Aditi Ramachandran

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EDUCATION:

PhD, Yale University, August 2012 – current
Field: Computer Science
Advisor: Dr. Brian Scassellati, Yale Social Robotics Lab

M.Phil, Yale University, August 2012 – May 2015
Advisor: Dr. Brian Scassellati, Yale Social Robotics Lab

M.S., Yale University, August 2012 – May 2015
Relevant Coursework:

- Data Mining, Artificial Intelligence, Computational Complexity, Intelligent Robotics, Operating Systems, Database Systems, Computer Networks, Computability & Logic

B.S., Georgetown University, August 2006 – May 2010
Major: Mathematics, Computer Science
GPA: 3.86/4.00
Honors: Magna Cum Laude, Phi Beta Kappa
Relevant Coursework:

- Probability and Statistics, Linear Algebra, Foundations of Mathematics, Ordinary Differential Equations, Analysis I, Analysis II, Complex Analysis, Abstract Algebra, Mathematical Statistics
- Computer Science I and II, Data Structures and Algorithms, Advanced Programming, Math Methods for Computer Science, Machine Learning, Programming Languages, Computer Hardware Fundamentals, Algorithms, Intro to Databases, Information Retrieval

Awards:

- Clare Boothe Luce Scholarship: awarded for August 2008-May 2010
  Financial support covering full tuition, room and board, and additional expenses
- First Honors: Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009
- Second Honors: Fall 2009, Spring 2010
- Dean's List: Fall 2006

RESEARCH EXPERIENCE:

Yale University Social Robotics Lab – Research Assistant *Aug 2012 – current*
Working on projects funded by NSF Expedition grant involving socially assistive robotics. Collaborated with partner institutions to assemble and program robot named DragonBot. Implemented and conducted human-robot interaction study in which DragonBot helps children learn about healthy food choices. Currently working on research involving robots as tutors, with the goal of providing personalization within tutoring interactions. Specifically investigating help-seeking behaviors employed by children during a math-based interaction with a social robot.

Georgetown University Dept. of Computer Science – Research Assistant *Jan 2009-May 2010*
Worked on research project with faculty member involving reidentification and matching publicly available data from different social networks to correctly identify a person. Wrote several Python 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.

WORK EXPERIENCE:

The MITRE Corporation – Artificial Intelligence Engineer *Aug 2010-June 2012*
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. Worked on a research project involving applying self-organizing maps to pixel classification of hyperspectral images. Worked on implementing an efficient path planner for agents in a large agent-based model.

National Security Agency – Computer Science Intern *May - Aug 2009*

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.

Carnegie Mellon University – Summer Applied Mathematics Institute *May - July 2008*

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.

TEACHING EXPERIENCE:

Yale University Dept. of Computer Science – Teaching Assistant *Aug – Dec 2013, Jan – May 2015*

Graded assignments for students of upper level course called Intelligent Robotics. Held weekly office hours, extra help meetings, and review sessions for exams. Designed problem sets with other TAs relevant to the class material.

Georgetown University Dept. of Computer Science – Teaching Assistant *Aug 2007-May 2009*

Conducted a lab portion of an introductory computer science class. Taught basic html and JavaScript programming. Graded homework and projects. Held office hours to assist students with questions and provide extra help.

PUBLICATIONS:

Peer-reviewed Conference Publications:

Bradley Hayes, Elena Corina Grigore, Alexandru Litoiu, **Aditi Ramachandran**, Brian Scassellati. 2014. A Developmentally Inspired Transfer Learning Approach for Skill Proficiency Assessment. In 4th International Conference on Development and Learning and on Epigenetic Robotics (ICDL 2014). IEEE, Genoa, Italy, October 13-16.

Elaine Short, Katelyn Swift-Spong, Jillian Greczek, **Aditi Ramachandran**, Alexandru Litoiu, Elena Corina Grigore, David Feil-Seifer, Samuel Shuster, Jin Joo Lee, Shaobo Huang, Svetlana Levonisova, Sarah Litz, Jamy Li, Gisele Ragusa, Donna Spruijt-Metz, Maja Mataric, Brian Scassellati. 2014. How to Train Your DragonBot: Socially Assistive Robots for Teaching Children About Nutrition Through Play. In Robot and Human Interactive Communication, 2014 (ROMAN 2014). IEEE, Edinburgh, United Kingdom, August 25-29.

Aditi Ramachandran, Lisa Singh, Edward Porter, Frank Nagle. 2012. Exploring Reidentification Risks in Public Domains. In the Proceedings of the Conference on Privacy, Security, and Trust (PST 2012). IEEE, Paris, France, July 16-18. *Best student paper award!*

Peer-reviewed Workshop Publications:

Aditi Ramachandran, Brian Scassellati. 2015. Fostering Learning Gains Through Personalized Robot-Child Tutoring Interactions. In Proceedings of the HRI Pioneers Workshop at the Tenth ACM/IEEE Conference on Human-Robot Interaction (HRI 2015). Portland, Oregon, USA, March 2.

Aditi Ramachandran, Brian Scassellati. 2014. Adapting Difficulty Levels in Personalized Robot-Child Tutoring Interactions. In Proceedings of the 3rd Workshop on Machine Learning for Interactive

Systems: Bridging the Gap between Perception, Action and Communication (MLIS '14) in Workshops at the Twenty-Eighth AAAI Conference on Artificial Intelligence. ACM, Quebec City, QC, Canada, July 28.

Theses:

Aditi Ramachandran. 2010. Re-identification matching across social network sites—A senior thesis. Technical Report CSTR-20100505-5. Department of Computer Science, Georgetown University, Washington, DC 20057.

REVIEWING:

- International Conference on Social Robotics: 2015
- AAAC International Conference on Affective Computing and Intelligent Interaction (ACII): 2015
- ACM/IEEE International Conference on Human-Robot Interaction (HRI): 2015
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS): 2014, 2015
- IEEE International Workshop on Advanced Robotics and its Social Impacts: 2014

ACTIVITIES/ORGANIZATIONS:

Robotics Outreach August 2012 - present
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.

Yale Jashan Bhangra Dance Team August 2012 - present
Co-captain for 2013-2014 academic year

GU Jawani Bhangra Dance Team, DC Metro Punjabi Arts Academy Dance Team Aug 2008 – June 2012

Georgetown University Peer Advisor May 2007 – May 2010
Advised and mentored incoming math majors

Georgetown University South Asian Society Member/Choreographer Aug 2006 – May 2010
Choreographed for and actively participated in Rangila, Georgetown's largest annual cultural show, in addition to other SAS activities throughout each year.

COMPUTER SKILLS:

Programming: C, C++, Java, Python, some Javascript, HTML, SQL
Development Environments: Vim, Xcode, Eclipse
Versioning: Git, SVN