ANQI LI

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EDUCATION

University of Washington Sept. 2019 - Present
Ph.D. student in Computer Science & Engineering *Seattle, WA*
· Advisor: Prof. Byron Boots & Prof. Magnus Egerstedt, GPA: 3.95/4.00

Georgia Institute of Technology Aug. 2017 - Aug. 2019
Ph.D. student in Robotics *Atlanta, GA*
· Advisor: Prof. Magnus Egerstedt & Prof. Byron Boots, GPA: 4.00/4.00

Carnegie Mellon University Aug. 2015 - May 2017
Masters in Robotics *Pittsburgh, PA*
· Advisor: Prof. Katia Sycara, GPA: 4.00/4.00

Zhejiang University Sept. 2011 - July 2015
Bachelor of Engineering, Automation Major *Hangzhou, CHINA*
· GPA: 3.93/4.00, Rank: 1/132

RESEARCH EXPERIENCE

University of Washington Sept. 2019 - Present
Graduate Research Assistant *Seattle, WA*
· Learning Generalizable Riemannian Motion Policies

- Introduced a framework for learning Riemannian Motion Policies (RMPs) from human demonstrations under the influences of obstacles or other contextual information

NVIDIA Research May 2019 - Aug. 2019
Robotics Research Intern *Seattle, WA*
· Learning Riemannian Motion Policies from Human Demonstrations

- Introduced a framework to learn and combine stable Riemannian Motion Policies (RMPs) from human demonstrations through learning potential functions and Riemannian metrics
- Demonstrated the effectiveness of the proposed learning framework on door reaching and drawer closing tasks performed by a Franka Emika robot

Georgia Institute of Technology Aug. 2017 - May 2019
Graduate Research Assistant *Atlanta, GA*
· Multi-Objectives Policy Generation for Multi-Robot Systems

- Designed a collection of Riemannian Motion Policies (RMPs) for common multi-robot tasks and showed that many existing potential-based multi-robot controllers can be approximated by RMPs
- Proposed decentralized algorithms to generate control policies for multi-robot systems by combining control policies defined for individual tasks

· Distributed Second-Order Optimization for Multi-Agent Systems

- Designed a distributed truncated Newton's method using consensus protocol as building blocks for a class of multi-agent problems

· Formally Correct Behavior Composition for Teams of Autonomous Robots

- Proposed a framework that ensures correct-by-construction behavior composition for teams of autonomous robot using Control Barrier Functions (CBFs)

Microsoft Research June 2017 - Aug. 2017
Research Intern, CNTK Group *Redmond, WA*

· Video Synthesis from Static Images using Generative Adversarial Networks

- Proposed a deep learning approach to generate videos from static images using Generative Adversarial Networks (GANs)
- Contributed two tutorials on WGANs, LSGANs and BEGANs for Microsoft Cognitive Toolkit. The tutorial on WGANs and LSGANs are publicly available on the Microsoft CNTK github repository

Carnegie Mellon University Oct. 2015 - May 2017
Graduate Research Assistant *Pittsburgh, PA*

· Topology-Based Coordination for Large Teams of Robots

- Proposed a decentralized and behavior-based approach for large groups of robots to navigate in unknown environments while preserving connectivity and avoiding collisions

· State Abstraction for Multi-Robot Systems under Uncertainty

- Designed distributed asynchronous algorithms to abstract high dimensional state information of multi-robot systems with the state information of a subset of robots under state uncertainty

· Human Action Prediction with Recurrent Neural Networks

- Developed a Recurrent Neural Network (RNN) model with Long Short-Term Memory (LSTM) architecture to predict human actions in Cyber-Physical Systems

PUBLICATION

[9] M. A. Rana, **A. Li**, D. Fox, B. Boots, F. Ramos, and N. Ratliff, "Euclideanizing Flows: Diffeomorphic Reductions for Learning Stable Dynamical Systems." *Annual Conference on Learning for Dynamics and Control (L4DC), 2020*

[8] **A. Li**, and C.-A. Cheng, B. Boots, and M. Egerstedt, "Stable, Concurrent Controller Composition for Multi-Objective Robotic Tasks" *the IEEE Conference on Decision and Control (CDC), 2019*

[7] M. A. Rana*, **A. Li***, H. Ravichandar, M. Mukadam, S. Chernova, D. Fox, B. Boots, and N. Ratliff, "Learning Reactive Motion Policies in Multiple Task Spaces from Human Demonstrations" **(* indicates equal contribution)**, *the Conference on Robot Learning (CoRL), 2019*

[6] **A. Li**, M. Mukadam, M. Egerstedt, and B. Boots, "Multi-Objective Policy Generation for Multi-Robot Systems Using Riemannian Motion Policies" *the International Symposium on Robotics Research (ISRR), 2019*

[5] **A. Li**, and M. Egerstedt, "On the Trade-Off Between Communication and Execution Overhead for Control of Multi-Agent Systems" *American Control Conference (ACC), 2019*

[4] **A. Li**, L. Wang, P. Pierpaoli, and M. Egerstedt, "Formally Correct Composition of Coordinated Behaviors Using Control Barrier Certificates" *the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018*

[3] **A. Li**, W. Luo, S. Nagavalli, and K. Sycara, "Decentralized Coordinated Motion for a Large Team of Robots Preserving Connectivity and Avoiding Collisions" *the IEEE Conference on Robotics and Automation (ICRA), 2017*

[2] **A. Li**, W. Luo, S. Nagavalli, N. Chakraborty and K. Sycara, "Handling State Uncertainty in Distributed Information Leader Selection for Robotics Swarms" *the IEEE Conference on System, Man and Cybernetics (SMC), 2016*

[1] **A. Li**, M. Lewis, C. Lebiere, K. Sycara, S. S. Khatib, Y. Tang, M. Siedsma and D. Morrison, "A Computational Model Based on Human Performance for Fluid Management in Critical Care" *In Proceedings of the IEEE Symposium Series on Computational Intelligence (SSCI), 2016*

HONORS

- NVIDIA Fellowship 2020
- The Georgia Robotics Fellowship 2017
- Siebel Scholar Class of 2017 (72 worldwide) 2016
- The Chu Kochen Scholarship (top 0.2%, highest honor), ZJU 2014
- National Scholarship (top 1%), China 2013

LEADERSHIP AND PROFESSIONAL SERVICE

- President, RoboGrads, Georgia Institute of Technology May 2019 - Aug. 2019
- Vice President Academic, RoboGrads, Georgia Institute of Technology May 2018 - May 2019
- Reviewer June 2018 - Present
  - IEEE Robotics and Automation Letters (RA-L)
  - European Journal of Control

TEACHING EXPERIENCE

University of Washington March 2020 - June 2020
Graduate Teaching Assistant *Seattle, WA*
- CSE 599W Reinforcement Learning, Spring 2020, Instructor: Prof. Byron Boots

Georgia Institute of Technology January 2018 - May 2018
Graduate Teaching Assistant *Atlanta, GA*
- CS 3630 Introduction to Robotics and Perception, Spring 2018, Instructor: Prof. Sonia Chernova

SKILLS

Programming Laguages Python, MATLAB, C/C++, Java, R
Open Sourse Libraries PyTorch, Tensorflow, CNTK, Keras, OpenAI Gym, MuJoCo, ROS