Patrick E. Carlson

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Education

Iowa State University **Ames, Iowa**
PhD, Cumulative GPA: 3.68/4.0 2008 - 2015
Major: Human-Computer Interaction (HCI)

Simpson College **Indianola, Iowa**
Bachelor of Arts, cum laude, Cumulative GPA: 3.715/4.0 2003 - 2008
Majors: Computer Science and Psychology

Experience

Sandia National Labs **Albuquerque, New Mexico**
Data Scientist 2017 - present
Data analysis, R and Python programming, data virtualization, Tableau and Shiny visualizations, analytics team co-lead, SQL and Mongo querying, architecture and data engineering research, project planning, writeups, design mockups, and UX reviews.

Renaissance Learning **Wisconsin Rapids, Wisconsin**
User Experience Analyst 2016 - 2017
Perform remote usability testing on software prototypes, help with UI design, and develop and analyze survey data.

Iowa State University **Ames, Iowa**
Improving Open Source Software Development (Dissertation Topic) 2010 - 2015
Apply data mining in the development of algorithms and tools to improve developer understanding of technical and social structure in large Open Source communities. Under direction of Dr. Judy Vance.

Bimanual Haptics for Virtual Assembly Tasks (Research Assistant) 2009 - 2015
Designed and analyzed studies examining various bimanual haptic device configurations and learning transfer for virtual assembly tasks. Under direction of Dr. Judy Vance.

Mentor/Support Research Experience for Undergraduate (REU) Students Summer 2010
Helped coordinate three undergraduate REU students whose project entailed creating a physical mockup of a shopping cart which was then used in a virtual reality user study. Under direction of Dr. Judy Vance.

University of New Mexico **Albuquerque, New Mexico**
Research Experience for Undergraduates (REU) Spring 2006 - Fall 2007
Learned the basics of machine learning and worked on applying this to improving the routing of packets in a dynamic network. Under direction of Dr. Terran Lane.

Simpson College **Indianola, Iowa**
Usability and Appeal of the Linux Desktop (Psychology Capstone)
Constructed and performed an experiment empirically contrasting usability and appeal of a 2D versus 3D Linux desktop. Spring 2007 - Fall 2008

Origins of Human Cooperation and Altruism

Simulated the evolution of cooperation/altruism using game theory techniques and genetic algorithms. Presented work at Argonne National Laboratory. Fall 2005 - Fall 2006

Teaching and Other

Engineering/LAS Online Learning (Graduate Assistant)	Fall 2014
ME/WLC 484/584: Technology, Globalization, and Culture (Teaching Assistant)	Fall 2013
HCI/Psych 522: Scientific Methods in HCI (Teaching Assistant)	Spring 2013
CS 309: Software Development Practices (Teaching Assistant)	Spring 2009
CS 207: Programming I (Teaching Assistant)	Fall 2008

Groups and Activities

Sandia Data Sciences - Community of Practice Organizer	2018 - Present
Iowa State University Badminton Club	2009 - 2015
ISU Human-Computer Interaction Student Group Vice President	2010 - 2011
Simpson College Math Club	2006 - 2008
Simpson College Computer Club	2003 - 2008

Honors

Iowa State University Research Excellence Award	Spring 2015
Outstanding Senior in Computer Science (Simpson College)	May 2008
Honorable Mention in the Mathematical Contest in Modeling (MCM)	2006, 2007, 2008
Psi Chi National Honor Society in Psychology	March 2007

Recent Poster Presentations

Carlson, Patrick & Vance, Judy M. (2013, April). Who Should I Contact?: Helping New Developers Find Experts. Poster presented at the Emerging Technologies Conference, Ames, IA. **Awarded most interesting research project**.

Peters, Anicia & Carlson, Patrick & Gilbert, Stephen & Vance, Judy M. (2012, April). A Hybrid Method to Support Natural Interaction of Parts in a Virtual Environment. Poster presented at the Emerging Technologies Conference, Ames, IA. **Awarded most interesting research project**.

Recent Publications

Carlson, Patrick & Vance, Judy M. & Berg, Meisha (2016). An evaluation of asymmetric interfaces for bimanual virtual assembly with haptics. In Virtual Reality, pages 1-9.

Carlson, Patrick (2015). Engaging developers in open source software projects: harnessing social and technical data mining to improve software development. In Graduate Theses and Dissertations, pages 1-192, Ames, IA.