

Curriculum Vitae – Rachel Kirby

Contact Rachel Kirby (née Gockley)
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Research Interests

I am interested in social human–robot interaction. In particular, I currently study ways in which humans and robots can interact naturally in physical social situations, such as traveling side-by-side with a person. I am interested in pursuing additional avenues of human–robot interaction.

Education *Carnegie Mellon University, Pittsburgh PA*

May 2010 Ph.D. in Robotics
Thesis topic: Social Robot Navigation
Advisors: Reid Simmons and Jodi Forlizzi

May 2006 M.S. in Robotics

May 2003 B.S. in Computer Science
Additional Major in Philosophy
Minor in Robotics

Research Experience

2003 - 2010 Social Robotics Project, Carnegie Mellon University
Graduate Researcher. Explored aspects of human-robot interaction. Implemented a model of physical social interaction using a constraint-based framework, which allows robots to perform social tasks such as navigating through crowds or traveling side-by-side with a person. Developed a new robot, Companion, for use in human–robot interaction studies. Used the Roboceptionist platform to develop and test a model of affect (moods, emotions, and attitudes) for social robots.

Summer 2005 Interaction Lab, University of Southern California
Visiting Scholar. Designed and piloted an experiment to study how a robot’s physical embodiment be used to influence human task-related behavior. Examined the effects of engagement and

- proxemics of a small, non-biomimetic robot on people's performance of physical therapy tasks.
- 2002 - 2003 Personal Rover Project, Carnegie Mellon University
Undergraduate Research Assistant. Developed Java-based user interfaces for the Personal Exploration Rover, a six-wheeled robot that was deployed in several science centers across the country.
- Summer 2001 IBM, Poughkeepsie NY
Intern. Enhanced a Tcl/Tk user interface to function as a front-end for various design verification tools. Wrote C++ parsers for design reports to highlight key information and cross-reference layouts and schematics in Cadence utilities.
- 2000 - 2001 Project LISTEN, Carnegie Mellon University
Undergraduate Research Assistant. Developed Perl scripts to test and improve the listening accuracy of an automated reading tutor for grade-school students.

Teaching Experience

- Spring 2005 Graduate Teaching Assistant for "Building the Future," an undergraduate seminar on robotics.

Scholarships and Fellowships

- 2006-2008 NSF IGERT Fellowship in Assistive Technology
Carnegie Mellon University
- Fall 2007 Fellowship for Women in Robotics
IEEE Robotics and Automation Society
- 2003-2006 Graduate Research Fellowship
National Science Foundation
- 2000-2003 New Economy Technology Scholarship
Pennsylvania Higher Education Assistance Agency
- 1999-2003 Judith Resnick Challenger Scholarship for Women
Carnegie Mellon University
- 1999-2003 National Merit Scholarship

Honors

- 2006 Best Student Paper, HRI2006 for [6]

2003	Outstanding Undergraduate Award, Honorable Mention <i>Computing Research Association</i>
2003	Honor Society of Phi Beta Kappa, member
2001	Honor Society of Phi Kappa Phi, member

Publications

Publications prior to 2008 are under maiden name (Gockley).

Refereed Journal Articles

- [1] Rachel Kirby, Jodi Forlizzi, and Reid Simmons. Affective social robots. *Robotics and Autonomous Systems*, 58(3):322–332, March 2010.
- [2] Emily Falcone, Rachel Gockley, Eric Porter, and Illah Nourbakhsh. The personal rover project: The comprehensive design of a domestic personal robot. *Robotics and Autonomous Systems, Special Issue on Socially Interactive Robots*, 42(3-4):245–258, 2003.

Refereed Conference Proceedings

- [3] Rachel Kirby, Reid Simmons, and Jodi Forlizzi. COMPANION: A constraint-optimizing method for person-acceptable navigation. In *Proceedings of the IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, pages 607–612. Toyama, Japan, September 2009.
- [4] Rachel Kirby, Reid Simmons, and Jodi Forlizzi. Variable sized grid cells for rapid replanning in dynamic environments. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 4913–4918. St. Louis, MO, October 2009.
- [5] Rachel Gockley, Jodi Forlizzi, and Reid Simmons. Natural person-following behavior for social robots. In *Proceedings of Human-Robot Interaction*, pages 17–24. Arlington, VA, March 2007.
- [6] Rachel Gockley, Jodi Forlizzi, and Reid Simmons. Interactions with a moody robot. In *Proceedings of Human-Robot Interaction*, pages 186–193. Salt Lake City, Utah, March 2006.

- [7] Rachel Gockley and Maja Matarić. Encouraging physical therapy compliance with a hands-off mobile robot. In *Proceedings of Human-Robot Interaction*, pages 150–155. Salt Lake City, Utah, March 2006.
- [8] Rachel Gockley, Reid Simmons, and Jodi Forlizzi. Modeling affect in socially interactive robots. In *Proceedings of the 15th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, pages 558–563. Hatfield, United Kingdom, September 2006.
- [9] Rachel Gockley, Allison Bruce, Jodi Forlizzi, Marek Michalowski, Anne Mundell, Stephanie Rosenthal, Brennan Sellner, Reid Simmons, Kevin Snipes, Alan C. Schultz, and Jue Wang. Designing robots for long-term social interaction. In *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems*, pages 2199–2204. Edmonton, Alberta, August 2005.

Other Publications

- [10] Rachel Kirby. *Social Robot Navigation*. Ph.D. thesis, Carnegie Mellon University, Pittsburgh, PA, 2010. Tech. report CMU-RI-TR-10-13.
- [11] Rachel Gockley. Developing spatial skills for social robots. In *Proceedings of the AAI Spring Symposium on Multidisciplinary Collaboration for Socially Assistive Robotics*, pages 15–17. Palo Alto, CA, March 2007.
- [12] Rachel Gockley, Michael Marotta, Carin Rogoff, and Adrian Tang. AVIVA: a health and fitness monitor for young women. In *CHI Extended Abstracts*, pages 1819–1824. Montréal, Québec, Canada, April 2006.
- [13] Rachel Gockley, Reid Simmons, Jue Wang, Didac Busquets, Carl DiSalvo, Kevin Caffrey, Stephanie Rosenthal, Jessica Mink, Scott Thomas, William Adams, Thomas Laducci, Magda Bugajska, Dennis Perzanowski, and Alan Schultz. Grace and George: Social robots at AAI. *AAI 2004 Mobile Robot Competition*, 2004.

May 11, 2010