

# Patrick E. Carlson

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## Education

### Iowa State University

*PhD Candidate, Cumulative GPA: 3.68/4.0*

Major: Human-Computer Interaction (HCI)

**Ames, Iowa**

*2008 - present*

### Simpson College

*Bachelor of Arts, cum laude, Cumulative GPA: 3.715/4.0*

Majors: Computer Science and Psychology

**Indianola, Iowa**

*2003 - 2008*

## Experience

### Research.....

#### Iowa State University

*Improving Socialization in Large Open Source Communities (HCI Thesis Topic)*

Apply data mining in the development of algorithms and tools to improve the socialization of new developers in large Open Source communities. Under direction of Dr. Judy Vance.

**Ames, Iowa**

*2010 - present*

*Bimanual Haptics for Virtual Assembly Tasks (Research Assistant)*

Designed and analyzed studies examining various bimanual haptic device configurations and learning transfer for virtual assembly tasks. Under direction of Dr. Judy Vance.

*2009 - 2014*

*Mentor/Support REU Students*

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.

*Summer 2010*

#### University of New Mexico

*Research Experience for Undergraduates (REU)*

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.

**Albuquerque, New Mexico**

*Spring 2006 - Fall 2007*

#### Simpson College

*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.

**Indianola, Iowa**

*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.....

#### Iowa State University

*Engineering/LAS Online Learning (Graduate Assistant)*

Recorded class videos, advised undergraduate producers, and scripted automated startups for recordings

**Ames, Iowa**

*Fall 2014*

*ME/WLC 484/584: Technology, Globalization, and Culture (Teaching Assistant)* *Fall 2013*  
Graded homework, facilitated online class discussions

*HCI/Psych 522: Scientific Methods in HCI (Teaching Assistant)* *Spring 2013*  
Graded homework and managed content for online website

*CS 309: Software Development Practices (Teaching Assistant)* *Spring 2009*  
Graded homework, helped students with documenting development

*CS 207: Programming I (Teaching Assistant)* *Fall 2008*  
Assisted students with homework and basic programming concepts

**Simpson College** **Indianola, Iowa**  
*Student Technician* *Nov 2005 - May 2006*  
Helped students and faculty connect to the Internet and troubleshoot network issues

## Professional Organizations

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- Special Interest Group on Human-Computer Interaction (Student Member)
- Association for Computing Machinery (Student Member)

## Groups and Activities

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Iowa State University Badminton Club	<i>2009 - present</i>
ISU Badminton Club Webmaster	<i>2009 - 2012</i>
Computational Design Synthesis: Summer Camp (Munich, Germany)	<i>August 1-5, 2011</i>
ISU Human-Computer Interaction Student Group Vice President	<i>2010 - 2011</i>
Simpson College Math Club	<i>2006 - 2008</i>
Simpson College Computer Club	<i>2003 - 2008</i>

## Honors

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Outstanding Senior in Computer Science (Simpson College)	<i>May 2008</i>
Honorable Mention in the Mathematical Contest in Modeling (MCM)	<i>2006, 2007, 2008</i>
Floyd S. Doft Memorial Scholarship (Simpson College)	<i>2007 - 2008</i>
Psi Chi National Honor Society in Psychology	<i>March 2007</i>

## Poster Presentations

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- 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\***
- Vance, Judy M. & Gilbert, Stephen & Oren, Michael & Pavlik, Ryan & Carlson, Patrick. (2012, July). *GOALI: A Hybrid Method to Support Natural Interaction of Parts in a Virtual Environment*. Poster presented at the NSF Engineering Research and Innovation Conference, Atlanta, GA.

- 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\***
- Carlson, Patrick & Vance, Judy M. & Nguyen, Tien & Blankenship, Kevin. (2011, April). *Social Technical Congruence: The Link Between Social Science and Technology*. Poster presented at the Emerging Technologies Conference, Ames, IA.
- Carlson, Patrick & Vance, Judy M. (2010, May). *An Evaluation of Asymmetric Interfaces for Bimanual Virtual Assembly With Haptics*. Poster presented at the ASME World Conference on Innovative Virtual Reality, Ames, IA.
- Carlson, Patrick. (2008, May). *Usability and Appeal of a 2D versus 3D Linux Operating System*. Poster presented at the Midwestern Psychological Association, Chicago, IL.

## Publications

**In Press:** Carlson Patrick, Anicia Peters, Stephen Gilbert, Judy M. Vance, and Andy Luse, Virtual training: Learning transfer of assembly tasks, *IEEE Transactions on Visualization and Computer Graphics*.

**2012:** Mike Oren, Patrick Carlson, Stephen Gilbert, and Judy M. Vance, Puzzle Assembly Training: Real World vs. Virtual Environment, In *Proceedings of the IEEE 2012 Virtual Reality Conference*, pages 1–4, Orange County, California, IEEE.

**2012:** Patrick Carlson and Nan Xiao, Experience and Recommendations for Distributed Software Development, In *Proceedings of the International Conference on Software Engineering (ICSE) Workshop on Collaborative Teaching of Globally Distributed Software Development*, pages 1–4, Zurich, Switzerland, ACM.

**2011:** Judy M. Vance, Stephen B. Gilbert, Michael Oren, Ryan Pavlik, and Patrick Carlson, GOALI: A Hybrid Method to Support Natural Interaction of Parts in a Virtual Environment, In *NSF Engineering Research and Innovation Conference Proceedings*, pages 1–4, Atlanta, Georgia.

**2011:** Patrick Carlson, Carl Kirpes, Ryan A. Pavlik, Judy M. Vance, Livien Yin, Terrence Scott-Cooper, and Troy Lambert, Comparison of Single-Wall Versus Multi-Wall Immersive Environments to Support a Virtual Shopping Experience, In *Proceedings of the ASME 2011 World Conference on Innovative Virtual Reality (WINVR2011)*, pages 1–5, Milan, Italy, ASME.