

Eric M. Meisner

Contact:

Email: meisne@cs.rpi.edu
Web: <http://www.cs.rpi.edu/~meisne>
Phone: (518) 276-2135

Address:

Department of Computer Science
Rensselaer Polytechnic Institute
110 8th Street
Troy NY, 12180

Education

- Ph.D. Computer Science Robotics, May 2009
Department of Computer Science
Rensselaer Polytechnic Institute, Troy NY
- B.S. Computer Science, May 2003
University of Rochester, Rochester NY

Dissertation

Thesis Advisors: Professor Volkan Isler & Professor Jeff Trinkle

Title: Learning Controllers for Human-Robot Interaction

Synopsis: This thesis addresses the problem of building social intelligence into robotic systems using computational learning and adaptive control. We focus on the problem of how to use decision theoretic planning for learning to interact with humans from the bottom up. We first examine the use of affect recognition in designing human-friendly control strategies. Next, we address the problem of defining subjective measures of interactivity by leveraging human expertise. Finally, we define and evaluate a method for participating in the process of socially situated cognition. We emphasize learning to predict and modulate observable responses of the human rather than attempting to directly infer their mental or emotional states. The effectiveness of this method is demonstrated experimentally using custom robotic systems.

Publications

Journal

- E. Meisner, Šabanović, Isler, Caporael, Trinkle **ShadowPlay: A Generative Model for Nonverbal Human-Robot Interaction** *Transactions on Robotics and Automation*. Note: Submitted
- E. Meisner, V. Isler, J.C. Trinkle **Controller Design for Human-Robot Interaction**. *Autonomous Robots vol. 24 num. 2 pages 123-134*, 2008.
- E. Meisner, W. Yang, V. Isler, **Probabilistic Network Formation through Coverage and Freeze-Tag** *Journal of Intelligent Service Robotics: Special Issue on Networked Robots: Serving the Society*. Note: Submitted.

Conference and Workshop

- Meisner, Das, Isler, Trinkle, Šabanović, Caporael. **Predictive State Representations for Grounding Human-Robot Interaction** *25th Conference on Uncertainty in Artificial Intelligence* Note: Submitted
- E. Meisner, Šabanović, Isler, Caporael, Trinkle **ShadowPlay: A Generative Model for Nonverbal Human-Robot Interaction** *4th ACM/IEEE International Conference on Human-Robot Interaction*. Note: Accepted, to appear ****Best Paper Award Finalist****

- Šabanović, E. Meisner, Caporalet, Isler, Trinkle **“Outside-in” Design for Interdisciplinary HRI Research** *2009 AAAI Spring Symposium on Experimental Design for Real-World Systems*.
- E. Meisner, W. Yang, V. Isler, **Probabilistic Network Formation through Coverage and Freeze-Tag** *Workshop on Algorithmic Robotics* 2008.
- S. Kamath, E. M. Meisner, and V. Isler. **Triangulation Based Multi Target Tracking with Mobile Sensor Networks**. In *Proc. IEEE Int. Conf. on Robotics and Automation* 2007.
- Thomas Kollar, Jonathan Schmid, Eric Meisner, Micha Elsner, Diana Calarese, Chikita Purav, Chris Brown, Jenine Turner, Dasun Peramunage, Gautam Altekar, Victoria Sweetser **Mabel: Extending Human Interaction and Robot Design**, *International Joint Conference on Artificial Intelligence proceedings* 2003
- Jonathan Schmid, Thomas Kollar, Eric Meisner, Victoria Sweetser, David Feil-Seifer, Chris Brown, Ben Atwood, Jenine Turner, Diana Calarese, Scott Cragg, Habib Chaudhary, Mike Isman **Mabel: Building a Robot for Human Interaction**, *American Association of Artificial Intelligence Conference proceedings* 2002

Presentations

- New England Manipulation Symposium Brown University 2008, *Controller Design for Human-Robot Interaction*
- Guest Lecture, Intro to Artificial Intelligence RPI, Spring 2008 *Temporal Probability Models*
- Ph.D Student Forum, NSF Symposium on Cyber-Enabled Discovery and Innovation, September 6, 2007 *Collaborative Discovery of Behavioral Dynamics for Socially Assistive Human-Robot Interaction*
- Walter Lincoln Hawkins Graduate Research Conference, Troy, NY, March. 2007 *Designing Controllers for Human-Robot Interaction*.

Research And Professional Experience

- **Graduate Research Assistant** Fall 2005 - Present
Robotics and Sensor Networks Laboratory
Department of Computer Science
Rensselaer Polytechnic Institute, Troy NY
- **Student Associate**
Summer 2005
Engineering and Systems Division
SRI International
Menlo Park CA.
Defense Advanced Research Projects Agency sponsored *Trauma Pod* project.
- **Undergraduate Research Assistant** January 2002 - July 2003
Department of Computer Science
University of Rochester, Rochester NY

Teaching

- **Teaching Assistant** Spring Semester 2004, Fall Semester 2006
Introduction to C++ programming
Department of Computer Science
Rensselaer Polytechnic Institute, Troy NY
Twice weekly lab sessions on the basics of programming in C++.
- **Teaching Assistant**, Spring Semester 2004
Problem Solving in Computer Science
Department of Computer Science

Rensselaer Polytechnic Institute, Troy NY Mixed lab and lecture, introduction to concepts in computer science using Scheme and C++.

- **Teaching Assistant**, Fall Semester 2003
Introduction to Artificial Intelligence
Department of Computer Science
Rensselaer Polytechnic Institute, Troy NY.
Topics including search, game play, knowledge representation, and machine learning.
- **Teaching Assistant**, Spring Semester 2002
Data Structures and Algorithms
Department of Computer Science
University of Rochester, Rochester NY.
Topics including Java programming, data structures and algorithm analysis. Tasks include grading problem sets and Java programming assignments.
- **Teaching Assistant**, Fall Semester 2000
Introduction to Computers
Department of Computer Science Department,
University of Rochester
Rochester, NY
Twice weekly lab sessions in Power point, HTML, UNIX, and EMACS

Honors

- Rush Rhees scholar, University of Rochester
- First place team, Association for the Advancement of Artificial Intelligence robot host competition 2002.
- First place team, International Joint Conferences on Artificial Intelligence robot host competition 2003.

Service

- **Web Content Manager** Fall 2007 Spring 2008 RPI Department of Computer Science, Troy NY
- **Organizer and Presenter** Accepted students day, and middle school outreach programs, Landgraf Center for Computer Vision, Graphics, and Robotics 2005-2008
- **Student Member**, Fall 2006 Spring 2007 Graduate Admissions Committee, RPI Department of Computer Science, Troy NY
- **Volunteer Tutor**, Fall 2000 to 2002 South West Community center, Rochester NY