
SHORT BIOGRAPHY

I am a 4th year PhD student in Paul G. Allen School of Computer Science & Engineering at the University of Washington, recently moved from Robotics Institute at Carnegie Mellon University, with my advisor, Siddhartha S. Srinivasa. I received B.S. and M.Eng at MIT, where I was co-advised by Leslie P. Kaelbling and Tomas Lozano-Perez. I am a recipient of Kwanjeong Educational Foundation Fellowship and have previously received CMU School of Computer Science Presidential Fellowship and Samsung Scholarship.

My primary research interest is to enable robots to acquire diverse manipulation skills and to interact with humans so that they can assist humans in uncertain and cluttered environments such as the home. More broadly, I am interested in domain adaptation for model-based reinforcement learning and machine learning with physics-based priors. I have worked on a variety of problems in robotics and computer graphics. In robotics, I worked on multi-contact nonprehensile manipulation, multi-step planning, and SLAM-based object pose estimation. In computer graphics, I worked on skin deformation and lighting for 3D animation.

EDUCATION

University of Washington

Ph.D. Student in Computer Science
Advisor: Siddhartha S. Srinivasa

Seattle, WA
Jan. 2018 - June 2021 (expected)

Carnegie Mellon University

M.S. student in Robotics
Advisor: Matthew T. Mason, Siddhartha S. Srinivasa

Pittsburgh, PA
Sep. 2015 – May 2017

Thesis: *GP-ILQG: Data-driven Robust Optimal Control for Uncertain Nonlinear Dynamical Systems*

Massachusetts Institute of Technology (GPA: 5.0 / 5.0)

M.Eng. in Electrical Engineering and Computer Science
Advisor: Leslie P. Kaelbling, Tomás Lozano-Peréz

Cambridge, MA
June 2015

Thesis: *Hierarchical planning for multi-contact non-prehensile manipulation*

Massachusetts Institute of Technology (GPA: 4.7 / 5.0)

B.S. in EECS and Mathematics

Cambridge, MA
June 2010

AWARDS & HONORS

Kwanjeong Educational Foundation Fellowship

2015 – 2019

CMU School of Computer Science Presidential Fellowship

2016 – 2017

IROS Best Paper Finalist, *Hierarchical planning for multi-contact non-prehensile manipulation*

2015

Samsung Scholarship, one of ten undergraduate awardees

2006 – 2010

RESEARCH

Personal Robotics Lab

Research Associate

CMU RI, Univ. of Washington
Sep. 2015 – Present

- Developed algorithms for model-based reinforcement learning for robust control of robots under uncertainty
- Developed and maintained a multistep planning framework for manipulation

Oculus Research Pittsburgh

Ph.D. Intern

Oculus
May 2017 – Dec. 2017

- Worked on research problems related to human motion prediction in social settings

Learning and Intelligent Systems Group

Research Associate

MIT CSAIL
Jan. 2014 – June 2015

- Developed a planning algorithm for multi-contact nonprehensile object manipulation

MIT DARPA Robotics Challenge Team

Research Associate

MIT CSAIL
Jan. – June 2014

- Extended Parallel Tracking and Mapping algorithm for object pose estimation and tracking in pre-grasping stage

Walt Disney Animation Studios

Research Associate, Animation Technology Research Team

Burbank, CA

Jan 2010

- Implemented and analyzed a heat-based skin attachment algorithm and compared it against skeleton-subspace-deformation method

Canon

Research Associate, Visual Information Processing Technology Development Center

Tokyo, Japan

June – Dec. 2008

- Designed an interactive photoframe that learns user's facial expressions to display photos evoking positive reaction
- Collaborated with Waseda University for predicting future demand for monitoring systems in senior care industry

PUBLICATION

Lee, G., Deng, Z., Ma, S., and Shiratori, T. and Srinivasa, S.S. and Sheikh, Y. Talking With Hands 16.2M: A Large-Scale Dataset of Synchronized Body-Finger Motion and Audio for Conversational Motion Analysis and Synthesis, In International Conference on Computer Vision (ICCV). 2019. [paper], [supplementary]

Lee, G., Feng, R., Kim, Y., Gordon, E.K., Schmittle, M., Kumar, S., Bhattacharjee, T., Srinivasa, S.S. Robot-Assisted Feeding: Generalizing Skewering Strategies across Food Items on a Plate. In International Symposium on Robotics Research (IJRR). 2019. paper

Lee, G., Hou, B., Mandalika, A., Lee, J., Choudhury, S., and Srinivasa, S.S. Bayesian Policy Optimization for Model Uncertainty, In International Conference on Learning Representations (ICLR). 2019. [paper]

Sheikholeslami, S., Lee, G., Hart, J.W., Srinivasa, S.S., and Croft, E.A. A Study of Reaching Motions for Collaborative Human-Robot Interaction, In International Symposium on Experimental Robotics (ISER). 2018. [paper] Interaction, In International Symposium on Experimental Robotics (ISER). 2018. [paper] . [paper] . Srinivasa, G. Lee, et. al. **A System for Multi-Step Mobile Manipulation: Architecture, Algorithms, and Experiments**, *International Symposium on Experimental Robotics (ISER)*, 2016.

G. Lee, L. Kaelbling, and T. Lozano-Perez. **Hierarchical planning for multi-contact non-prehensile manipulation**, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2015. [Best Conference Paper Finalist]

PROFESSIONAL ACTIVITIES

Intelligent Robots and Systems (IROS), 2015. [Best Conference Paper Finalist]

PROFESSIONAL ACTIVITIES

Panel, **RSS 2019 Workshop on Closing the Reality Gap in Sim2real Transfer for Robotic Manipulation**

Panel, **IEEE/RSJ IROS 2017 Workshop on Development of Benchmarking Protocols for Robot Manipulation**

Organizer, **RSS 2017 Workshop on (Empirically) Data-Driven Manipulation**

Reviewer, **IEEE/RSJ International Conference on Intelligent Robots and System (IROS)**

Reviewer, **IEEE International Conference on Robotics and Automation (ICRA)**

Reviewer, **Robotics: Science and Systems (RSS)**

Reviewer, **International Journal of Robotics Research (IJRR)**

TEACHING EXPERIENCE

CMU RI 16-662 Robot Autonomy

Teaching Assistant

CMU

Spring 2017 17

- Managed grades and assignments for students; assisted in lesson planning
- Mentored group projects and led recitations

CMU RI 16-662 Robot Autonomy

Teaching Assistant

CMU Robotics Institute

Spring 2017 ged grades and assignments for students; assisted in lesson planning

Mentored group projects

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Software Construction

Teaching Assistant

MIT EECS

Spring & Fall 2014, Spring 2015

- Managed grades and assignments for students; assisted in lesson planning, mentored group projects; led recitations

PROGRAMMING SKILLS

Extensive experience in C++, Python, MATLAB, and Java.

VOLUNTEER ACTIVITIES

Undergraduate Student Advisory Group in EECS (USAGE)

Cambridge, MA

Member

2014 – 2015

- Advised for curriculum changes and getting more entrepreneurial opportunities for EECS undergraduates