Sean McKenna

Data Visualization Scientist & Engineer

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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
Dissertation: "The Design Activity Framework: Investigating the Data Visualization Design Process"

B.A. in Computer Science & Physics, Minor: Chemistry 2008 – 2012
Cornell College, Mount Vernon IA, Summa Cum Laude

technical skills

Javascript + D3 **HTML5 & CSS3** **Python** **Java** **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:

Visual Narrative Flow: Exploring Factors Shaping Data Visualization Story Reading Experiences 2017
S. McKenna, N. Henry Riche, B. Lee, J. Boy, M. Meyer. *Computer Graphics Forum (EuroVis)*, *to appear*.

BubbleNet: A Cyber Security Dashboard for Visualizing Patterns 2016
S. McKenna, D. Staheli, C. Fulcher, M. Meyer. *Computer Graphics Forum (EuroVis)*, 35(3):281–290.

s-CorrPlot: An Interactive Scatterplot for Exploring Correlation 2016
S. McKenna, M. Meyer, C. Gregg, S. Gerber. *Journal of Computational and Graphical Statistics*, 25(2):445–463.

Design Activity Framework for Visualization Design 2014
S. McKenna, D. Mazur, J. Agutter, M. Meyer. *IEEE Transactions on Visualization and Computer Graphics (InfoVis)*, 20(12):2191–2200.

conference:

Unlocking User-Centered Design Methods for Building Cyber Security Visualizations 2015
S. McKenna, D. Staheli, M. Meyer. *Proceedings of the Twelfth International Symposium on Visualization for Cyber Security (VizSec)*.

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. *Proceedings of the Eleventh International Symposium on Visualization for Cyber Security (VizSec)*.

in-progress:

Worksheets for Guiding Novice Students through the Visualization Design Process
S. McKenna, A. Lex, M. Meyer.