

Sean McKenna

Ph.D. Candidate in Computing

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education

Ph.D. in Computing: Graphics and Visualization

2012 – 2017

University of Utah, Salt Lake City UT, Advisor: Dr. Miriah Meyer

Thesis: "The Design Activity Framework: Analyzing the User-Centered Design Process for Data Visualization"

B.A. in Computer Science & Physics, Minor: Chemistry

2008 – 2012

Cornell College, Mount Vernon IA, Summa Cum Laude

technical skills

Javascript (ES6, D3) HTML5 & CSS3 Python Java C++ \LaTeX SQL R

professional experience

Research Assistant, Scientific Computing and Imaging Institute, Salt Lake City UT

Fall 2012 – present

- Crafted and evaluated worksheets to guide students through the visualization design process.
- Developed a scatterplot technique (R, C++, OpenGL) for exploring correlation of large datasets.

Visualization Intern, Microsoft Research, Redmond WA

Summer 2016

- Built a Javascript library (ES6, D3) to interactively create scrolling, animated visualizations.
- Conducted a study on Amazon Mechanical Turk to investigate engagement of visualization stories.

Visualization Intern, MIT Lincoln Laboratory, Lexington MA

Summer 2014 & Spring 2015

- Created a web dashboard (D3, Bootstrap) to visualize patterns in network activity.
- Implemented a backend (Python, Bash) for updating the dashboard daily using JSON.

Research Intern, NASA's Space Telescope Science Institute, Baltimore MD

Summer 2011

- Contributed a web query interface (jQuery, SQL) to a Hubble Space Telescope archival research project.
- Collaborated with 9 others, including astronomers, to visualize user-marked craters on the Moon.

Stage Manager for Legally Blonde, Everest Academy for the Arts, Wausau WI

Summer 2012

- Managed a cast and crew of 60 to conduct professional rehearsals and work sessions.
- Headed technical operation of the crew by consistently calling cues in each production.

Chair of Appropriations, Student Senate, Cornell College

Spring & Fall 2011

- Monitored and audited a \$250,000 budget distributed over 50 student organizations.
- Coordinated a streamlined rewrite of the financial by-laws with both finance and executive committees.

teaching experience

Teaching Assistant, Introduction to Visualization (CS-6630), University of Utah

Fall 2016

- Created and presented a lecture for a graduate course (65 students).
- Mentored 13 students through the design process of their cumulative projects.

Teaching Assistant, Algorithms and Data Structures (CS-2420), University of Utah

Spring 2016

- Presented 3 lectures for an undergraduate course (175 students).
- Conceived a final project, wrote the description, and created test cases using Python and Java.

Teaching Assistant, Introduction to Visualization (CS-6630), University of Utah

Fall 2013

- Presented 5 lectures for a graduate course (60 students).
- Rewrote 2 assignments that use Tableau, Java, and the Processing library.

awards & fellowships

Winner , Teapot Rendering Competition, University of Utah	2013
Winner , Challenge at the Human Brain Mapping Hackathon, Allen Institute for Brain Science	2013
Wayne Brown Fellowship (\$30,000), University of Utah	2012
Phi Beta Kappa , Cornell College	2011

service

Program Committee Member , Visualization for Cybersecurity Symposium	2015 – 2016
▸ Examined 7 submissions for publication in an internationally peer-reviewed symposium.	
C.S. Graduate Student Advisory Committee , University of Utah	2013 – 2015
▸ Voted on the retention, promotion, and tenure of professors in the CS department.	

selected publications

journal:

BubbleNet: A Cyber Security Dashboard for Visualizing Patterns	2016
S. McKenna, D. Staheli, C. Fulcher, M. Meyer. <i>Computer Graphics Forum</i> , 35(3):281–290.	
s-CorrPlot: An Interactive Scatterplot for Exploring Correlation	2016
S. McKenna, M. Meyer, C. Gregg, S. Gerber. <i>Journal of Computational and Graphical Statistics</i> , 25(2):445–463.	
Design Activity Framework for Visualization Design	2014
S. McKenna, D. Mazur, J. Agutter, M. Meyer. <i>IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVis)</i> , 20(12):2191–2200.	

conference:

Unlocking User-Centered Design Methods for Building Cyber Security Visualizations	2015
S. McKenna, D. Staheli, M. Meyer. <i>Proceedings of the Twelfth International Symposium on Visualization for Cyber Security (VizSec)</i> .	
Visualization Evaluation for Cyber Security: Trends and Future Directions	2014
D. Staheli, T. Yu, J. Crouser, S. Damodaran, K. Nam, D. O’Gwynn, S. McKenna, L. Harrison. <i>Proceedings of the Eleventh International Symposium on Visualization for Cyber Security (VizSec)</i> .	

in-progress:

Narrative Flow: Factors Shaping Data Story Consumption Experiences	
S. McKenna, N.H. Riche, B. Lee, J. Boy, M. Meyer.	
Worksheets for Guiding Novice Students through the Visualization Design Process	
S. McKenna, A. Lex, M. Meyer.	