SHEN LI

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Education

Carnegie Mellon University   08/15-05/17

   M.S. in Robotics   GPA: 3.57
   Research Advisor: Prof. Siddhartha Srinivasa and Prof. Stephanie Rosenthal

The Pennsylvania State University   08/11-05/15

   B.S. in Computer Science and B.S. in Psychology, both with high distinction
   Computer Science Major GPA: 3.96; Psychology Major GPA: 3.81; Cumulative GPA: 3.89

Publications[1]

Peer-Reviewed Journal Articles

   2 Ankit Shah, Pritish Kamath, **Shen Li**, Patrick Craven, Kevin Landers, Kevin Oden, and Julie Shah. Supervised Bayesian Specification Inference from Demonstrations. IJRR. 2019. (In review).

   1 Rosario Scalise*, **Shen Li***, Henny Admoni, Stephanie Rosenthal, and Siddhartha Srinivasa. Natural Language Instructions for Human-Robot Collaborative Manipulation. IJRR. 2018.

Peer-Reviewed Conference Papers

   6 **Shen Li** and Julie Shah. Safe and Efficient High Dimensional Motion Planning in Space-Time with Time Parameterized Prediction. ICRA. 2019.

   5 Tariq Iqbal, **Shen Li**, Christopher Fourie, Bradley Hayes, and Julie Shah. Fast Online Segmentation of Activities from Partial Trajectories. ICRA. 2019.

   4 Ankit Shah, Pritish Kamath, **Shen Li**, and Julie Shah. Bayesian Inference of Temporal Task Specifications from Demonstrations. NeurIPS. 2018.

   3 Changjoo Nam, Huao Li, **Shen Li**, Michael Lewis, and Katia Sycara. Trust of Humans in Supervisory Control of Swarm Robots with Varied Levels of Autonomy. SMC. 2018.

   2 **Shen Li***, Rosario Scalise*, Henny Admoni, Stephanie Rosenthal, and Siddhartha Srinivasa. Evaluating Critical Points in Trajectories. RO-MAN. 2017.

   1 **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

   1 **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.

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[1] * Both authors contributed equally

Thesis

1 **Shen Li**. Automatically Evaluating and Generating Clear Robot Explanations. Master's thesis. Carnegie Mellon University. 2017.

Research Experience

Interactive Robotics Group, MIT 07/17-
Research Specialist, supervised by Prof. Julie Shah

- Developing a motion-level POMDP with macro actions to plan a 6-DOF manipulator to leverage the uncertainty about the latent states in a learned human model.

- Developed a motion planner to enable a 6-DoF robot to avoid a fast-moving human hand by searching for a safe trajectory with the minimal execution time within space and time. *ICRA'19*

- Developed a human motion predictor in navigation tasks and implemented an optimal motion planner to search for safe and efficient trajectories within space and time.

- Integrated navigation, manipulation, and grasping planners, along with an activity recognition and segmentation system to enable a robot to fetch and deliver correct parts to humans at appropriate times in factory settings. *ICRA'19*

Advanced Agent-Robotics Technology Lab, CMU 05/17-07/17
Extern, supervised by Prof. Katia Sycara

- Implemented an algorithm to enable swarm robots to perform a target foraging task in an initially unknown environment. *SMC'18*

Personal Robotics Lab, CMU 08/15-05/17
M.S. Researcher,
advised by Prof. Siddhartha Srinivasa and Prof. Stephanie Rosenthal

- Designed a user study to investigate how critical points in demonstrations of robot paths could shape humans' understanding of robot cost functions and prediction of robot paths in the future. *RO-MAN'17*

- Applied the visual and spatial attributes to a referring expression generation algorithm and expedited it via pruning and heuristics. *M.S. Thesis'17*

- Crowdsourced a corpus of referring expressions and extracted the visual and spatial attributes with their visual and linguistic saliences from it. *IJRR'18*
RO-MAN'16
R:SS WS'16

Intelligent Vehicles and Systems Laboratory, Penn State 05/14-07/14
Undergraduate Researcher, advised by Prof. Sean Brennan

- Implemented the Hough Transform and ray-casting algorithm to enable an autonomous wheelchair to find obstacle-free steering directions with a LiDAR and expedited this process via Split-and-Merge.

- Assembled, calibrated, and programmed a sensing system for stair and curb detection.

Human Performance Rhythms Laboratory, Penn State 08/13-12/14
Undergraduate Researcher,
advised by Prof. Frederick Brown and Prof. Cynthia Lajambe

- Conducted psychological experiments about sleep deprivation.
- Implemented the psychomotor vigilance task for psychological studies about the effects of sleep deprivation on human alertness and voice.

Access Control List Research, Penn State 09/13-12/13
Undergraduate Researcher, advised by Prof. Anna Squicciarini

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

Awards and Honors

Full scholarship from advisors at Carnegie Mellon University	01/16-05/17
Member of the Honor Society of Phi Kappa Phi	2014-
Dean's List in all terms at Penn State	08/11-05/15
B.S. degrees with high distinction in both computer science and psychology from Penn State	05/09/15
First Place in the Brown Bag Circuit Design Competition at Penn State	09/14

Academic Services

Reviewer for RO-MAN	2016, 2017, 2018
Reviewer for HRI	2018, 2019
Reviewer for AAMAS	2018, 2019
Reviewer for SMC	2018
Reviewer for Journal of Behavioral Robotics	2018

Media Publicity

PBS NewsHour: 12/18
The robots are coming. Will they work with us?

IEEE - The Institute page: 06/17
IEEE Members Build Robots to Help People with Disabilities Live Independently

Y-combinator: 12/16
Why Did the Robot Do That? Increasing Trust in Autonomous Robots

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, Matplotlib, PyTorch, pcl, OpenCV, ROSBridge, VICON, pdb, gdb, Git, Boost, OpenRave, OMPL, AR-GoS, PIL, SPSS, Arduino, Unity, MySQL, leveldb
Operating Systems	Linux, Mac, Windows