Allen Cheng

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(408) 416-8523

EDUCATION

Carnegie Mellon University - Pittsburgh, PA   May 2020

M.S. Robotics, advised by Maxim Likhachev (GPA: 4.0/4.0)
Selected Coursework: Planning Techniques for Robotics, Machine Learning, Deep Reinforcement Learning,
Statistical Techniques for Robotics, Dynamic Optimization, Computer Vision, Robotics Kinematics & Dynamics

B.S. Mechanical Engineering & Robotics (GPA: 3.71/4.0)   May 2018

EXPERIENCE

Graduate Researcher   Fall 2017 - Present
Search-Based Planning Lab - Pittsburgh, PA
Speeding up high-dimensional motion planning with bidirectional and learning methods

Motion Planning Intern   Summer 2018
Aptiv - Pittsburgh, PA
Built lattice-based planners for parking autonomous vehicles

Robotics Intern   Summer 2017
NASA Jet Propulsion Laboratory - Pasadena, CA
Optimized motion capture-based calibration for Mars 2020 robotic arms

Hardware Engineering Intern   Summer 2016
Transcriptic - Menlo Park, CA
Designed and implemented a vision-based calibration pipeline to improve reproducibility and accuracy of
liquid-handling robots

PUBLICATIONS

Allen Cheng, Dhruv Saxena, Maxim Likhachev. **Bidirectional Heuristic Search for Motion Planning
with an Extend Operator**, *International Conference on Intelligent Robots and Systems (IROS). 2019*

PROJECTS

Autonomous Drone Cinematographer   Spring 2019
Learned artistic trajectories for aerial filming of a human subject in AirSim, a photorealistic simulator, using
deep reinforcement learning from human preferences

Multi-Armed Bandit Planning   Fall 2018
Explored various bandit algorithms for heuristic selection in multi-heuristic search

RaspBot   Fall 2017
Implemented a system for a differential drive robot to autonomously navigate an arena and freely forklift pallets
using visual servoing, feedback controls, sensor fusion, and cubic spline trajectory generation

3D Pick & Place   Fall 2016
Programmed a 5-DoF arm to build a Jenga tower, optimized for robustness and speed using spline trajectories
and tuned controls

SKILLS

Programming in Python, C++, C, MATLAB
Experience with Linux, ROS, Git