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Gabriel Margolis

407 Memorial Drive
Cambridge, MA 02139

Seeking Internship in Robotics or Autonomous Vehicles

Education

Massachusetts Institute of Technology (MIT) Cambridge, MA
Candidate for B.S. Electrical Engineering and Computer Science and B.S. Aerospace Engineering , GPA: 5.0/5.0 June 2020

- Coursework: Cognitive Robotics, Algorithms for Inference, Embodied Intelligence, Robotics: Science and Systems, Feedback Control Systems, Robust Nonlinear Planning, Networks, Game Theory, Machine Learning

Experience

General Motors Detroit, MI
Autonomous Vehicle Engineering Intern June-August 2019

- Automated 40 hours/month of AV sensor alignment verification work with software tool
- Researched and implemented motion compensation algorithms for emerging event-based sensor technology

Model-based Embedded and Robotic Systems Group, MIT CSAIL Cambridge, MA
Undergraduate Researcher (SuperUROP) Sept 2018-May 2019

- Developed novel nonparametric active sensing system for UAVs in selective year-long research program
- Findings will be applied in the field during Woods Hole Oceanographic Institution deep-sea expeditions

Undergraduate Researcher Feb-May 2018

- Designed and integrated web command and control interface for high-efficiency UAV in Python with Flask
- Interface facilitated deployment of group's state estimation and planning algorithms

MITRE Corporation Bedford, MA
Positioning, Navigation, and Timing Intern June-August 2018

- Developed MATLAB simulation of integrated aircraft control, dynamics, and state estimation system
- Presented to department on aircraft autopilot response to faulty GPS measurement data

Projects

Autonomous Vehicle Racing Feb-May 2019

- Implemented control, perception, localization, planning, visual navigation in ROS, OpenCV, Git, TensorFlow
- Team took 1st place of 20 entries in annual MIT autonomous vehicle race

Hierarchical Deep Reinforcement Learning Feb-May 2019

- Replicated results from 2016 paper using Python and Tensorflow, released implementation on GitHub
- Additional experiments separated the impacts of sparsity and observability in temporal abstraction

Monte Carlo Tree Search for Multi-agent Collaboration Feb-May 2019

- Delivered an advanced lecture and designed a problem set for graduate-level Cognitive Robotics class
- Implemented Hierarchical MCTS for asymmetric collaboration between mothership and tethered AUV

Leadership and Activities

Tau Beta Pi Engineering Honor Society *Chair of Committee Awarding $50k in Service Fellowships (2019-20)*
Lightweight Men's Rowing *Division 1 Collegiate Athlete (2016-20), High School Team Captain (2015-16)*
Kappa Sigma Fraternity *President (2019), Treasurer (2018-19), Philanthropy Chair (2017-18)*
MIT Office of the First Year *Associate Advisor, Orientation Leader (2018-19)*

Skills & Interests

Robotics, Active Sensing, Perception, Planning | Python, MATLAB, Julia | ROS, PyTorch, Tensorflow, OpenCV, Git