Samuel Spaulding

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Education

- **Massachusetts Institute of Technology** **Cambridge, MA**
  Graduate Research Assistant & S.M. Candidate *Personal Robots Group, MIT Media Lab*
  Advisor: Cynthia Breazeal *2013 - present*
  - **Research Focus**: I am working on applications of Artificial Intelligence for Human-Robot Interaction, specifically designing and building robotic systems that exhibit social intelligence, are easy for people to interact with, and can provide engaging and educational experiences. I am particularly interested in designing robots that can build models of students based on multi-modal, affective data in educational tutoring interactions.
  - **Relevant Coursework**: How to Make (almost) Anything, Affective Computing, Mixed Multi-Agent Networks, The Human Intelligence Enterprise
- **Yale University** **New Haven, CT**
  B.S. with Distinction, Computer Science *2009-2013*

Work Experience

- **Disney Research - Boston** **Cambridge, MA**
  Research Associate *Summer 2012*
  Advisor: Jonathan Yedidia
  - Worked on a Machine Learning research project. As a member of a Natural Language Processing research team, I was integrally involved in design, implementation, testing, and production of a prototype sentiment analysis system for Walt Disney Imagineering.
  - Our project, **"Making Sense of the Blogosphere: Semantic Analysis of Text Mined from the Web"** won the **Judges' Special Distinction - Methodology** award in the company-wide 2012 Business Intelligence and Data Analytics Competition
- **Amazon.com** **Seattle, WA**
  Software Development Engineer Intern *Summer 2011*
  - Designed and developed a website that produced dynamic client-side graphs based on internal team metrics. Responsible for the project from design, through implementation, and into production.
  - Member of a four-person team whose submission, an Android app called "SmileIKnow" was a finalist at the 2011 Amazon Mobile Security Hackathon
- **Yale Social Robotics Laboratory** **New Haven, CT**
  Undergraduate Research Assistant *Summer 2010 - May 2013*
  Advisor: Brian Scassellati
  - Responsibilities included designing, implementing, and testing AI/Robotics systems and conducting Human-Robot Interaction research.

Publications

Peer-Reviewed Conference Publications

[C3] W. Bradley Knox, **Samuel Spaulding**, and Cynthia Breazeal. **"Learning from the Wizard: Programming Socially Interactive Robots through Teleoperated Demonstrations** *Under review for* Robotics: Science and Systems 2015 (R:SS 2015).

[C2] Dan Leyzberg, **Samuel Spaulding**, and Brian Scassellati. **"Personalizing Robot Tutors to Individuals' Learning Differences"** Presented at the 9th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2014).

[C1] Dan Leyzberg, **Samuel Spaulding**, Mariya Toneva, and Brian Scassellati. **"The Physical Presence of a Robot Tutor Increases Cognitive Learning Gains"** Presented at the 34th Annual Meeting of the Cognitive Science Society (Cog Sci 2012)

Peer-Reviewed Workshop Papers

[W3] **Samuel Spaulding** and Cynthia Breazeal. **"Affect and Inference in Bayesian Knowledge Tracing with a Robot Tutor"** Presented at the 2015 HRI Pioneers Workshop

[W3] **Samuel Spaulding** and Cynthia Breazeal. **"Exploring Child-Robot Tutoring Interactions With Bayesian Knowledge Tracing"** Presented at the 2014 AAAI Fall Symposium on Artificial Intelligence for Human-Robot Interaction (AI-HRI).

[W2] W. Bradley Knox, **Samuel Spaulding**, and Cynthia Breazeal. **"Learning Social Interaction from the Wizard: A Proposal"** Presented at the 3rd Workshop on Machine Learning for Interactive Systems (MLIS '14) at AAAI 2014.

[W1] **Samuel Spaulding** and Cynthia Breazeal. **"Animacy Perception and Mind Attribution in a Cognitive Architecture for Human-Robot Interaction"** Presented at the Workshop on Cognitive Architectures for Human-Robot Interaction at HRI 2014.

Conference Presentations

2014 9th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2014). Presented publication [C2] **"Personalizing Robot Tutors to Individuals' Learning Differences"**

Invited Talks

2014 Invited Speaker, **"Fascinating Alumni: Short Talks"**, Jonathan Edwards College Reunion
2014 Guest Lecturer, MAS.111 - Media Arts & Sciences Freshman Seminar
2013 Invited Speaker, Yale Undergraduate Science Symposium
2013 Invited Speaker, Yale Engineering and Science Weekend Symposium
2013 TEDx Speaker, **"TEDxYale: Solve for Y"** Conference
2012 Invited Speaker, Yale Undergraduate Science Symposium
2012 Invited Speaker, Yale Engineering and Science Weekend Symposium
2010 Invited Panelist, Yale Computer Science Department, **IBM Jeopardy! Challenge Discussion**

Awards

2013-2016 **National Science Foundation Graduate Research Fellowship**
Awarded 3 year fellowship to support graduate education in A.I. and Robotics

2015 **HRI Pioneer**
Selected and awarded funding support to attend the Human-Robot Interaction (HRI) Pioneers workshop, a highly selective workshop that seeks to foster creativity and collaboration across the disciplines of HRI researchers

2013 **Mellon Undergraduate Research Grant**
Awarded funding support to attend HRI 2013 in Tokyo, Japan.

2012 **Sigma Xi Undergraduate Research Award**
Awarded funding support and membership in Sigma Xi Scientific Society for exceptional undergraduate research

2011 **First Place, Academic Competition Federation (ACF) National Championship**
As part of Yale's Quiz Bowl team, won the premier national event for collegiate academic quiz competition.

2010 **Jeopardy! College Championship, First Runner-up**
Won 3 of 4 games and second place overall in the Season 27 Jeopardy! College Championship

Professional Service

Reviewer: AAAI (2014), HRI (2015)
Panel Chair: *HRI Pioneers Workshop 2016* (upcoming)
Responsible for organizing the Pioneers workshop panel, determining topics, soliciting members, and hosting/moderating.
Workshop Organizer: *Student Technical Workshop*, NSF Expedition on Socially Assistive Robotics
With students at partner insitutions, drafted budget, solicited and curated submissions, and coordinated program.

Technical Skills

Software: Extensive experience with Object-Oriented (Java/C/C++), Functional (LISP), and Scripting (Ruby/Python) Languages as well as MATLAB and R. Strong Web Development and Design skills including HTML/CSS/Javascript and Ruby on Rails. Experienced with Android mobile development.

Hardware: Significant fabrication training and experience with: Laser Cutter, Vinyl Cutter, CNC Mill, Molding/Casting, Composite Materials, and 3D Printing. Significant electronics experience, including PCB design and fabrication, and circuit design for radio, motor, and sensing applications with mobile robots.

Robots: Extensive experience developing and maintaining hardware and software for multiple commercial and in-house robotic platforms, including significant development experience with ROS and OpenCV.

Commercial robots: iRobot Create, Aldebaran Nao, and BeatBots Keepon.
In-house robots: 57 DOF Mobile-Dexterous-Social (MDS) Humanoid platform, 6 DOF Dragonbot platform, and 5 DOF Affective Intelligent Driving Agent (AIDA)

Teaching Experience

2012 **Course Assistant,** CS 201: Introduction to Computer Science, Yale University. Tutored introductory Computer Science students 5 hours per week. Covered basic concepts like recursion through more advanced topics like formal language theory, logic, and computability theory.