

CARL 2018 Poster Session

Title: Information Visualization Skills for Academic Librarians

Presenter:

H. Michelle Chen
School of Information
San Jose State University
hsuanwei.chen@sjsu.edu

Poster Description:

The purpose of this project is to investigate how scholars in the digital humanities employ information visualization techniques in their research, and how academic librarians should prepare themselves to support this emerging trend. This study adopts a content analysis methodology, which further draws techniques from data mining, natural language processing, and information visualization to analyze three peer-reviewed journals published within the last five years and 10 online university library research guides in this field. To successfully support and effectively contribute to the digital humanities, academic librarians should be knowledgeable in more than just visualization concepts and tools. The content analysis results for the digital humanities journals reflect the importance of recognizing the wide variety of applications and purposes of information visualization in digital humanities research. This study also provides practical and actionable insights into how academic librarians can prepare for this emerging technology to support future endeavors in the digital humanities.

Information Visualization Skills for Academic Librarians

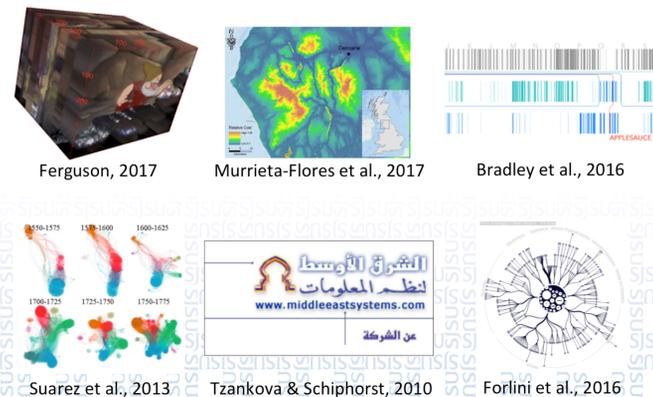


Michelle Chen
School of Information
San Jose State University



Introduction

The purpose of this paper is to investigate how scholars in the digital humanities employ information visualization techniques in their research, and how academic librarians should prepare themselves to support this emerging trend. This study adopts a content analysis methodology, which further draws techniques from data mining, natural language processing, and information visualization to analyze three peer-reviewed journals published within the last five years and 10 online university library research guides in this field. To successfully support and effectively contribute to the digital humanities, academic librarians should be knowledgeable in more than just visualization concepts and tools. The content analysis results for the digital humanities journals reflect the importance of recognizing the wide variety of applications and purposes of information visualization in digital humanities research. This study also provides practical and actionable insights into how academic librarians can prepare for this emerging technology to support future endeavors in the digital humanities.



Research questions:

- What are the primary tools, application types, and purposes of information visualization in digital humanities research?
- What types of online resources are provided by academic libraries that focus on the application of information visualization in digital humanities research?
- Is there a gap between the practical use of information visualization in digital humanities research and the support and services provided by academic librarians? If so, how can academic librarians best prepare?

Data & Methods

To determine those information visualization skills that are in demand for academic librarians in support of digital humanities research, I conducted a content analysis of five years of recognized journals in the digital humanities field, as well as online resources provided by academic libraries in support of digital humanities research and practice. I then compared the tools, application types, and purposes of information visualization use in digital humanities research, using these two primary sources.

DH Journals

- Journals that were considered needed to be peer-reviewed, reaching a wide audience, and fully accessible through the university library subscriptions.
- IV-related articles considered whether the article's title, abstract, or keyword mentioned information visualization, data visualization, visual analytics, visualization, or visualizing, and whether information visualization techniques were used to address the article's research needs.

Journal Name	Format/Type	# of Issues per Year (2012-2016)	Total # of Published Articles (2012-2016)	Total # of InfoVis-related Articles (2012-2016)	% of InfoVis-related Articles (2012-2016)
DHQ	Open access, peer-reviewed, online only	3-4	138	49	26.2%
DSH	Peer-reviewed, print & online	4	205	72	25.99%
DS/CN	Open access, peer-reviewed, online only	1-3 (rolling basis)	53	17	24.29%

DH Online Resources

- Ten university library guides were selected for analysis:
 1. Digital Humanities at Cornell: Research Guide: Data visualization
 2. USC Libraries Research Guides: The Digital Humanities: Digital Visualization
 3. MIT Libraries: Digital Humanities: Tools
 4. University of Tennessee-Knoxville: Digital Humanities: Visualizations
 5. University of Arizona Libraries: Digital Humanities Tools
 6. University of Toledo Libraries: Digital Humanities: Tools
 7. Fordham University Libraries LibGuides: Digital Humanities: DH Tools
 8. Kansas State University Libraries: Digital Humanities Tools: Data Visualization
 9. UNC-Chapel Hill: Carolina Digital Humanities Initiative: Tools
 10. UIUC University Library: Digital Humanities @ Illinois: Tools

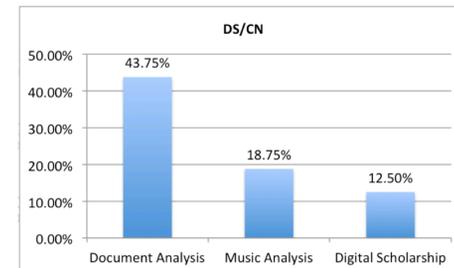
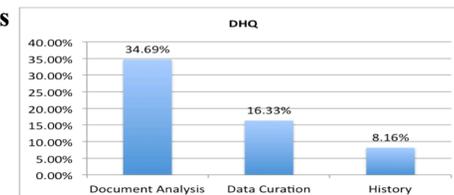
Methods

- Methods included content analysis, topic modeling, natural language processing, and word cloud visualization.

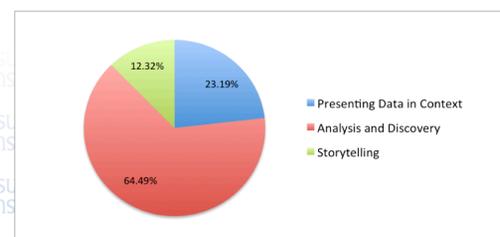
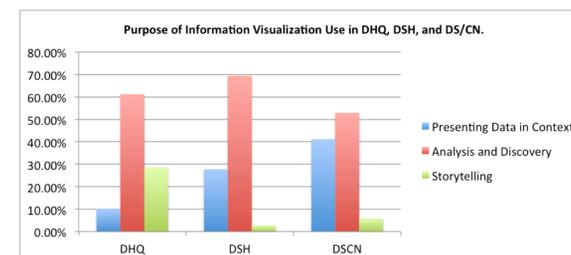
Results: DH Journals

- **IV Tools**
 - At an aggregate level, approximately 70% of the visualization tools used in DH research were free and open-source.
 - About 30% of the visualization tools used enterprise software.

IV Applications



IV Purposes



Results: DH Online Resources



Conclusions

- The “depth” of IV use matters more—namely how IV has been applied (applications), and why it has been adopted (purposes).
- It is important to recognize the wide variety of applications for IV in DH research.
- For most of IV-related work in DH, the purpose is to analyze and discover.
 - What is the most accurate way to interpret the visualization results? What can be deduced or mined from these results? How can new discoveries and insights be drawn from the visualizations?
- Librarians should be familiar with common data types in digital humanities research and understand what kinds of data work best with each visualization technique, should capitalize on online courses such as MOOCs to hone the skills in using visualization apps and tools, and should recognize the importance of applying analytical thinking to make the best possible interpretation of the visualization results.

Acknowledgement

This research project was supported by SJSU CASA Infusion Grant.