

SHEN LI

100 Memorial Drive, Apt 11-20B, Cambridge, MA, 02142
shenli@mit.edu ◦ <http://shentheman.com>
(814) 777-7988

Education

Carnegie Mellon University, Pittsburgh, PA Aug. 2015-May 2017

M.S. in Robotics GPA: 3.57/4.00

Research Advisor: [Prof. Siddhartha Srinivasa](#) and [Prof. Stephanie Rosenthal](#)

The Pennsylvania State University, State College, PA Aug. 2011-May 2015

B.S. in Computer Science and B.S. in Psychology

Computer Science Major GPA: 3.96; Psychology Major GPA: 3.81; Cumulative GPA: 3.89/4.00

Research Advisors: [Prof. Sean Brennan](#), [Prof. Frederick Brown](#), and [Prof. Cynthia LaJambe](#)

Publications

Peer-Reviewed Conference Papers

- **Shen Li**, and Julie Shah. "[Safe and Efficient Obstacle Avoidance Motion Planning within Space-time with Time Parameterized Prediction.](#)" IROS. 2018. (*submitted*)
- **Shen Li***, Rosario Scalise*, Henny Admoni, Stephanie Rosenthal, and Siddhartha Srinivasa. "[Evaluating Critical Points in Trajectories.](#)" RO-MAN. 2017.
- **Shen Li***, Rosario Scalise*, Henny Admoni, Stephanie Rosenthal, and Siddhartha Srinivasa. "[Spatial references and perspective in natural language instructions for collaborative manipulation.](#)" RO-MAN. 2016.

Peer-Reviewed Workshop Papers

- **Shen Li***, Rosario Scalise*, Henny Admoni, Stephanie Rosenthal, and Siddhartha Srinivasa. "[Perspective in Natural Language Instructions for Collaborative Manipulation.](#)" R:SS Workshop on Model Learning for Human-Robot Communication. 2016.

Peer-Reviewed Journal Articles

- Rosario Scalise*, **Shen Li***, Henny Admoni, Stephanie Rosenthal, and Siddhartha Srinivasa. "[Natural Language Instructions for Human-Robot Collaborative Manipulation.](#)" IJRR. 2018.

Thesis

- **Shen Li**. "[Automatically Evaluating and Generating Clear Robot Explanations.](#)" Thesis for Master of Science in Robotics at RI, CMU. 2017.

Research Experience

Interactive Robotics Group, MIT

Jul. 2017-Present

Research Specialist, advised by [Prof. Julie Shah](#)

- Designed and programmed a robotic system for a mobile manipulator to perform online activity segmentation and classification, perception, and planning for navigation, manipulation, and grasping to assist humans in automotive final assembly.
- Successfully demonstrated the live activity recognition and robotic system at Honda manufacturing plant in Marysville, OH.
- Developed an algorithm to plan safe and efficient trajectories in real time to avoid fast moving obstacles in human-robot collaborative environments, given time parameterized motion predictions (*submitted to IROS'18*).

Personal Robotics Lab, CMU

Aug. 2015-May 2017

M.S. Researcher, advised by [Prof. Siddhartha Srinivasa](#) and [Prof. Stephanie Rosenthal](#)

- Designed a user study, developed an online interface, crowdsourced a corpus, and investigated what instructions that people would give to instruct their partners to pick up certain objects from the table (*RO-MAN'16, R:SS'16, IJRR'18*).
- Developed an algorithm to automatically generate referring expressions to clearly describe objects in cluttered environments (*M.S. Thesis'17*).
- Demonstrated the algorithm on a Kinova Mico robot arm to make it describe the blocks it was going to pick up before actually doing it in a collaborative tabletop manipulation task.
- Designed a user study, developed an online interface, crowdsourced a dataset, and investigated how well demonstrations of robot behaviors could help humans understand the robot cost functions (*RO-MAN'17*).

Intelligent Vehicles and Systems Laboratory, Penn State

May 2014-July 2014

Undergraduate Researcher, advised by [Prof. Sean Brennan](#)

- Assembled, calibrated, and programmed a sensing system for stair and curb detection on an indoor autonomous wheelchair for Amyotrophic Lateral Sclerosis and Cerebral Palsy patients.
- Implemented Hough Transform and Ray Casting to enable the wheelchair to find obstacle-free steering directions with LiDAR and expedited this process via Split-and-Merge.

Human Performance Rhythms Laboratory, Penn State

Aug. 2013-Dec. 2014

Undergraduate Researcher, advised by [Prof. Frederick Brown](#) and [Prof. Cynthia Lajambe](#)

- Programmed Psychomotor Vigilance Task (PVT) and minimized the visual distracting stimuli in C++ to investigate how sleep deprivation affected human alertness and voice.

Access Control List Research, Penn State

Sept. 2013-Dec. 2013

Undergraduate Researcher, advised by [Prof. Anna Squicciarini](#)

- Designed and developed an online user study interface to investigate how people affected each other in group decision-making processes.

Teaching Experience

SIE International Summer School

June 2013-Aug. 2013

Teaching Assistant for [Prof. Edward Chang](#)

Beijing, China

- Introduction to Psychology
- Human Sexuality

Awards and Honors

Full scholarship from advisors at Carnegie Mellon University	Jan. 2016-May 2017
Member of the Honor Society of Phi Kappa Phi	2014-Present
Dean's List at the Pennsylvania State University	Aug. 2011-May 2015
First Place in the Brown Bag Circuit Design Competition at Penn State	Sept. 2014

Academic Services

Reviewer for RO-MAN	2016
Reviewer for RO-MAN	2017
Reviewer for AAMAS	2018
Reviewer for HRI	2018

Media Publicity

Prof. Stephanie Rosenthal's article about our work <i>Why Did the Robot Do That</i> is on Y-combinator!	Dec. 2016
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Technical Skills

Programming	Python, C++, MATLAB, Java, C, C#, PHP, jQuery, HTML, CSS, JavaScript, \LaTeX , Android, Verilog, Assembly languages
Software	ROS, Gazebo, MoveIt!, GraspIt!, Scikit-Learn, PyTorch, Matplotlib, pcl, OpenCV, ROSBridge, VICON, pdb, gdb, Git, Boost Graph Library, OpenRave, OMPL, ARGoS, PIL, SPSS, Arduino, Unity, MySQL
Operating Systems	Linux, Mac, Windows