Brandon Hung

https://github.com/BrandonHung343 | https://brandonh.dev | Contact Information

Education

Carnegie Mellon University   May 2022
Master of Science in Electrical and Computer Engineering. GPA: 3.91/4.00
Relevant coursework: Optimal control, robot dynamics, machine/statistical learning, localization/mapping, biomechanics

Bachelor of Science in Electrical and Computer Engineering. Minor in Robotics, Honors. GPA: 3.56/4.00
Relevant coursework: Mobile robot algorithm development, computer vision, classical control theory, autonomous AI, robot kinematics, computer systems

Skills

Computer: Python, Julia, MATLAB, LaTex, Linux, OpenCV, Scipy, C, ROS, Simulink, JavaScript, C++
Electrical: SystemVerilog, microcontrollers, embedded devices, FPGA, soldering, basic circuit design
Mechanical and Design: CAD, machining, 3D printing, rapid prototyping

Professional Experience

CMU Robotic Exploration Lab - Research Assistant   May 2021-May 2022
- Derived hybrid dynamics models for legged walking/jumping robots in Julia; videos here and here
- Initiated DDP optimal control investigation for offline trajectory optimization
- Added reaction wheels to investigate stabilization and control principles

CMU Biorobotics Lab - Research Assistant   May 2018-Aug 2018
- Transcribed multi-agent path planning algorithm from Java to Python for swarm robot task planning
- Tested, benchmarked performance versus reinforcement learning based algorithm

Projects

Homogeneous Swarms Shape Formation Simulator   Jan 2021
- Created Python simulator to implement robotic swarm paper; code here, video here
- Implemented Hanlin Wang et al's algorithm to have simulated agents form arbitrary shapes

VR Fruit Ninja   Feb 2020
- Developed Fruit Ninja in C# and Java on Oculus Go for TartanHacks 2020

Automated Forklift Software Stack   Dec 2019
- Implemented localization, planning, and control in MATLAB on robotic forklift models to move pallets
- Tied for first place in model warehouse competition

Autonomous Terrarium for Indoor Farming   Dec 2019
- Designed and programmed AI platform with ROS in Python to grow plants in greenhouse model

Human-Robot Interactive Arm   Dec 2017
- Combined computer vision and speech recognition in Python and MATLAB to control robot arm; video here

Activities

Red Robot Hackathon - Organizer   Oct 2018-April 2019
- Created event and website for the Red Robot Hackathon; link found here
- Restructured event increased event membership from 8 to 80