

## Visualizing the Future Symposia: A National Forum on Data Visualization in Libraries

A partnership between University of Michigan, Duke University, and University of Southern California, this National Forum Grant proposal will develop a literacy-based instructional and research agenda for library and information professionals with the aim to create a community of praxis focused on data visualization. Building upon previous IMLS grants<sup>1</sup>, the CritLib movement, Data Carpentry, and the growing need for a holistic data training model this grant will help fund the creation of a diverse community that will advance library-based data visualization instruction beyond hands-on, technology-based tutorials toward a nuanced, critical understanding of visualization as a research product and form of expression.

### Statement of Broad Need

The practice of data visualization has become “absolutely critical to our ability to process complex data and to build better intuitions as to what is happening around us”.<sup>2</sup> Patrons are increasingly approaching both public and academic libraries with these growing needs, but training for librarians to develop these new skills is limited and largely tool based, often at the expense of deeper engagements with research methods, ethical design, and critical consumption and production of visualizations.<sup>3</sup> Some groups have pioneered a critical visualization research agenda - e.g., The MIT Living Lab, D-Lab at Berkeley, Data and Society, Studio for Creative Inquiry - and communities of practice like the data journalism community have also made commitments to ethical data visualization practices. We believe that public and academic libraries, as community anchors and hubs for interdisciplinary work, personal development, and life-long learning can benefit from incorporating these efforts into pedagogical frameworks that will help librarians to reskill for this new field while maintaining a commitment to critical, literacy-based instruction. The opportunity exists to create a vibrant data visualization ecosystem that would complement current trends and successes in information and data literacy.<sup>4</sup> A national discussion is crucial to help libraries develop a coherent framework to guide and articulate complex, literacy-based data visualization support and instruction.

### Project Design

The Co-PIs and a small, diverse group of invited readers<sup>5</sup> will select a cohort of between 10 and 12 fellows of varying skill sets and job responsibilities whose work is directly involved with or impacted by data visualization. To encourage a learner-centered approach to helping visualization novices develop real-world expertise in a particular topical area, each participant will be asked to identify and work on a specific challenge or problem within their practice of visualization that is unique to their institution and user community for a 3-month period. Community building during this period will involve regular virtual meetings where participants share progress with each other and with members of invited visualization communities (primarily local library consortium partners - e.g., TRLN’s NC Data Interest Group).

At the conclusion of this 3 month period, a kick-off meeting will be held in order to collectively draft a set of provisional challenges, goals, research questions, and instructional modules. We will use an unconference structure that will emphasize a shared approach to agenda setting with the aim of building a community that will critically develop a set of practices, guidelines, and recommendations around data visualization services. For the next nine months participants will continue individual research projects and develop related instructional modules, presenting their work at their institutions, and at local<sup>6</sup> and national<sup>7</sup> meetings to obtain feedback from the larger profession and build a community of practice around the topic. This work will culminate in a

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<sup>1</sup> Data Science in Libraries, Institute of Museum and Library Services grant number RE-43-16-0149-16.

<sup>2</sup> Fox, P., & Hendler, J. (2011). Changing the equation on scientific data visualization. *Science*, 331(6018), 705-708.

<sup>3</sup> Data visualization workshop taught by Zoss at the NCSU Data Science and Visualization Institute for Librarians and the recent ALA pre-conference workshop Joque, Rutkowski and Zoss provided on data visualization.

<sup>4</sup> See Association of College and Research Libraries Board. (2016). Framework for Information Literacy for Higher Education. Access at <http://www.ala.org/acrl/standards/ilframework> on June 08, 2017. Carlson, Jacob, Michael Fosmire, C. C. Miller, and Megan Sapp Nelson. "Determining data information literacy needs: A study of students and research faculty." *portal: Libraries and the Academy* 11, no. 2 (2011): 629-657.

<sup>5</sup> Thomas Padilla, Visiting Digital Research Services Librarian, UNLV; Bergis Jules, University & Political Papers Archivist, UCR

<sup>6</sup> e.g., Maptime, Code for America, Midwest Data Librarian Symposium, Triangle Research Library Network, etc.

<sup>7</sup> e.g., ALA, ACRL, RDAP, DLF, IASSIST, etc.

*Visualizing the Future* Symposium at which we will pull together all of the participants' work and articulate a shared pedagogical approach and philosophy to data visualization services. The final outputs will include an open access website, to share ongoing progress and ensure broad dissemination of results; a collaboratively built and tested curriculum ready for use, to lower the barrier for new organizations to offer visualization instruction; a white paper laying out lessons learned for supporting visualization, tailored to library staff from different types of institutions; publications of individual research results, to share the complex work of the participants more directly with the research community; and a report summarizing the development process and areas for future research, to provide the growing community of practice with institutional memory and next steps.

With its combination of research and agenda setting for visualization in libraries, *Visualizing the Future* will directly support the goals of IMLS and the National Digital Platform. Both participants and the larger community of libraries will develop the "capacity to create, develop, and use the open source software applications...to provide digital content and services to all users." Moreover, continuous regional and national partnerships for community building, feedback, and dissemination will help build and sustain a visualization community of library professionals.

### **Project Team**

Zoss, Joque, and Rutkowski are all data visualization consultants within academic libraries with 25 years of collective experience developing instruction around data visualization and related topics. Justin Joque (Visualization Librarian, University of Michigan) has a PhD in Media Studies and Communication from the European Graduate School and is the author of a forthcoming book on how cyberwar changes our understanding of computation and data (University of Minnesota Press, 2018). Angela Zoss (Data Visualization Consultant, Duke University) is completing her PhD at Indiana University in Information Science and has pioneered the visualization instruction for the NCSU Data Science and Visualization Institute for Librarians. Andy Rutkowski (Visualization Librarian, University of Southern California) holds multiple MAs from NYU and has worked on community-based projects with organizations in Los Angeles including the ONE Archives. All three are active members in national and regional library communities and will leverage previous experience in community building and event planning to structure a meaningful and productive national forum.

### **Diversity Plan**

We will target participant diversity in terms of age, race, gender identity, experience in libraries, disciplinary background, job responsibilities, and institutional characteristics. Two concrete strategies we will have in place to help us achieve a diverse cohort is by instituting a rules of conduct for the forum<sup>8</sup> as well as having an open call and nomination process for participation. The project plan is designed for both novice and expert fellows.

### **Broad Impact**

A National Forum would provide an invaluable opportunity to articulate the role data visualization can play in advancing the mission of academic and public libraries and the frameworks, tools and opportunities needed to train librarians to support and engage with this work. Beyond improving data visualization services, such a framework will also offer a rich and critical lens through which to understand the complexities, challenges and insights of data services writ broadly. The resulting framework will serve both as a resource for libraries that want to expand data visualization services and as a research agenda for future work. In addition to the framework, participants will further become resources to their communities and be able to provide instruction, consultations and strategy setting to develop robust data visualization services.

### **Budget Summary: \$95,460**

Travel: \$72,000 (Launch meeting, \$24,000: 12 fellows and 3 organizers @\$1,600 per participant; *Visualizing the Future* symposium, \$24,000: 12 fellows and 3 organizers @\$1,600 per participant; Data visualization presentations/outreach at library conferences, \$24,000: 12 fellows and 3 organizers @\$1,600 per participant). Materials and supplies: \$2,000 (event costs for launch meeting and symposium. University of Michigan indirect costs: \$21,460 (29% federal rate based on \$74,000 direct costs). The organizers will devote approximately 5% FTE each in-kind over the 24-month project period to ensure the success of this project.

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<sup>8</sup> Modeled on the DLF Code of Conduct- <https://www.diglib.org/about/code-of-conduct/>