the critical discussions both stimulating and useful for helping me to consider the theoretical underpinnings of the digital humanities and how such theory can and should inform my use of digital tools. However, I think I would have preferred more hands-on interaction with the digital collections and tools.

The discussions were bracing and went in all sorts of interesting directions. The hands-on interaction with digital tools was a little fast-paced, but I think you probably learn and retain more that way. It's good to push.

It was very effective having the opportunity to undertake guided learning with the tools we engaged with at EMDA. It gave me the confidence to play with them in new ways, while also raising my awareness of some of the challenges and conceptual issues involved in the use of them.

There was a good balance between critical discussion and interaction at EMDA2017. At times there was perhaps too much emphasis on interaction/teaching and perhaps some more time could have been spent on questions/discussion after workshops and talks, but overall, there was a good level of both. At times the critical discussion was difficult, and putting ANT, which contained quite challenging themes and ideas, at the beginning of the course may have been better served closer to the end, when the group was more used to discussion and had had some more time to think about the theories and practical applications of the ideas in ANT—coming at the beginning, although useful in some ways, meant that it was largely abstract for anyone who hadn't come across Latour and ANT in previous work.

On the other hand, the approach to engagement was generally excellent, and the usefulness for all material taught was generally immediately obvious. This meant that we didn't spend any "wasted" time, or spend time on tools with a use that wasn't clear from the beginning. Lessons were well planned and in general technical problems were solved quickly—having experience faculty on hand to help individuals made this easier. The fact that so many of the workshops—Palladio, Gephi, NetworkX for examples - were interactive almost from the beginning meant that the level of engagement was very high, and when appropriate background information was given, it was very quickly followed up with practical and interactive demonstrations. This really helped me to first of all retain the technical knowledge, but also helped to troubleshoot when there were inevitable hurdles or problems. All the faculty teaching specific tools or techniques had excellent pedagogical skills, something which is not always the case when teaching technical subjects or programs.

As mentioned above, the institute was very effective in taking a critical look at network analysis. This was evident throughout: when considering its theoretical basis, playing around with our data and other possible data sources in various tools, and then presenting our work to the entire group and getting feedback. While it was evident during the institute, the degree to which this is the case has become clearer as the experience has settled in.

I was very pleased with the balance between "thinking" and "doing" sessions. I don't think a program such as EMDA would make much sense without some sort of combination of the two, given the practical and project-based nature of so much DH work. The two clearly inform the other, as evidenced by much of our conversation throughout the week: learning how to do things necessarily involved us in more tightly (re)conceptualizing both what it was we thought we were doing and the data that we brought with us. I did think some of the sessions were ambitious (e.g. an introduction to Python in one morning), but I also appreciated that given the mix of skills and expertise in the room it was necessary to ensure that all participants had a common core language. (It also allowed participants to help out one another, which contributed to such a strong sense of common endeavor.) It is a minor criticism, but I do think the very first two sessions on the first day were the wrong way round: we spent the morning discussing how ANT can be used to unsettle a network science approach we didn't discuss until the afternoon.

Both aspects were extremely well handled. I found the sessions very intense, and sometimes I did not find that I had enough time to assimilate the new elements that were being presented but in hindsight I am very glad to have been exposed to such a range of tools and approaches.

There was a good balance, but if it were to be tweaked at all I would have preferred a bit more time for hands-on interaction. I do have one other comment with regard to the way the seminar ran. I found it odd that the majority of the discussion was not face-to-face but via Twitter. At first I thought it was rude that everyone was reading Twitter during presentations, but I just tried to let go of my preconceptions and participate in the way everyone else was. It would be useful to make the etiquette known regarding how discussion and questions are handled.

I found the critical discussion very interesting and stimulating, but it did not particularly engage the participants. The hands-on interaction with digital tools was very useful, and it would have been nice to have more time with that, particularly with one-on-one help. Several of the more advanced participants ended up providing a large amount of that kind assistance after hours, which did not seem fair to them. The range of our ability levels may have been too great; rather than collaboration, it seemed that there were more instances of tutoring.

I found the approach very successful, although I had preferred to have together more hands-on interaction with digital tools. I liked to work in the smaller groups of three, I really got to know them and I have learned a lot of them.

I would have appreciated more hands-on work time. Especially in week two, people were eager to apply what they'd learned to their own projects, but there wasn't quite enough time to get it all done or to really experiment with tools like Python, Palladio, or Gephi.

Comment on specific aspects of the program that were noteworthy to you, such as the co-directors, visiting faculty, colleagues, topics, organization, discussions, and activities.

Most useful were the introduction of quantitative metrics—the Ahnert principle!—that informed later work by participants.

The engagement of the co-directors and instructors was unparalleled! It was incredibly elucidating to be a fly on the wall for some of the discussions between experts.

Overall, the co-directors and visiting faculty were all remarkably collegial, welcoming, and generous. The co-directors kept the discussions on point and lively. The wide range of experience with digital tools amongst the participants meant that ideas, solutions, and encouragement were always readily available. I found the tutorials and discussions for Gephi and Palladio most useful. I also found the opportunities for informal discussion particularly gratifying and helpful. I know that encouraging “after hours” collaboration was one of the goals of the seminar and this aspect was certainly a huge success.

I can't say enough about the organizing skills of the co-directors, Ruth Ahnert and Jonathan Hope. We covered a lot of topics; all were fascinating and presented with verve and clarity. Visiting colleagues were engaged and responsive, and the advisory colleagues there for the whole workshop were endlessly helpful.

All aspects of the program were well delivered and organized, and the visiting faculty was extremely generous with their time and expertise, which is a real strength of this program. The hands on workshops were the highlight of the seminar for me, as they helped me understand the potential of different tools and programs, while also helping me to identify the areas in which I want to seek further training within my institution. Editing the six degrees site was particularly interesting as it gave you a sense of how collaborative scholarship within DH is effective. The opportunity to work with those asking similar questions in the prearranged sub groups was a really good way of focusing in on how particular concepts or tools could help my subject area, and I was delighted at how much more confident I felt with the material by the end of the fortnight. I also am looking forward to working with other participants and visiting faculty in the future.

Two days in particular stood out to me: Ruth and Sebastian's talk through of their hugely ambitious research project, and Nicole and Isabel's day of visualization. With the former, it was hugely useful to hear a project of that scope talked through in such depth, and I think everybody felt inspired by the possibilities of the kind of results that DH work, and specifically network analysis can achieve with that level of scholarship and focus. The potential value of the project, and through that, DH work in general, was really clear and obvious. Having this half way through the program gave something to 'aim' for, and I think it helped to focus the kind of questions that many of us ended up asking for our own presentations. In the case of the latter, Isabel and Nicole's day of visualization felt very well structured. There was a good balance between the approaches of the two, with Isabel focusing more on presentation and visual literary/rhetoric as a communicative device, and Nicole showing the power of using tools like Palladio to explore data and ask questions quickly and easily. I was particularly interested in the discussion surrounding visualizations and their impact on scholarship, and there was a fascinating debate about what visualizations can and cannot do in terms of scholarship. Other specific parts of the program that stood out included Blaine Gretemans's discussion of his Shakespeare project, and the 6degrees team talking through their project, including upcoming changes to the website. All of these parts of the program are connected through a sense of practical, real-world help and advice from distinguished academics working in the field.

In a more general sense, something that was particularly noteworthy (and in this instance, surprising), was the fact that so many of the faculty were able to stay throughout the majority of the two weeks of the program. This was not something I had come across before, being used to the only interaction with guest speakers being in the half hour or so following a conference paper etc. In this case, having the faculty around served a few valuable purposes: it made it easier to ask specific questions related to individual research that may benefit from one on one conversation, and it meant that several skilled technical faculty were on hand to provide technical advice on software or programming languages that we were using.

I very much appreciated the mix of PhD students, early career, and senior colleagues. Also for my work in particular, the expertise that Ruth brought as well as some of the visiting faculty (especially the Six Degrees folks) will have deep resonance for my project going forward. The networking aspect here was spot on. Sebastian was an integral part of the experience as well, not just for his technical expertise, but for his "outside view" and experience working on an early modern project. Brilliant. Also I appreciated Jonathan's

contributions as a digital humanist who does not specialize in network analysis who could put a frame around the importance of what was being taught and discussed. So I felt the pairing of Ruth and Jonathan worked extremely well. I appreciated the breadth of discussion—both theoretical and practical—and of the tools with which we worked. Left to my own devices, I would not have had the time to experiment with so many ideas or tools. The one thing I wished we had had more time for was hands on work sessions; however I do not know where those would have fit in without extending the offering by a couple of days. Maybe adding to the program voluntary sessions each weekend of the type we spontaneously organized?

Looking back, I'm particularly struck by the excellent visiting faculty and how generous they were with their time and commitment to the program. I thought the level of interaction between them often helped participants orient themselves in what was often entirely new ground. I felt that there was an excellent group dynamic throughout, with everyone helping and truly listening to one another. The co-directors were excellent in their preparation, organization and commitment. I would especially like to thank those participants, faculty and staff who tweeted so much, so concisely: as a record of events, it was remarkably helpful. Those visiting faculty who were present particularly to assist with technical issues were remarkably helpful, patient, and thoughtful.

I was very impressed overall with the visiting faculty, the co-directors were both extremely engaging and (of course) top-notch researchers. These were excellent opportunities for exchange and collaboration between colleagues. I would have perhaps enjoyed more hands-on collaborative work (mini projects, etc.) to maximize peer-learning opportunities.

The co-directors were great. I enjoyed all the visiting faculty and colleagues, as well as support staff. I probably got the most help from the support staff—I found myself stuck a lot as the learning curve was high for me on many of these tools and methods. The staff was always willing to help.

The faculty, organizers, and facilitators were all incredibly lovely and supportive. I really appreciated the visiting faculty who were engaged beyond their own presentations. I am not a big fan of structured small-group activities; while I would have been happy to work in an assigned small group, I would have preferred for us to have more freedom to use our time together in what way we wished rather than having such specific instructions.

When I saw the names of the Drs. Ahnerts I was sure that this course would become successful. In addition, the visiting faculty was very varied which makes it very valuable to have them all at the same place. The tour through the library was a good start of the program as it opens up the unknown environment.

I was very grateful for the guidance of Ruth and Jonathan, as well as network scientist Sebastian Ahnert who functioned as a sort of third director. They struck the right balance between networks as an overarching methodology and the specific application of network analysis to early modern studies. They also simply created a collaborative, friendly environment to do work, as did the Folger staff. I enjoyed having so

many engaged visiting faculty, especially those who stayed for much of the seminar and added a lot to our discussions. However, as the seminar went on, it might have been helpful to have fewer speakers and presentations, to get a better sense of the how the seminar participants were progressing as a group. Because there were so many (excellent) speakers, there wasn't as much time for free-form discussion.

Evaluate the appropriateness of the scope, including the range of topics and tools addressed during the two weeks and their relevance to early modern studies. Describe any topics or tools you found especially useful that should be emphasized in future programs.

The technologies provided were appropriate and easy to access.

Limiting the scope to network analysis alone was the right decision, and meant we could explore the topic in depth from many different angles. Two weeks also felt like the right amount of time. In terms of tools, I saw that most participants gained a lot of personal fluency with Gephi and Palladio, while coding was helpful to those who worked more one-on-one with the instructors.

I think the scope of EMDA2017 was appropriate. It seems that network analysis is vitally important for understanding the early modern world and the digital tools of network analysis should be part of the regular training for any early modern scholar. Of particular utility to my work were the sessions on extracting and structuring data, along with data cleaning and curation. Early modern scholars grapple with challenging data sources. Discussing suitable data sources and how to structure that data proved enlightening to me. I found it particularly useful that the various faculty would highlight the practical questions that we needed to ask about our data: what will be our nodes, our edges? How can we take apart a dataset to see what it can tell us? How can we use a dataset to give us answers that it might not have been designed to give? These sorts of practical considerations should continue to be stressed in future programs.

I appreciated the range of topics addressed. The relevance of network analysis to early modern studies was rather more assumed than demonstrated, but I'm not sure that much more could have been done to address that, given the time we had. In general, I had the sense that there were many possible intersections between network analysis and other disciplines or approaches (early modern English history, contemporary sociology, archaeology, early modern English literary criticism [including new historicism], and hermeneutics) that would have been intriguing to explore.

The focus on a single DH method made the scope of the program far narrower but allowed us to reach a depth of analysis and discussion which would be harder to achieve in a more general program. It also allowed us all to support each other more effectively than if we had all been working on different methods. I found the introduction to Gephi very useful, and would like to work more with Python—something I will be pursuing at my own institution.

Hearing from previous EMDA participants it seems that 2017 was the first time it was so specifically focused on one area of digital humanities. This meant that the scope of the program could be deep rather

than diffuse, and it also meant that the level of understanding between the participants was very high, allowing for detailed and nuanced discussion of the topic, both during talks from faculty and presentations from participants. There were several very helpful practical topics which should be continued in future programs: python programming language basics, Gephi network software, and Palladio. These all have great use outside people specializing in network science: Palladio, for example, can help with all sorts of historical enquiry, and is easy enough to use for non-technical people. Any future DH programs would benefit from its introduction.

There was much discussion of the idea of “dirty data” amongst both faculty and participants, and this topic is something particularly important for early modern scholars, who deal with messy, incomplete data as a matter of course—even those not using any digital techniques are still reliant on incomplete archives, databases etc. A highly nuanced and detailed discussion surrounding epistemological challenges of relying on this kind of data—and the ways we can acknowledge shortcomings and intelligently counteract them—is essential to any digital humanities work today, and EMDA provided an excellent space within which to discuss this idea. Hearing from other participants made it clear that this is something shared across all faculties and levels of experience in early modern studies. Further to this, we thought a great deal about what networks can and can’t do—not blindly applying the approach to every research topic—something which I think worth stressing in further programs, whatever the topic.

Something else worth noting was the opportunity to learn how to structure a DH research question—something which might seem obvious but actually was one of the more valuable aspects of the two weeks. Hearing not only how experienced DH practitioners carry out technical parts of their research, but how they funnel their ideas into actionable and (hopefully) answerable questions and then turn this into scholarly output was invaluable, and something I think should continue to be emphasized in future programs.

I already addressed the first half of the question above, but regarding the relevance of the scope to early modern studies, that was the other half of the value proposition of the program for participants. Having visiting faculty who work in this area and whose data and methods we might draw upon, as well as participants whose work we could understand and to which we could contribute ideas and expertise took the learning and sharing experience to a new level. The combination of temporal and methodological focus was quite effective! We were able to see how all boats are rising in the field of early modern DH due to the work that the faculty and others are undertaking, and how our work might connect with those larger efforts. Topics and tools I would recommend emphasizing in future programs include: theoretical underpinnings, the mathematical basis of network analysis, and critical data visualization; Palladio, Gephi, OpenRefine.

Network analysis is increasingly important to early modern studies – I think the wealth of resources available that were discussed during EMDA is one proof of that in itself. (It is also becoming almost a dominant paradigm in a wider DH field—I went to DH2017 almost immediately after EMDA and almost all of the research papers I went to included at least one slide of network visualization.) I felt that the scope of the program was not only appropriate, in that it charted several methods of approaching network analysis, but also allowed me to understand and evaluate the work I saw at DH2017, work I would have otherwise had to take at face value. The sessions on Gephi were particularly helpful given its increasing ubiquity as a means of producing network visualizations and its steep learning curve. As someone who is slightly skeptical of Gephi however, and the way it can encourage people without the benefit of something like EMDA to use algorithms without thinking through their appropriateness to the data at hand, I was very glad to find other tools for thinking through networks via Palladio and NetworkX.

I found the institute a bit overwhelming at times but as I revisit the many resources that were made available I am extremely happy to have been exposed to such a variety of projects, tools, and critical approaches.

I loved how concentrated the topic was. I would say it is one of the most useful seminars I have attended. The Folger is a wonderful place, and on top of that, I got technical, hands-on training that will allow me to use new methodologies in my work. I couldn't have gotten as far in my own work without this seminar.

The focus on network analysis was what drew my attention to this program in the first place; I saw but did not apply to the earlier, more generalized EMDA programs. That being said, as I learned more about network analysis, I rapidly concluded that these were not the most useful tools for proceeding with the particular research I am currently focused on. This left me in a bit of an awkward place for the remainder of the program. Perhaps that was my error in applying, but as I said, I did want to learn more about these tools and expected to find them useful. When I did not, I didn't really know what to do about it. Of course I continued to participate and tried to learn as much as I could about our topic and to contribute to discussions, but I still don't know where it leaves me. Hopefully these skills will be useful to me at some point in the future.

I have learned every day something new and relevant thanks to the variety of subjects. Although it is good to know what the possibilities of a tool are, an afternoon introduction to, for example, Python is too short. I think it is also better to move the hands-on courses to the beginning of the course (there was not so much time left before the end presentations to experiment with the tools). The Gephi course was very good and should definitely be emphasized in future programs.

Overall the focus on quantitative network analysis (and on tools like Python's NetworkX, Palladio, and Gephi) were very helpful, and the example of Ruth and Sebastian's project—as well as Shakeosphere and Six Degrees of Francis Bacon—served as a good model for how to apply QNA to early modern projects specifically. I was less convinced that actor-network theory was directly relevant to the seminar's aims, though I did enjoy our time spent discussing it. QNA and ANT mean very different things by the term “network,” and I'm not always sure that contrasting them is productive when people are looking for a digital humanities approach to historical or literary data.

What kind of space, tools, and technologies do you use in your work and scholarship? Did the Folger adequately provide these for you? What should we consider providing to future participants?

All we really needed was the space, projector, and various computer adapters (and outlets!) and this was provided. The internet was a little spotty, and it's possible that a separate network would improve access.

I had no concerns with space, tools, or technologies.

I'm making more and more use of the tools of digital humanities, though I'm not a sophisticated user. The help that the Folger tech staff and the organizers provided was invaluable. Kudos to them for their patience and expertise.

The resources available at the Folger were appropriate for the program, and it was great to be pointed to different online and purchasable tools by faculty and other participants. Perhaps allowing us (the participants) to share the tools we use before the program, as well as the ones being explored in sessions, would have allowed us to explore them a little more before attending.

Mostly just an internet connection and a computer, with usually freely downloadable apps or programs would be ideal. Some work requires server space, perhaps something the Folger could provide for the duration of a program. Perhaps some space for breakout groups would have been useful. In my own research (not all of which will be applicable to something the Folger could provide) I use tools for recording data—having the ability to quickly take high-quality photographs and then upload them and organize/annotate them is very important and not something that has been particularly well figure-out at most libraries.

Most of the technologies I use are open source and can be run from my laptop. If there were a space we could have met where it would have been easier to talk across the table and that provided some natural light, that would have been great; but the Board Room served our purposes just fine and was close to tea :-)

I use a fairly standard suite of software packages – for instance, I did not have to install anything for EMDA that I had not already done so (with the single exception of the NetworkX Python package). I think the best thing the Folger can provide in these circumstances is expert support, and that was done. Making space available to those of us who wanted to come in at the weekend was brilliantly helpful.

I already used some of the programs/software presented during the Institute (Gephi in particular) but I enjoyed being able to refine my understanding of their potentials for research. Most of the time it was pretty easy to access the various programs and tools through the Institute's shared folder.

I use mostly traditional methods: close reading and archival work, both of which the Folger has made available to me in the past. But with this seminar I learned a lot more about data collection, curation and visualization along with specific tools and programs that help me analyze my data. I really loved the new directions this methodology points me in, and the people were wonderful.

Academic work is often solitary and flexible in its scheduling. I found it extremely difficult to suddenly be expected to sit in a room very full of people for hours on end day after day. There were several days I desperately needed to leave the room by the time a break came. I realize that by corporate/professional standards the schedule was incredibly generous, but personally I did find the conditions adverse for my maximum productivity.

The Folger provided everything I needed. I only think that the internet connection could be better as my tool and dataset is an internet based program.

We all did very well with laptops in the Folger's board room, and the Folger staff and EMDA technical assistants provided top grade support to get finicky software (like Gephi) installed and working on everyone's machines.

What sort of new or renewed partnerships do you see coming out of your participation in this institute?

I have tentatively agreed to collaborate with another participant on a data-based project and essay.

I will certainly keep in contact with the other participants and the directors, as well as returning to the Folger.

I expect to partner with Six Degrees of Francis Bacon, Shakeosphere, and the London Book Trade Wiki. I hope to forge closer ties with several of the participants all working on London printers.

I have several DH projects ongoing, and each was renewed by this workshop. As one participant said, what we learned was a vocabulary and a way of approaching problems as much as a particular methodology. Specifically, I'm going to be following up with a colleague who's interested in comparing "close reading" and current forms of digital analysis (and now including network analysis). And I'll be talking in a much more informed way with my collaborators on a larger digital/historical project. Several participants offered to share their data, which is great.

I am looking forward to working with a number of the participants on collaborative projects over the coming months. Faculty was also generous in sharing data or explaining how to access existing data caches, and this will greatly enhance my research and teaching.

I see lots of collaboration coming out of participation in the institute, from informal contact with other participants and faculty for help and advice, etc, to more formal collaboration. For example, I have talked about looking into organizing a panel with one other participant, and have already arranged meetings with several other participants on research trips, which again I hope to turn into concrete collaboration on networks/DH research. The potential for further collaboration is even greater—the level of interaction and at the institute amongst the participants was very high, and I see the potential for bigger future partnerships arising, both within and without the infrastructure of the Folger.

There's also potential for direct partnerships with the Folger and members, as talked about during the final day at the institute. I hope to use the Folger in the future: first of all the physical collections, but also the potential to have datasets hosted and searchable through the Folger's web presence is a very interesting potential partnership for the future.

In terms of my scholarship, I see definite connections between my work and that of several of the faculty. I have plans to use data they offered, and in one case to potentially collaborate on a project together. With other participants as well as faculty, I have a mutual support and expertise exchange network and the potential for collaborative work that could emerge over the next year. This last remark applies to both my scholarship and building DH capacity at my own institution. Bringing us back together in May will further surface and consolidate these relationships (in fact, I think that more time to do this, a week if possible, would be extremely beneficial).

EMDA strengthened existing partnerships with Ruth Ahnert and the Six Degrees of Francis Bacon project: I hope these will lead to further collaboration. Two new partnerships emerged as a direct result of participation: my research centre will share data with Howard Hotson's EMLO project and I will work with Marie-Louise Coolahan to see how our two projects on the History of Reading can link up more efficiently. I have also started discussions with the Folger's Digital Asset Platform team to see how my research centre's data could feed into that project, a development I am particularly excited by. I look forward to inviting fellow EMDA participants to visiting my research centre whenever they find themselves in London.

Great twitter community! I will definitely keep in touch with several colleagues as their research interests intersect with mine, and will consider organizing panel submissions etc. at DH and early modern conferences.

I feel confident that I can take my new skills into future work, and I met several other faculty who could be future collaborators.

No suggestions, in particular, beyond perhaps professional friendships that might be renewed at a conference or similar.

I have met a lot of interesting people and I know that they are always available when I need help, which makes the EMDA so good.

I was thrilled by the opportunity to share what I've learned with my fellow EMDA participants, and I have made lasting connections to share data and techniques with projects like SDFB and ReCIRC. I also plan to work on a project on networks of stationers and book formats with another participant, and EMDA inspired me to build an all-purpose network tool that I hope will be released soon.

Evaluate the Folger Institute as a host, particularly with respect to meeting space, hospitality, housing arrangements, the suitability of library facilities, computing and technical issues, and other relevant aspects.

The Folger is lovely. The CUA dorms are a good deal for the price.

Could not be better! The support team was fantastic, and overwhelmingly helpful. I did not stay in Folger provided housing.

The Folger Institute performed exceptionally well and provided a well-organized, supportive environment. Any issues (all minor) were dealt with efficiently and quickly—with good humor. My only concern (again, minor) was with the lodging at the Catholic University. If the Folger uses CUA again, it would be best to provide participants with more information on what a participant would need to bring and the details of the potential commute. While we did know to bring a pillow, it would be helpful to also know where to get food, toilet paper, cleaning supplies, etc. Also, the neighborhood is not known for being the safest after dark. One great benefit: the washers and dryers are free, but you have to find a place to buy laundry soap.

The Folger Institute was an exemplary host. The meeting space was congenial and the staff attentive, focused, and expert—and always present. We were clearly in good hands. There were just enough social events, and all of them were conveniently located. Obviously, the Folger Institute knows what it's doing.

The Folger were consistently welcoming and supportive to participants and the meeting space and facilities were great. The IT support within the seminar was also excellent, and very approachable. The accommodation was basic but fine, although a little more information about it before arriving would have been useful. However I believe it was the first time it was used, so this would have been difficult to provide this time.

Everything was excellent on all counts: the accommodation was absolutely fine, and at least as high a standard as similar events, although basic, it served needs very well and was easy to travel to and from the Folger. I can't comment on the library itself as a research facility, as I didn't really use it in this way. Maybe future institutes could encourage use of the library, to help familiarize participants with what's on offer. Boardroom was very adequate although quite full at times; it helped to encourage interaction amongst participants and faculty. The general high standard of organization, from the ease of finding the accommodation on the first evening, to the communication of plans and what was expected of participants in advance, was particularly noteworthy.

Top notch—Owen contributed amazingly as an organizer and early modern scholar, Elyse as our guide, Caitlyn and Pierce as technical support—it was important that all of them were active participants in the institute. I also enjoyed meeting Michael Witmore and his involvement on our first day. The only issue that arose for me had to do with housing, as Catholic was not a viable option and finding an alternative that would work (via airbnb) was double the amount allotted. I understand, though, that housing in D.C. is not easy to negotiate and that the Folger itself has limited space of its own to accommodate participants.

The Folger Institute was an impeccable host for EMDA. The meeting space was perfect for the numbers and for the presentations, by necessity heavily reliant on AV and IT. I did not require tech support while at EMDA, but I know from people who did how quickly and efficiently their issues (mainly wifi-related) were resolved. The accommodation offered by CUA, while basic (my first experience of a US college dorm!), was in a block that allowed for those of us staying there to meet socially and work together.

Excellent hosting, the only thing I missed was windows! It was a bit difficult to spend two weeks in a row in a basement without natural light. Otherwise all fine.

The Folger was very accommodating. They run a fabulous program.

The Folger Institute was incredibly welcoming and gracious. I do not think their hospitality could have been any greater. The housing arrangements (dorms) were not optimal, but I have had worse. (For example, 8 of us were squeezed into two suites, while a 9th person had an entire suite to herself.) The technical support was far beyond what I would have expected. All of the Folger staff was truly outstanding.

The Folger Library is a perfect study environment and Owen and Elyse were always available for help. The housing in the dorm of the Catholic University is very good; it was maybe a bit far for some of us.

I cannot think of a better place to hold these seminars than at the Folger, which has a stellar reputation for fostering collaborative work across the field of early modern studies and within digital humanities. As I mentioned above, the staff was very supportive about both organizational and technical issues. Because there were so many people coming in for the seminar, some of us stayed at Catholic University housing that the Folger provided. This was a convenient (if not ideal) solution, and I found it very easy to get to and from the Folger by metro.

What suggestions do you have for future scholarly communication and how can the Folger help facilitate it? Discuss how program faculty and the Folger might facilitate future collaboration and follow-up discussion among participants.

We need a way around the dataset as the organizing basis on which originality is measured. Each participant had their own data; nobody was encouraged to share, really, because how could they? In the humanities, we all feel like we need to get our own thing. I'd have liked an invitation to collaborate on a shared set and was a little disappointed that Greteman, Shore, and Warren, in particular, were unable to provide that in a substantive way. If everybody has their own little proprietary thing, it's hard to work together. This was the only weakness in the conceptualization of the institute. In addition to gathering our individual materials, we should have had assignments to analyze and visualize existing high quality data around which it might be possible to produce real research.

The idea of a mini-reunion is a good one, and keeping the EMDA twitter account live might help to facilitate discussion.

I think that the ongoing use of the email list will prove beneficial. Perhaps a larger, general listserv might be utilized to include all participants of this and previous EMDA's?

I'm glad that the participants will be getting together next year. To a person, other participants have offered to stay in touch and be available in the future; this seems to have been a pre-set for the workshop. That built-in collegiality was probably the best thing that the Folger could have done to ensure an afterlife for EMDA—and that's what it did. Maybe the Folger could send out follow-up queries to see where the participants are with their projects and specifically what collaboration they could use from the Folger, the organizers, and/or other participants? And could future workshops schedule in a later get together with the organizers (maybe on Skype) as part of the package (an idea that was floated when the participants met with the NEH)?

Maintaining an online platform for the participants which is updated as ECRs move around would be great, and allow us all to keep in touch and add to our shared documents and files. The meet up in 2018 is a great focal point for my work, as I want to make sure I am in a position to share my progress in 6-8months! Perhaps online meet ups in future years could be facilitated by the Folger to allow the EMDA community to continue to share their work, data and knowledge.

Something else worth noting was the opportunity to learn how to structure a DH research question—something which might seem obvious but actually was one of the more valuable aspects of the two weeks. Hearing not only how experienced DH practitioners carry out technical parts of their research, but how they funnel their ideas into actionable and (hopefully) answerable questions and then turn this into scholarly output was invaluable, and something I think should continue to be emphasized in future programs.

Participant and faculty meet-ups at conferences and periodic posts to the list (e.g., about themes or readings from the institute, sharing relevant calls for papers, shout-outs from the technical assistants) would work well. A slack channel might be another idea, but the discussion might be too drawn out over the year for that to work well. Extending the May meeting would be really helpful!

In the first instance, the maintenance of the email list is a good start. The onus should be on the participants as much as the Folger to keep using it, particularly for sharing finds or work, but the occasional prompt can do wonders.

I liked the shared folder (readings, collaborative glossary etc.). Excellent twitter presence, I will definitely go back to #emda17 for highlights and key points.

I very much liked the idea of bringing everyone back in the spring. For me, it's about keeping on a timeline and steadily doing the work—if there is any way the Folger can do “check in” notes about where we should be in our progress and make some of the tech support available for consultation, which would help. But really, it's asking the Folger to go above and beyond.

This is a great question, and I wish I had an idea to contribute, but I really don't. I certainly agree it is needed. I know we have the mailing list, but I can't imagine a scenario in which I'd be likely to use it. I have corresponded privately with a couple of people since the program, but only on vaguely related topics.

I think that the reunion next year is a good opportunity to see everyone again, getting to know what everyone has done after the EMDA experience. The Folger institute may be more present at bigger conferences as the RSA to strengthen collaborations.

The listserv works well, and is a nice way to get the word out. We developed a robust community on Twitter while the seminar was going on, which has since tapered off. I wonder if there are ways for the Folger/EMDA to keep the hashtags and Twitter groups more active. I'd be more inclined to post updates there than on the listserv.

What suggestions do you have for the afterlife of Early Modern Digital Agendas?

A Facebook group!

I think that EMDA and the Folger might consider creating a site similar to NINES for EMDA projects and early modern digital scholarship—perhaps through Folgerpedia.

The planned reunion in 2018 is a great idea and I am looking forward to it.

Some of the above, with regards to scholarly communication and sharing of research/datasets, but also I would like to see informal groups of EMDA participants meeting at various events and conferences, as well as the formal ‘reunion’ next May. I would also like to follow up on the Folger’s suggestion of being a repository for datasets, and communicate with participants/faculty about this. I’d like to see some of the material created during the two weeks: findings from presentations and the glossary of network analysis terms, for example, made available to a wider audience if it was deemed valuable. I would hope that as a group we pushed forward some thinking about network analysis as used for early modern studies, and hopefully this can be presented to the scholarly community in some way, perhaps through a collaborative blog post.

Continuing with themed EMDA offerings (e.g., text and data mining, geospatial approaches, etc.) is something I would suggest.

I think our “reunion” meeting in 2018 will be an incredibly important event. As well as an impetus to follow up on the work done at EMDA 2017, it’s a chance to review what sort of work we have either done ourselves or seen others do in the months since. It would be nice if some of our shared documents could become stubs for expanded entries on Folgerpedia (one nice way to continue engagement might be to ask faculty and participants to contribute to that). I would really like to see the feedback from fellow participants, faculty and Folger staff in some sort of report or jointly-authored statement about EMDA to which we could all contribute.

I am looking forward to the reunion. Is a collective publication (peer-reviewed, paper or on-line) something you would consider?

I think just advertising to past participants about programming and other opportunities. I suggest naming people who might want to be collaborators or mentors.

I think maybe the training aspect and the project development need to be separated out. Our research tends to be highly individualized and specific, so trying to each use our own data to learn these tools was often awkward, because there were such great differences. Similarly, the difference in ability/existing skill level among participants rapidly became apparent and rendered collaboration lopsided.

A special issue of a journal written by the participants of the EMDA would be productive.

EMDA should continue in more or less the same form. Having this EMDA focus on networks specifically was the right move, and the next EMDAs should all have overarching themes that focus on one aspect of digital studies.

What is the next frontier in DH? What would you like to see the Folger including in its future digital agendas? What kind of work would you like to do with the Folger, or see the Folger take on? (You are welcome to suggest topics for future seminars or institutes, names of potential directors, and relevant initiatives that you see coinciding with our larger mission.)

This is obvious: GIS.

It would be amazing to see the Folger do a textual analysis workshop similar in scope to the network analysis. I see a lot of the work done by the Lit Lab at Stanford as particularly ground-breaking in areas such as text mining, topic modeling, and predictive machine learning.

I have no vision (yet) for the future of DH, but I would think that more could be done with Network Analysis. In future, spending more time on coding and perhaps QNA would be tremendously helpful.

Well, people disagree about this. Some think that interest in DH in the humanities has peaked, while others say that it has been “normalized” to a degree, in English Departments, for instance, but that even there it will remain a minority pursuit. I hope that doesn’t happen, and I don’t think it will. I suspect we’ll see the (slow) integration of DH methods with more traditional scholarship. The next generation of scholars won’t see much of a difference. I’d urge the Folger to try to hasten that development along. This superb EMDA was on network analysis. I can envision EMDAs on “Network Analysis (or some other field of DH) and (Historiography or Hermeneutics or Prosopography, etc.)” The key would be finding faculty who can move in this interdisciplinary fashion. As several participants noted, those who use DH methods eventually run into the “so what?” question: why do this and what does it show us that we didn’t know before? Future EMDAs might address precisely that question, and also consider specifically how DH approaches can benefit from, or be used in tandem with, non-DH scholarship.

Enticing non-DH scholars into the fold seems to be one of the greatest challenges a lot of the participants face. Some consideration of this might be worthwhile and very effective.

I think this works best as a list:

- 1) DH and diversity: How does doing research in DH and particularly using “big data” promote existing bias or even create new structural ones? What is the best way to deal with this?
- 2) DH and gaming—the original “digital humanities” in many ways, there is a great deal of (usual questionable) early modern material in video games but very little scholarly research into it, which is a pity considering the potential for interesting research and its use as a teaching tool.
- 3) DH and interaction—moving beyond static ways of presenting research, how we can properly use interactivity to explore data and present its findings.
- 4) DH and teaching—how to properly use DH as a teaching tool, particularly for undergraduates where there is a pressure to stick to a syllabus/traditional teaching methods due to lack of time.
- 5) More network analysis—looking at the newest research into network resilience and geospatial networks.
- 6) How to put together large-scale, collaborative DH project proposals.

The next frontier in DH, in my opinion, is engaging more deeply with knowledge representation, data sharing and interoperability, and openness in all of its facets. The Folger could play a key role in organizing players across the Atlantic and contributing to these conversations in the field of early modern studies. Guidelines and best practices on data formats and structures, ontology development, and highlighting use cases would all be extremely valuable. Including not only data providers but also consumers, and projects large and small would be ideal. This is a moment to be seized, I think, now that several large early modern data sets are being made available, and scholars’ thinking about the possibilities are catching up. Chris Warren would be an excellent choice to involve and/or lead an EMDA on these topics. The Folger could also play an important role in pointing early modern scholars to open repositories and working to integrate metadata on early modern DH into initiatives like [SHARE](#), perhaps working with ARL. These topics could also have great resonance for and potentially help shape the Folger’s own digital offerings going forward.

Perhaps linking Open Data and the semantic web: LOD is having a massive impact in libraries and archives, but scholars are not necessarily as aware as they could be of it as a technology or as a conceptual issue that will be shaping their research.

Collaborative authorship might be an interesting topic (understood both in terms of early modern writing practices and their construction and in relation to our own digital engagement with early modern texts).

In my view, the Folger is already a leader in this area. One DH area I have toyed with is gaming studies as they apply to literature. I used the Scholar’s Lab game, Ivanhoe, in the teaching Paradise Lost to see

whether students' conception of key characters such as God or Satan changed based on their adoption of roles. I had dreams of building a visual game with Unity 3D, but I didn't know enough on the technical side to build this. I think this kind of approach is interesting too in the area of reception—of tracking data on readers and how they respond in comparison to what shows up in the longstanding critical debates, such as those regarding Milton's Satan.

I'm afraid I'm not the best person for this question. I'm still trying to understand what DH is.

Next frontier, not to see digital humanities as a separate field but as an approach everyone should take into account when doing history. A course that focuses on how to extract data from datasets and consequently to learn how to analyze them should be a valuable addition to a historian's toolkit (data-mining). Such an approach starts thus from the beginning, when asking the question how 'something' on the internet may strengthen one's research.

The next frontier really feels like machine learning. It would be great to see an EMDA that tackles how to create a data model, train it, and interpret results as this workflow has nearly endless scholarly applications. I would love to see the Folger more fully integrate the energy around EMDAs into the rest of their collections, events and activities, which already seems to be happening through the DAP. Specifically, the field of "digital book history" continues to grow and it would be great to see the Folger collaborating with information scientists, like David Bamman, doing work on the structure of books.

Do you have any further comments on areas that are not covered in the above topics?

Thanks so much!

No, thank you for everything!

Only I would like to thank the Folger, the organizers, and the participants for a wonderful EMDA.

It was a real pleasure to take part in EMDA 2017 and the organization and scholarship was impressive. Thank you for the opportunity to be involved.

Advice from colleagues and faculty was incredibly useful, as was generally talking to people working in a similar discipline and at various stages in their careers. The environment was incredibly supportive, which, as a researcher at a very early stage in my career, was very important.

I think that is it, but I would again like to thank the organizers at the Folger, the institute co-directors, the visiting faculty, my fellow participants, and the NEH ODH for offering such a wonderful opportunity! I am honored to have been selected to participate.

Just to say that this was a wonderful seminar in several ways, and that I appreciated the length. As a busy parent and someone with a lot of admin responsibility, the two weeks were doable. A longer period of time wasn't possible for me.

I think that the visiting faculty should remain for the whole week and not sometimes for just one day. In this case, instead of the large amount of faculty members, it is better to have a few of them that stay the whole period, seeing our progress and understanding better our needs, questions and research. Almost none of the faculty teachers were present at our final presentations, which I would have found helpful.

Nothing else, except to say I'm very grateful for the opportunity to participate in EMDA.

Technical Report for
Early Modern Digital Agendas: Network Analysis

Submitted by EMDA2017 Technical Assistants
Caitlin Rizzo and Pierce Williams

Introduction

Early Modern Digital Agendas (EMDA), a NEH-funded program hosted by the Folger Institute, ran for two weeks in July 2017. The program was co-chaired by Professors Ruth Ahnert and Jonathan Hope. Over the course two weeks, participants and visiting faculty demonstrated emergent software programs and presented research related to the use of network analysis in the context of various research projects on the Early Modern period. Faculty and participants engaged with and extended conversations established during the first and second EMDA institutes held at the Folger Shakespeare Library in 2013 and 2015. Many faculty and participants also spent their two weeks at the Institute making use of the Folger's Early Modern resources and reading room to continue to expand their research. By the close of institute, many scholars began to work together to explore the possibilities for collaboration across various datasets and research projects.

As technical assistants for the institute, our roles were as follows: assist with the installation and use of software programs; develop applications prior to the Digital Agendas workshop to help streamline data curation processes for participants with diverse data structures; serve as a link between participants, faculty, and Folger staff in order to resolve technical complications; assist with participants with access to digital tools and environments; and live-tweet institute sessions in a reporting/note-taking capacity for scholars not in attendance. In the following, we report the successes of this work and provide suggestions for future technical assistants at the institute.

Use of the Folger Boardroom

The Folger Boardroom served as the home base for the two weeks of the EMDA institute. The Boardroom is conveniently located across from the Folger's Information and Technology (IT) services office which offered a distinct advantage for participants and faculty who required additional assistance. All of the technology required for the participants was available in the boardroom, including a projector for presentations and a plethora of outlets for laptops. Owen Williams and Elyse Martin were also well practiced in using the boardroom projector, and on the rare occasion of compatibility issues between participant computers and the projector, they were ready with tips, tricks, and the necessary adaptors.

One challenge that faced this year's participants was the bandwidth available through the Folger's wifi, which may have been an issue unique to a workshop focused on network analysis. Because the bulk of network analysis applications for beginners are housed online, there were occasions when everyone in the Boardroom was online processing large amounts of data at the same time. On two occasions, scenarios like this timed out the wifi connection, kicked participants offline, and made it necessary for people to stagger their activities once they were reconnected. The brief outages in internet connection did not at any time severely impede the progress of the day's lesson, but it did require adjustments from the Folger's in-house IT services. The Folger wifi also prompts users to re-enter login credentials every time their computer disconnects from the wifi. When days were structured so that participants went back and forth between longer stretches of lecture and discussion, on the one hand, and hands-on activities, on the other, there were occasions when their computers disconnected from the wifi but would not display the prompt to re-enter their credentials once an exercise began. On most occasions, this was remedied by restarting the computer's wifi chip, a solution that takes a matter of seconds. On some occasions, however, participants had to restart their machines entirely so that the prompt for wifi credentials would reappear. Avoiding this situation in future workshops will help all participants maximize their work time.

Tools and Technology

Instructors and presenters at the workshop took full advantage of the technical expertise of this year's participants, and they engaged attendees in the use of a wide variety of digital tools and techniques. The technical assistants were tasked with helping participants to install these tools, as well as helping them navigate and apply them once work sessions began.

One Technical Assistant (Caitlin Rizzo) was tasked with installing applications and their dependencies on Windows and Mac machines. This was an especially expert task as participants came not only with machines running different operating systems but some brought computers that were also missing various dependencies or had outdated versions installed. The other Technical Assistant (Pierce Williams) was tasked with building a web application before the workshop to streamline everyone's participation during an "add-a-thon" for the Six Degrees of Francis Bacon project. Participants who came with a variety of data structures, in a variety of file types, avoided compatibility and workflow issues by making their contributions through this common web application, which performed the necessary conversions for them automatically.

Some tools that were popular with the participants for either their accessibility (Palladio) or their computational power (NetworkX) required little technical expertise of them. Instead, the technical assistants followed along during demonstrations of these tools, and were able to provide reminders and other helps once the workshop participants began using them on their own. During the session on NetworkX, training exercise had the dual function of introducing the participants to the basics of programming while also illustrating the power of the python programming language for manipulating network data and generating network statistics. In this sense, the session on NetworkX improved participants' literacies in two domains at once. Pierce is trained in applied statistics and network analysis, so he was able to suggest possible interpretations of analytical output for participants in addition to helping them navigate the tools.

Digital Spaces for Interaction

Due to the success of Twitter during the 2015 and 2013 Institutes, a technical assistant (Caitlin Rizzo) was assigned to live-tweet the event. This year the institute continued to use Twitter as a platform to build community, share resources, and experiment with the creation of a more informal network. While in 2015, technical responsibilities were divided between two assistants, both assistants shared in the on-site troubleshooting out of necessity, which made it difficult at times to remain engaged. However, institute participants found the Twitter feed (@EMDigAgendas) to be a valuable resource for sharing information on presentations, posting useful digital tools, and exploring questions which were not addressed in the sessions. Participants, faculty, and scholars outside the institute contributed to the Twitter feed (via #EMDA17) with their own notes, impressions, and questions. The feed featured photographs and videos of the sessions as well. Live-tweets from the Boardroom were watched by others many in different time zones-- and several different academic institutions. In the end, the Institute generated an archive of 3,905 tweets.

Early Modern Digital Agendas used a listserv mailing list (Emda-2017@actwin.com) to distribute information to participants before, during, and after the Institute. The mailing was managed by both Owen Williams and Elyse Martin, and proved to be extremely useful. Before the institute participants and faculty used the listserv to introduce themselves and their scholarly interests. During the Institute, the listserv and Twitter were used concurrently to disseminate information about presentations, events related to the institute, and general queries from institute participants and faculty. The listserv remains a beneficial formal channel of communication.

Participants supplemented the mailing list and twitter feed with shared Google documents in order to create more collaborative documents that could be added to throughout the two weeks of the institute. For example, participants and faculty made use of shared datasets through Google sheets as well as a shared glossary of terms and tools for reference throughout the institute. These tools helped create a common vocabulary and shared sense of understanding throughout the two weeks. These documents were extremely

valuable throughout the institute as they allowed participants to develop a firm grasp on technical and mathematical terms used in advanced network analysis. This [glossary](#) has been posted on Folgerpedia.

These tools were all very successful. However, for future iterations of digital workshops, technical assistants should be aware of participants' level of familiarity and comfort with digital spaces. Not all participants wished for their research to be shared or posted on Twitter, and also not all participants were comfortable using various forms of technology. For example, some participants struggled with Google sheets/documents, and while some participants wanted to engage in the Twitter conversation, they had to establish accounts first. A technical assistant facilitating digital spaces may want to take the opportunity to spend an extra half hour to introduce participants to tools and aid them in installation at the beginning of the workshop. However, in order to do this, participants would have to provide all of the necessary requirements for technology at the start of the institute. These suggestions should allow the technical assistant to not only enrich participants' experiences but also to involve the participants promoting a collaborative and open environment.

Dissemination of Information

For dissemination, the EMDA coordinators compiled a thorough schedule of sessions, complete with descriptions of the tools required and instructions for their installation. All of the necessary tools were available for free online, and the readings and documentation for each day's exercises were made available through a shared Dropbox folder. Though the level of detail provided in the installation instructions varied by presenter, each presenter's documentation served as a valuable resource during the workshop. Dropbox served its purpose well, though there were some issues with the irregularity of permissions given to different participants, presenters, and assistants. On some occasions, necessary materials or links were unavailable to presenters, coordinators, or the technical assistants because the appropriate permissions had not been assigned or materials were not included when folders were shared. This is to be expected when a single repository is used for all the documentation for the administration of a single workshop, and when participants and administrators rely on a single repository for widely different purposes. Nonetheless, it would be helpful for administrators of future workshops to prepare and implement a more clearly defined hierarchy of who will have access to which documents.

Conclusion

Overall, the technical administration of the 2017 Early Modern Digital Agendas workshop went very smoothly. Hiccups and momentary inconveniences are to be expected; they are the motivation for our presence in the first place. The technical assistance we provided addressed low-impact issues, usually on a case-by-case basis, and were idiosyncratic to the equipment or data of individual participants. Anecdotally, it seems that the EMDA program has only gotten more technically rigorous with each iteration. As computational methods for humanities research become more mainstream, we can expect this trend to continue, but we can also probably expect that future participants will arrive with increasingly robust digital literacies. The suggestions outlined here are meant to streamline some of the administration processes that will help EMDA continue to push its participants to the extent of their abilities by minimizing some easily avoidable hurdles to administration and workflow.