ANQI LI

Georgia Institute of Technology, Atlanta, GA, 30332
anqi.li@gatech.edu ◇ anqili.github.io

EDUCATION

Georgia Institute of Technology, School of Interactive Computing August 2017 - Present
Ph.D. in Robotics *Atlanta, GA*

· Advisor: Prof. Byron Boots & Prof. Magnus Egerstedt, GPA: 4.00/4.00

Carnegie Mellon University, The Robotics Institute August 2015 - May 2017
Masters in Robotics *Pittsburgh, PA*

· Advisor: Prof. Katia Sycara, GPA: 4.00/4.00

Zhejiang University, College of Control Engineering September 2011 - July 2015
Bachelor of Engineering, Automation Major *Hangzhou, CHINA*

· GPA: 3.93/4.00, Rank: 1/132

RESEARCH EXPERIENCE

Georgia Institute of Technology August 2017 - Present
Graduate Research Assistant *Atlanta, GA*

· Distributed Reinforcement Learning for Multi-Robot Systems

- Verified the theoretical validity of policy gradient-based algorithms for fully distributed multi-agent reinforcement learning
- Implemented distributed Trust Region Policy Optimization (TRPO) algorithm on a multi-agent simulated environment

· 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
- Discovered a class of multi-agent problems where distributed first-order optimization is optimal under certain assumptions on the agents' computational capacity

· 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)
- Validated the proposed framework through numerical simulations and experiments on the Robotarium, a remotely accessible swarm robotics testbed

Microsoft Research June 2017 - August 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 October 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

[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 (submitted)*

[4] **A. Li**, L. Wang, P. Pierpaoli, and M. Egerstedt, "Formally Correct Composition of Coordinated Behaviors Using Control Barrier Certificates" *In Proceedings of 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" *In Proceedings of 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" *In Proceedings of 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

– The Georgia Robotics Fellowship 2017
– Siebel Scholar Class of 2017 (72 worldwide) 2016
– Outstanding Graduate (top 5%), ZJU 2015
– Excellent Undergraduate Thesis Award (top 10%), ZJU 2015
– The Chu Kochen Scholarship (top 0.2%, highest honor), ZJU 2014
– National Scholarship (top 1%), China 2013
– First-Class Scholarship for Outstanding Students (top 3%), ZJU 2013, 2014

LEADERSHIP AND PROFESSIONAL SERVICE

– Vice President Academic, RoboGrads, Georgia Institute of Technology May 2018 - Present
  - Initiated faculty-student lunch events in the robotics community
  - Organized student seminars where students present their research to their peers

– Reviewer June 2018 - Present
  - IEEE Robotics and Automation Letters (RA-L)
  - European Journal of Control
  - Neural Information Processing Systems (NIPS) Workshop

TEACHING EXPERIENCE

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	Tensorflow, CNTK, Keras, OpenAI Gym, MuJoCo, DART, ROS