ISAAC S. PERPER

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EDUCATION

Massachusetts Institute of Technology — Cambridge, MA
B.Sc. Mechanical Engineering and B.Sc. EECS; Minor in Economics - 5.0/5.0 GPA — *May 2020*
M.Eng EECS — *May 2021*
Pi Tau Sigma | Tau Beta Pi

Relevant Coursework: Visual Navigation for Autonomous Vehicles; Underactuated Robotics; Signals, Systems & Inference; Product Engineering Process; Probability; Statistics; Intro to Machine Learning; Intro to Algorithms

RESEARCH EXPERIENCE

MIT SeaGrant & CSAIL – AUV Lab — Cambridge, MA
Student Researcher — *Summer 2018, Spring 2019, Spring 2020*

- Implementing automatic LIDAR-Camera calibration for sensor fusion work on robust object detection
- Previously researched machine learning techniques for object detection using thermal imagery, including image segmentation and boundary detection of the water
- Created battery management application for front-seat computer and sensors on REX unmanned surface vehicle

16.485 – Visual Navigation for Autonomous Vehicles — Cambridge, MA
Class Project: Visual Inertial Odometry + Vehicle Dynamics — *Fall 2019*

- Implemented Kimera visual inertial odometry on a ground track robot
- Worked with two teammates to design and test dynamics model to improve position estimation via Kalman filter

MIT Dept. of Nuclear Science and Engineering – Green Lab — Cambridge, MA
Student Researcher — *Spring 2017*

- Experimentally researched a quantifiable approach to improving the critical heat flux of various materials used in nuclear energy production through surface engineering
- Designed, machined, and fabricated test boiling chamber to use in tests

WORK EXPERIENCE

Ford Research and Innovation Center — Palo Alto, CA
Intern — *Summer 2019*

- Worked on a self-contained project integrating vehicle control and vision system with simulation tools to test new research features in a simulated environment
- Engaged with multiple engineers responsible for specific components of the controls and simulation
- Won first place out of six teams at the office-wide summer hackathon

Augmenta Bioworks — Mountain View, CA
Intern — *Summer 2017*

- Designed and fabricated a prototype automation system independently that will enable analysis of lab processes
- Created Python-based control script to interface with several devices over serial communication protocol

LEADERSHIP

Phi Sigma Kappa Fraternity — Boston, MA
President, Treasurer — *2018 - 2019*

- Oversaw operations of each sub-department and housing, including serving as semester's risk manager
- Conducted weekly house meetings and reviewed day-to-day issues such fulfillment of weekly jobs and fines
- Developed $450K yearly budget including expenditures for rent, recruitment, food preparation, and events

MIT Rocketry Club — Cambridge, MA
Treasurer 2017-18 — *2016 - 2018*

- Designed and built test stand for solid rocket motors as a part of Ground Support Systems
- Oversaw spending and fundraising for a $40K budget, with the goal of reaching a record 80,000 ft flight

Eagle Scout — Tiburon, CA

SKILLS

Software: C++, Python, Linux, MATLAB, SolidWorks, Windows, CMake, Arduino, OpenCV, Tensorflow, NodeJS
Building/Design: Prototyping, Laser Cutting, 3D-Printing, Machining and Fabrication, Waterjet

EXTRACURRICULAR ACTIVITIES

MIT Varsity Soccer Team, MIT Sandbox, Hackathons, Entrepreneurship, Making