

Alan R. Wagner

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Educational Background

Degree	Year	University	Field
Ph.D.	2009	Georgia Institute of Technology	Computer Science
M.S.	2001	Boston University	Computer Science
B.A.	1996	Northwestern University	Psychology

Employment History

Title	Organization	Description of Duties	Location	Dates
Research Scientist	Georgia Tech Research Institute	Conduct research and develop research proposals.	Atlanta, GA	2010-present
Postdoctoral Fellow	Georgia Tech Research Institute	Conduct research	Atlanta, GA	2010
Research Assistant	Georgia Institute of Technology Mobile Robot Lab	Research and development on several naval and DoD funded projects.	Atlanta, GA	2002-2009
Naval Research Laboratory	Department of the Navy	Research intern working on robot auditory system.	Washington D.C.	2008
Software Engineer	Symantec	Development of software for firewall applications	Waltham, MA	2000-2002
Software Engineer	Speedline Technologies	Development of software for industrial robotic platforms	Franklin, MA	1999-2000
Research & Development Engineer	MIT/Whitehead Institute for Biomedical Research	Construction of robotic platforms for DNA sequencing as part of the Human Genome Project	Cambridge, MA	1998-1999

Research Interests

My research falls under the rubric of Human-Robot Interaction (HRI). I focus on problems involving relationship development, interactive partner modeling, and trust. I explore these problems from the perspective of the robot, developing computational representations,

algorithms, and software to allow a robot to better interact with a human. My work is inherently interdisciplinary, drawing from research in game theory, neuroscience, and social psychology. I hope that the fruits of this research will positively influence both robotics and those that are to use robots in their lives.

I. Research and Creative Scholarship

A. Ph.D. Dissertation

- [S.1] **The Role of Trust and Relationships in Human-Robot Social Interaction**, Alan R. Wagner, Ph D. Dissertation, College of Computing, School of Interactive Computing, Georgia Institute of Technology, October 2009, Advisor: Ronald C. Arkin.

B. Published Journal Articles

- [J.3] **Moral Decision-making in Autonomous Systems: Enforcement, Moral Emotions, Dignity, Trust and Deception**, Ronald C. Arkin, Patrick Ulam, and Alan R. Wagner, *Proceedings of the IEEE Special Issue on Interaction Dynamics at the Interface of Humans and Smart Machines*, to appear.
- [J.2] **Acting Deceptively: Providing Robots with the Capacity for Deception**, Wagner, Alan R., and Ronald C. Arkin, *The International Journal of Social Robotics*, 3, pgs 5-26, 2011.
- [J.1] **Analyzing Social Situations for Human-Robot Interaction**, Wagner, Alan R., and Ronald C. Arkin, *Interaction Studies*, 10(2), 2008.

C. Conference Presentations with Proceedings (refereed)

- [C.7] **Robot Deception: Recognizing when a Robot Should Deceive**, Wagner, Alan, Ronald C. Arkin, Proceedings of IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA 2009). Daejeon, Korea, Dec. 2009.
- [C.6] **Creating and Using Matrix Representations of Social Interaction**, Wagner, Alan, Proceedings of IEEE 4th International Conference on Human-Robot Interaction (HRI 2009). San Diego, CA, Mar. 2009.
- [C.5] **Integrated Mission Specification and Task Allocation for Robot Teams - Design and Implementation**, Ulam, Patrick, Yoichiro Endo, Alan R. Wagner, Ronald C. Arkin, Proceedings of IEEE International Conference on Robotics and Automation (ICRA 2007). Rome, Italy, Apr. 2007.
- [C.4] **Multi-Robot User Interface Modeling**, Wagner, Alan R., Yoichiro Endo, Patrick Ulam, Ronald C. Arkin, In *Distributed Autonomous Robotics Systems 7*. M. Gini and R. Voyles (eds.). Tokyo, Japan, Springer-Verlag, 2006.
- [C.3] **A Framework for Situation-based Social Interaction**, Wagner, Alan R., and Ronald C. Arkin, Proceedings of the 15th International Symposium on Robot and Human Interactive Communication (RO-MAN 2006). Hatfield, United Kingdom, Sept. 2006. **Won best paper award.**
- [C.2] **Multi-Robot Communication-Sensitive Reconnaissance**, Wagner, Alan R., and Ronald C. Arkin, Proceedings of IEEE International Conference on Robotics and Automation (ICRA 2004). New Orleans, LA, USA, Apr. 2004.
- [C.1] **Internalized Plans for Communication-Sensitive Robot Team Behaviors**, Wagner, Alan R., and Ronald C. Arkin, Proceedings of IEEE International

Conference on Intelligent Robots and Systems (IROS 2003). Los Vegas, NV, USA, Oct. 2003.

D. Technical Reports (non-refereed)

- [TR.2] **Acting Deceptively: Providing Robots with the Capacity for Deception**, Wagner, Alan R., and Ronald C. Arkin, Technical report GIT-GVU-10-01, College of Computing, Georgia Institute of Technology, 2010.
- [TR.1] **Integrated Mission Specification and Task Allocation for Robot Teams - Part 2: Testing and Evaluation**, Ulam, Patrick, Yoichiro Endo, Alan R. Wagner, Ronald C. Arkin, Technical report GIT-GVU-07-02, College of Computing, Georgia Institute of Technology, 2007.

E. Workshops (refereed)

- [W.3] **Operator Responsibility and Lethality in Autonomous Combat Robotic Systems**, Arkin, Ronald C., Alan R. Wagner, Brittany Duncan, Proceedings of the ICRA 2009 Workshop on RoboEthics, May 17, 2009, Kobe, Japan.
- [W.2] **A Representation for Interaction**, Wagner, Alan R., Proceedings of the ICRA 2008 Workshop: Social Interaction with Intelligent Indoor Robots (SI3R). Pasadena, CA, USA. May 2008.
- [W.1] **Recent advances in high-throughput genomic sequencing: Magnetic Capture of Plasmids**, McKernan, Kevin, Paul McEwan, Will Morris, Nicole Stange-Thomann, Imani Torruella-Miller, Andrew Sheridan, Alan Wagner, Dudley Wyman, Boris Pavlin, James Benn, Eric S. Lander, Lauren Linton, DOE Human Genome Program Contractor-Grantee Workshop VII. Oakland, CA, USA. January 1999.

F. Abstracts (refereed)

- [A.2] **Using Stereotypes to Understand One's Interactive Partner**, Wagner, Alan R. Proceedings of the 9th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2010), Extended Abstract. Toronto, Canada. May 2010.
- [A.1] **A Preliminary System for Recognizing Boredom**, Jacobs, Allison M., Benjamin Fransen, J. Malcolm McCurry, Fredrick W.P. Heckel, Alan R. Wagner, J. Gregory Trafton, HRI 2009 Late-Breaking Abstracts. San Diego, CA, USA. March 2009.

G. Research Proposals and Grants

2009 HRI Pioneers Workshop

Sponsor: National Science Foundation Amount: \$24,950

PI: Henrik Christensen (co-authored grant proposal)

Submitted: Fall 2009. Funded: Fall 2009.

II. Teaching

A. Courses Taught

Semester	Course	Enrollment	Comments
Georgia Institute of Technology			
Spring 2010	CS 4002 <i>Robots and Society</i>	21	Guest lecture
Fall 2008	CS 7630 <i>Autonomous Robotics</i>	17	Teaching assistant at Korea University in

Spring 2007	CS 7630 <i>Autonomous Robotics</i>	23	Seoul, South Korea Guest lecture
Spring 2007	CS 4002 <i>Robots and Society</i>	25	Guest lecture
Boston University			
Spring 2001	CS 341 <i>Data structures with C++</i>	34	Sole instructor
Fall 2000	CS 341 <i>Data structures with C++</i>	31	Sole instructor

B. Individual Student Guidance

Undergraduate Individual Projects

1. Brittany Duncan, Computer Science, Georgia Institute of Technology. Fall 2007. Individual project during Fall of 2007.

Undergraduate Group Projects

1. Brittany Duncan and Sweta Vajjhala, Computer Science, Georgia Institute of Technology. Fall 2006-present.
Research: During the 2006-07 school year completed a research project entitled "Actor Scripts for Human-Robot Relationship Evaluation" as part of the Intel Opportunities Program.
Award: Second place 2007 Intel Opportunities Scholar Symposium, 2008 People's Choice Award; Third place 2008 Intel Opportunities Scholar Symposium

III. Service

A. Professional Memberships

1. Member, Institute of Electrical and Electronics Engineers (IEEE).
2. Member, American Association for Artificial Intelligence (AAAI).
3. Member, Association of Computing Machinery (ACM).

B. Conference Committee Activities

1. Organizing Committee, Building Representations of Common Ground with Intelligent Agents, AAAI Fall Symposium Series, 2011.
2. Chair, HRI Young Researcher's Workshop, 2009.
3. Co-Chair, HRI Young Researcher's Workshop, 2008.

C. On-Campus Activities

1. Ph D. Admissions Chair, College of Computing Graduate student council.
2. Member of Georgia Institute of Technology Robocup team, 2002-2004.

D. Reviewer

1. International Journal of Social Robotics (2009-2010).
2. 4th ACM/IEEE International Conference on Human Robot Interaction (2009).
3. Interaction Studies—Social Behavior and Communication in Biological and Artificial Systems (2009).

IV. Recognition

A. Awards

1. Time Magazine's Top 50 inventions of 2010 (#13).
2. Intel Opportunities Mentor Scholarship (2006-2008).
3. Georgia Institute of Technology President's Fellowship (2002-2007).
4. College of Computing Dean's Fellowship (2002-2006).
5. RO-MAN 2007 Best paper award.

B. Honor Societies

1. Upsilon Pi Epsilon International Honor Society.

C. Media

Over 70 articles were written about our work involving deceptive robots. The following is a sampling of those articles.

C.1 Print

- **New Scientist Magazine**, "Deceptive robots show theory of mind", Celeste Biever, Sept. 17, 2010.
- **National Defense**, "Will Robots be asked to Fool the Enemy?", Eric Beidel, Nov. 2010.
- **The Wall Street Journal**, "Lying Robots", Clayton M. McCleskey, Sept. 2010.
- **ACED Magazine**, "Everybody Lies—Even Robots", Jenna Benoussan, Sept. 12, 2010.
- **Science**, "The Real Decepticons", vol 329. Sept. 17, 2010.

C.2 Radio

- **ABC News Radio**, Jim Hickley, Sept. 15, 2010.
- **WABE Atlanta**, "GA Tech Researchers Study Deception in Robots", Jim Burrell, Sept. 12, 2010.

C.3 Television

- **Discovery Channel Canada**, story about the Robots and Deception, Beth Macdonell, to appear.

C.4 Internet

- **AOL News Media**, "Pentagon-Funded Researchers Create Deceptive Robots", Sharon Weinberger, Sept. 16, 2010.
- **CBS News online**, "Researchers Report Teaching Robots to Lie", Sept. 10, 2010.
- **Electronics Weekly**, "Game theory teaches robots how to deceive", Steve Bush, Sept. 10, 2010.
- **CBS 42**, "Sneaky Robots", Kalee Dionne, Sept. 10, 2010.
- **TG Dailey**, "Team teaches robots to deceive", Emma Woollacott, Sept. 10, 2010.
- **The Register**, "Robots capable of 'deceiving humans' built by crazed boffins", Lewis Page, Sept. 10, 2010.
- **Gizmag**, "Robots taught to deceive", Ben Coxworth, Sept. 9, 2010.
- **Popular Science**, "Military Research Teaches Robots How to Deceive Each Other", Clay Dillow, Sept. 9, 2010.

V. Other Contributions

A. Invited Talks

1. ONR Science of Autonomy Workshop, April 2011.
2. DePaul University, Invited Speaker, Chicago, IL February 2011.
3. Naval Research Laboratory, ONR Science of Autonomy Workshop, June 2010.
4. Texas A&M, Invited Speaker, College Station, TX January 2009.

VI. Personal

A. Skills

- Programming: C, C++, C#, Java, JavaScript, HTML, XML, Pascal, Basic, Visual Basic.

B. Biographical

Citizenship: United States
Hobbies:

- Hiked to 35 state highpoints
- Skydiving
- Skiing

References: Available upon request