

ADITI RAMACHANDRAN

Social Robotics Lab, Yale University
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RESEARCH INTERESTS

Human-Robot Interaction (HRI), Human-Computer Interaction (HCI), Tutoring Systems, Educational Technology, Robotics, User Modeling, Machine Learning

EDUCATION

Ph.D. Computer Science 2012 - current	Yale University Thesis topic: <i>Personalization Within Robot-Child Tutoring Interactions</i> Advisor: Brian Scassellati Area of study: Social Robotics
M.S., M.Phil Computer Science 2012 - 2015	Yale University Advisor: Brian Scassellati Area of study: Social Robotics
B.S. Computer Science & Mathematics 2006 - 2010	Georgetown University Thesis: <i>Re-identification Matching Across Social Network Sites</i> Advisor: Lisa Singh GPA: 3.86/4.00 Honors: Magna Cum Laude, Phi Beta Kappa

RESEARCH POSITIONS

Yale University Social Robotics Lab, Graduate Research Assistant

Studying the effects of socially assistive robots in novel application domains funded by NSF Expedition grant. Designed, implemented, and conducted multiple human-robot interaction studies in which children interact with autonomous robots within educational settings. Currently conducting research involving robots as autonomous one-on-one tutoring agents, with the goal of providing personalization within tutoring interactions. Specifically investigating various supportive behaviors that a robot tutor can provide to children during math-based tasks.

2012-present

Georgetown University, Undergraduate Research Assistant

Completed research project with faculty member in the Department of Computer Science involving reidentification and matching publicly available data from different social networks to correctly identify a person. Wrote scripts to automate the collection of public data from social networking websites. Examined the role that friendship links within social networks have in matching users across datasets.

2009-2010

WORK EXPERIENCE

<p>The MITRE Corporation, Artificial Intelligence Engineer</p> <p>Worked on two projects involving agent-based modeling for government sponsors. Specifically, conducted a sensitivity analysis of a counterinsurgency agent-based model, and generated novel data visualization products used for output analysis. Contributed to a research project by applying self-organizing maps to pixel classification of hyperspectral images. Implemented an efficient path planner for agents in a large agent-based model.</p>	2010-2012
<p>National Security Agency, Computer Science Summer Intern</p> <p>Completed the Computer Science Intern Program and held top secret clearance. Developed software to assess a variety of short path measures between two nodes within complex networks. Applied advanced clustering techniques to discriminate between possible origins of intercepted foreign communications. Extended Java skills to include XML digestion and Java XML binding, relational database connectivity and use of Hibernate for object-relational mapping, and JFreeChart, an open-source visualization suite.</p>	2009
<p>Carnegie Mellon University, Summer Applied Mathematics Institute Summer Intern</p> <p>Completed a course on mathematical finance and a course on using the program Maple at CMU. Worked on a project investigating interest rate modeling under the guidance of a graduate student. Attended seminars on current topics in mathematical research.</p>	2008

TEACHING

<p>Intelligent Robotics, Yale University</p> <p>Teaching Assistant, 4 semesters</p> <p>Graded assignments and held weekly office hours, extra help meetings, and exam review sessions for students in this upper level course. Designed problem sets with other TAs relevant to the class material.</p>	2013-2016
<p>Introduction to Computer Science, Georgetown University</p> <p>Teaching Assistant, 1 semester</p> <p>Graded assignments and held weekly office hours for students in this introductory computer science course for undergraduate majors.</p>	2009
<p>Introduction to Computer Science for Non-Majors, Georgetown University</p> <p>Teaching Assistant and Lab Instructor, 3 semesters</p> <p>Independently conducted a lab portion of an introductory computer science class. Taught basic html and JavaScript programming. Graded homework and projects and held office hours to assist students with questions and provide extra help.</p>	2007-2008

AWARDS

<p>Best Paper Award Nominee for “Studies of HRI”, Human-Robot Interaction (HRI)</p>	2016
<p>HRI Pioneer</p>	2015
<p>CRA-W Grad Cohort</p>	2015
<p>Best Student Paper Award, Privacy, Security, and Trust (PST)</p>	2012

Clare Boothe Luce Scholarship

Provided financial support covering full tuition, room and board, and additional expenses for two years at Georgetown University. Awarded to one STEM student per year at Georgetown.

2008-2010

PUBLICATIONS

Under Review

- U1 **Ramachandran, A.**, Huang, C.-M., and Scassellati, B. (Under review). Toward Effective Robot-Child Tutoring: Internal Motivation, Behavioral Intervention, and Learning Outcomes.

Peer-Reviewed Conference Papers

- C6 **Ramachandran, A.**, Huang, C.-M., Gartland, E., and Scassellati, B. (2018). Thinking aloud with a tutoring robot to enhance learning. In *ACM/IEEE International Conference on Human-Robot Interaction*, pages 59–68
- C5 **Ramachandran, A.**, Huang, C.-M., and Scassellati, B. (2017). Give me a break!: Personalized timing strategies to promote learning in robot-child tutoring. In *ACM/IEEE International Conference on Human-Robot Interaction*, pages 146–155
- C4 **Ramachandran, A.**, Litoiu, A., and Scassellati, B. (2016). Shaping productive help-seeking behavior during robot-child tutoring interactions. In *ACM/IEEE International Conference on Human Robot Interaction*, pages 247–254
Nominated for best paper award for “Studies of HRP”!
- C3 Hayes, B., Grigore, E. C., Litoiu, A., **Ramachandran, A.**, and Scassellati, B. (2014). A developmentally inspired transfer learning approach for predicting skill durations. In *IEEE International Conference on Development and Learning and Epigenetic Robotics (ICDL-Epirob)*, pages 181–186
- C2 Short, E., Swift-Spong, K., Greczek, J., **Ramachandran, A.**, Litoiu, A., Grigore, E. C., Feil-Seifer, D., Shuster, S., Lee, J. J., Huang, S., and others (2014). How to train your dragonbot: Socially assistive robots for teaching children about nutrition through play. In *IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, pages 924–929
- C1 **Ramachandran, A.**, Singh, L., Porter, E., and Nagle, F. (2012). Exploring re-identification risks in public domains. In *IEEE International Conference on Privacy, Security and Trust (PST)*, pages 35–42
Best student paper award!

Peer-Reviewed Workshop Papers

- W4 Strohkorb, S., Huang, C.-M., **Ramachandran, A.**, and Scassellati, B. (2016). Establishing sustained, supportive human-robot relationships: Building blocks and open challenges. In *Proceedings of the AAAI Spring Symposium: Enabling Computing Research in Socially Intelligent Human-Robot Interaction*
- W3 **Ramachandran, A.** and Scassellati, B. (2015). Developing adaptive social robot tutors for children. In *Proceedings of the AAAI Fall Symposium: Artificial Intelligence and Human-Robot Interaction (AI-HRI)*
- W2 **Ramachandran, A.** and Scassellati, B. (2015). Fostering learning gains through personalized robot-child tutoring interactions. In *Proceedings of ACM/IEEE International Conference on Human-Robot Interaction Extended Abstracts*, pages 193–194
- W1 **Ramachandran, A.** and Scassellati, B. (2014). Adapting difficulty levels in personalized robot-child tutoring interactions. In *Proceedings of the 3rd Workshop on Machine Learning for Interactive Systems: Bringing the Gap between Perception, Action, and Communication (MLIS) at AAAI*

Theses

T1 Ramachandran A. 2010. Re-identification Matching Across Social Network Sites. Undergraduate thesis, Department of Computer Science, Georgetown University.

REFEREEING: CONFERENCES AND JOURNALS

ACM/IEEE International Conference on Human-Robot Interaction (HRI)	2015-2018
ACM Transactions on Human-Robot Interaction (THRI)	2017
IEEE International Conference on Robotics and Automation (ICRA)	2017
International Conference on Intelligent Virtual Agents (IVA)	2017
International Journal of Social Robotics (IJSR)	2016, 2017
International Journal of Robotics Research (IJRR) – Special Issue on HRI	2016
IEEE Symposium on Robot and Human Interactive Communication (RO-MAN)	2016
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)	2014-2016
AAAI Fall Symposium on Artificial Intelligence in Human-Robot Interaction (AI-HRI)	2015
International Conference on Social Robotics (ICSR)	2015
AAAC International Conference on Affective Computing and Intelligent Interaction (ACII)	2015

ACTIVITIES AND OUTREACH

Robotics Outreach Regularly participate in a variety of outreach activities showcasing robots from the Yale Social Robotics Lab at open houses, visits to local schools, and public events.	2012-present
Yale Jashan Bhangra Dance Team Led team as co-captain for 2013-2014 academic year. Performed at several national competitions.	2012-present
DC Metro Punjabi Arts Academy Dance Team	2010-2012
Georgetown Jawani Bhangra Dance Team	2008-2010
Georgetown University Peer Advisor Advised and mentored incoming math majors	2007-2010
Georgetown University South Asian Society Choreographed for and actively participated in Rangila, Georgetown's largest annual cultural show.	2006-2010