

# Irene Rae

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## EDUCATION

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Ph.D. in Computer Science, 2012–2015 (expected)

*Department of Computer Sciences, University of Wisconsin–Madison, Wisconsin*

**Committee:** Bilge Mutlu (Chair), Jeffrey Naughton, Leila Takayama, Catalina Toma, John D. Lee

**Dissertation:** How Telepresence Robots Shape Communication

M.S. in Computer Science, 2010–2012

*Department of Computer Sciences, University of Wisconsin–Madison, Wisconsin*

B.F.A., Industrial Design, 1996–2001

*School of Design, Rochester Institute of Technology, Rochester, New York*

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## RESEARCH INTERESTS

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My research goal is to employ an interdisciplinary mix of human-centric scientific and design methodologies to develop new ways to use computers to enhance everyday lives. Specifically, my research has focused on exploring how we may use computer and robotic technologies to improve the way that people communicate across distances. To this end, I study how the use of robotic telepresence systems shapes user communications, adding to our theoretical understanding of computer-mediated communication, and leverage this knowledge to explore the application of these systems in real-world scenarios.

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## RESEARCH EXPERIENCE

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Research Assistant, August 2010–Present

*Human-Computer Interaction Laboratory, Department of Computer Sciences, University of Wisconsin–Madison, Wisconsin*

- Ongoing research on how robotic telepresence shapes communications between users that are geographically disparate.

Research Intern, May 2013–August 2013

*Microsoft Research, Redmond, Washington*

- Completed a series of studies which explored shared telepresence experiences outside of the workplace, resulting in a publication to a major conference in the field.

Research Intern, May 2012–August 2012

*Willow Garage Inc., Menlo Park, California*

- Completed two studies, both investigating the effects of telepresence robots on the interaction between remote and local users. Each study resulted in a publication to a major conference in the field.
- Conducted a company-wide presentation and workshop on basic design principles and how they may be applied to research.

Research Intern, May 2011–August 2011

*Willow Garage Inc., Menlo Park, California*

- Completed two studies, one on using telepresence robots to improve group dynamics, and one on the effects of exposure to multiple robots. Each study resulted in a submitted publication to a major conference in the field.

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## FULL CONFERENCE PUBLICATIONS

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**Rae, I., Venolia, G., Tang, J., & Molnar, D.** (To Appear 2015). A Framework for Understanding and Designing Telepresence. In *Proceedings of the 2015 ACM conference on Computer Supported Cooperative Work, CSCW 2015*.

**Rae, I., Mutlu, B., & Takayama, L.** (2014). Bodies in Motion: Mobility, Presence, and Task Awareness in Telepresence. In *Proceedings of the 2014 annual conference on Human Factors in Computing Systems, CHI 2014*, 2153–2162.

**Rae, I., Takayama, L. & Mutlu, B.** (2013). In-body Experiences: Embodiment, Control, and Trust in Robot-Mediated Communication. In *Proceedings of the 2013 annual conference on Human Factors in Computing Systems, CHI 2013*, 1921–

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## FULL CONFERENCE PUBLICATIONS (CONTINUED)

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1930.

**Rae, I.**, Takayama, L. & Mutlu, B. (2013). The Influence on Height in Robot-Mediated Communication. In *8th ACM/IEEE International Conference on Human-Robot Interaction, HRI 2013*, 1-8.

**Rae, I.**, Takayama, L. & Mutlu, B. (2012). One of the Gang: Supporting In-group Behavior for Embodied Mediated Communication. In *Proceedings of the 2012 annual conference on Human Factors in Computing Systems, CHI 2012*, 3091-3100.

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## WORKSHOPS, CONSORTIUMS AND POSTERS

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**Rae, I.** (2014). How Robotic Telepresence Systems Shape Communication. In *Human Computer Interaction Consortium, HCIC 2014*.

**Rae, I.**, Takayama, L., Mutlu, B., & McCune, S. (2013). Effects of Dog Ownership on Social Cognition Skills. In *International Association of Human-Animal Interaction Organizations, 13th Triennial Conference, IAHAIO 2013*.

**Rae, I.** (2013). Using Robot-Mediated Communication to Improve Collaborative Outcomes. In *Doctoral Consortium Extended Abstracts of the 2013 annual conference on Human Factors in Computing Systems, CHI 2013*, 1953-1956.

**Rae, I.** (2011). Designing Public Behavior for Robots: How Gaze Cues Might Signal Availability For Interaction. In *Human Robot Interaction Pioneers Workshop, HRI Pioneers 2010*.

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## INVITED TALKS

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Workshop Presenter, October 2013

*Grace Hopper Celebration of Women in Computing, Minneapolis, Minnesota*

Title: Design Principles 101

Invited Talk, July 2013

*University of Washington DUB Seminar, Seattle, Washington*

Title: Using Robot-Mediated Communication to Improve Collaborative Outcomes

Seminar Presenter, February 2013

*University of Wisconsin–Madison Database Seminar, Madison, Wisconsin*

Title: The Influence of Height in Robot-Mediated Communication

Seminar Presenter, September 2012

*University of Wisconsin–Madison Database Seminar, Madison, Wisconsin*

Title: Design 101

Seminar Presenter, April 2012

*University of Wisconsin–Madison Database Seminar, Madison, Wisconsin*

Title: One of the Gang: Supporting In-Group Behavior for Embodied-mediated Communication

Poster Presenter, April 2011

*CRA-W Graduate Cohort Workshop, Boston, Massachusetts*

Title: Designing Public Behavior for Robots: How gaze cues might signal availability for interaction

Conference Presenter, October 2006

*Higher Education Web Developers, Rochester, New York*

Title: Versatility and Usability: Getting Back to the Basics

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## TEACHING EXPERIENCE

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Instructor for Introduction to Human-Computer Interaction, Spring 2014

*Department of Computer Sciences, University of Wisconsin–Madison, Madison, Wisconsin*

- Taught a class of 60 at an advanced undergraduate level on the methodologies and practices used in human-computer interaction and user interface design. Responsible for creating lecture material, assignments, projects, exams, and supervision of a TA grader.

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## TEACHING EXPERIENCE (CONTINUED)

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Guest Lecture for Seminar on Computer-Mediated Communication, Fall 2014  
*Department of Communication Arts, University of Wisconsin–Madison, Madison, Wisconsin*

Guest Lecture for Introduction to Human-Computer Interaction, Spring 2011, 2012  
*Department of Computer Sciences, University of Wisconsin–Madison, Madison, Wisconsin*

Guest Lecture for Information Visualization, Spring 2012  
*Department of Computer Sciences, University of Wisconsin–Madison, Madison, Wisconsin*

Guest Lecture for Human-Computer Interaction, Fall 2011  
*Department of Computer Sciences, University of Wisconsin–Madison, Madison, Wisconsin*

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## UNDERGRADUATE MENTORSHIP

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Research and Graduate Mentor, 2010–Present  
*University of Wisconsin, University of Wisconsin–Madison, Madison, Wisconsin*

- Brandi Hefty, 2014
- Nathalie Cheng (ACM-W), 2011

Lab Manager, 2012–Present  
*Human-Computer Interaction Laboratory, University of Wisconsin–Madison, Madison, Wisconsin*

- Brandi Hefty, 2012–Present
  - Jieni Peng, 2014–Present
  - Ethan Jesse, 2014–Present
  - Christopher Ward, 2014–Present
  - Ross Luo, 2013–2014
  - Jilana Boston 2012–2014
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## INDUSTRY EXPERIENCE

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Webmaster, February 2006–August 2010  
*IceCube Research Center, University of Wisconsin–Madison, Madison, Wisconsin*

- Managed and coordinated all web resources and application development for an international collaboration of 38 institutions.
  - Pioneered the brand identity of the project and designed 80% of materials for purposes such as education and outreach.
  - Completely restructured the information architecture of the project's web resources, both internal and external, which improved efficiency and increased the project's web presence and traffic.
  - Championed accessibility and usability on the external website, winning recognition from the university's Accessibility and Usability Committee.
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## HONORS & AWARDS

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Human Computer Interaction Consortium (HCIC) Student Invitee, June 2014  
*Human Computer Interaction Consortium, Watsonville, California*

LinkedIn Travel Scholarship, October 2013  
*Grace Hopper Celebration of Women in Computing, Minneapolis, Minnesota*

Heidelberg Laureate Forum Travel Scholarship, September 2013  
*Heidelberg Laureate Forum, Heidelberg, Germany*

MARS Travel Scholarship, July 2013  
*International Association of Human-Animal Interaction Organizations, 13th Triennial Conference, Chicago, Illinois*

NSF Travel Scholarship, October 2012  
*Grace Hopper Celebration of Women in Computing, Baltimore, Maryland*

Travel Scholarship, April 2011  
*8th CRA-W Graduate Cohort Workshop, Boston, Massachusetts*

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## HONORS & AWARDS (CONTINUED)

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HRI Pioneers Travel Scholarship, March 2011

*Human-Robot Interaction Pioneers Workshop, Lausanne, Switzerland*

Dean's List recognition

*Rochester Institute of Technology, Rochester, New York*

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## SERVICE WORK

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Conference Paper Referee

*ACM/IEEE International Conference on Human Factors in Computing Systems (CHI), 2012, 2014, 2015*

*ACM/IEEE International Conference on Human-Robot Interaction (HRI), 2011, 2013, 2014, 2015*

*ACM International Conference on Human-Agent Interaction (HAI), 2015*

*ACM/IEEE International Conference on Computer Supported Cooperative Work (CSCW), 2015*

*ACM International Conference on Multimodal Interaction (ICMI), 2012*

Social Chair, 2010-2013

*ACM-W, Women in Computer Science, University of Wisconsin Student Chapter, Madison, Wisconsin*

- Spearheaded initiatives to introduce outreach events to undergraduates in Computer Science, providing them with networking opportunities and encouraging interest in post-graduate education.

Student Volunteer, 2013

*8th ACM/IEEE International Conference on Human-Robot Interaction, Boston, Massachusetts*

- Aided in attendee registration, setup, teardown, and managing microphones during talks.

National Center for Women & Information Technology Aspirations Award Reviewer, 2012

*National Center for Women & Information Technology, Madison, Wisconsin*

- Reviewed 18 award applications for the NCWIT Award for Aspirations in Computing.

Welcome Weekend Coordinator, 2012

*Department of Computer Sciences, University of Wisconsin, Madison, Wisconsin*

- Managed the Computer Sciences Department Welcome Weekend, a two day event for accepted graduate students, coordinating lodging and travel arrangements, faculty presentations, one-on-one meetings, tours, workshops, and talks.

Web Chair, April 2011–2012

*7th ACM/IEEE International Conference on Human-Robot Interaction, Boston, Massachusetts*

- Performed administrative duties and coordinated content for the conference website.
- Provided design and web support for the centralization of past and future HRI conference websites.

Student Web & Design Volunteer, September 2010–April 2011

*6th ACM/IEEE International Conference on Human-Robot Interaction, Lausanne, Switzerland*

- Modified the layout of the HRI Journal website to fit with given design specifications.
- Designed the 65 page HRI 2011 conference program.

Head Coordinator, Volunteer, 2010-2012

*Cookie Brigade Volunteer Organization, Seattle, Washington & Boston, Massachusetts*

- Organized thirty volunteers to raise more than \$37,000 for Child's Play, an international charity for children's hospitals.