Isaac Perper

Cambridge, Massachusetts

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Summary

Engineer originally from the SF Bay Area who has always had a passion for designing, building, and prototyping hands-on projects. Currently working as Research Associate in the Signal Kinetics lab at MIT, focused on commericalizing RFID localization technology. Enjoy entrepreneurship and developing new ideas for problems in energy, sustainability, automation, and agriculture.

Education

Massachusetts Instititute of Technology   *Cambridge, MA*

M.ENG IN EECS - 5.0/5.0 GPA   *September 2021*

B.S. IN MECHANICAL ENGINEERING AND B.S. EECS; MINOR IN ECONOMICS - 5.0/5.0 GPA   *May 2020*

Pi Tau Sigma | Tau Beta Pi

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

Research Experience

Signal Kinetics - MIT Media Lab   *Cambridge, MA*

RESEARCH ASSOCIATE / GRADUATE STUDENT   *Sep. 2020 - Present*

- Currently developing prototypes and investigating commercialization of RFID localization technology for industry applications
- Researched RFID localization techniques on low-cost software-defined radio hardware, which culminated in my thesis: *A Low-Cost, Scalable Platform for Sub-Centimeter UHF RFID Positioning*
- Co-authored conference paper accepted into SenSys '21: *RFusion: Robotic Grasping via RF-Visual Sensing and Learning*

MIT SeaGrant & CSAIL - AUV Lab   *Cambridge, MA*

UNDERGRADUATE RESEARCHER   *Summer '18, Spring '19, Spring '20*

- Implemented automatic LIDAR-Camera calibration for sensor fusion work on robust object detection
- Researched machine learning techniques for object detection using thermal imagery, including image segmentation and water boundary detection

MIT Course 16.485 – Visual Navigation for Autonomous Vehicles   *Cambridge, MA*

CLASS PROJECT: VISUAL INTERTIAL 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

Work Experience

Ford Research and Innovation Center   *Palo Alto, CA*

SOFTWARE 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
- Won first place out of six teams at the office-wide summer hackathon

Augmenta Bioworks   *Mountain View, CA*

INTERN   *Summer 2017*

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

Leadership

Cata Cooling   *Cambridge, MA*

CO-FOUNDER, PRESIDENT   *2020 - Present*

- Developing personal cooling solutions for high-heat industries
- Product R&D, Market Research, Customer Pilots, Cost Modeling

Phi Sigma Kappa Fraternity   *Boston, MA*

PRESIDENT, TREASURER   *2018 - 2019*

- Oversaw operations of each sub-department and housing and conducted weekly house meetings.
- Developed $450K yearly budget including expenditures for rent, recruitment, food preparation, and events

Skills

Software/Hardware   Python, C++, Linux, OpenCV, ROS, PyTorch, MATLAB, CMake, SDRs, Arduino

Building/Design   SolidWorks, Fusion360, Prototyping, Laser Cutting, 3D-Printing, Machining and Fabrication, Waterjet

Extracurricular Activities

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