Alvin Shek

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EDUCATION

CARNEGIE MELLON UNIVERSITY

Electrical and Computer Engineering
Additional Major in Robotics
Expected May 2021 | Pittsburgh, PA
Cum. GPA: 3.87 / 4.0

INTERESTS

Robotics Motion Planning | Computer Vision
Embedded Systems

LINKS

Github:// **Alvinosaur**
LinkedIn:// **alvinshek**
Projects: https://www.zeemee.com/**alvinshek**

COURSEWORK

COMPUTER SCIENCE

Fundamentals of Programming and CS
Principles of Imperative Computation
Introduction to Computer Systems
Coursera Introduction to Machine Learning

ELECTRICAL ENGINEERING

Structure and Design of Digital Systems
Signals and Systems

ROBOTICS

Advanced Mobile Robot Design
Coursera Control of Mobile Robots

SKILLS

PROGRAMMING

Python • C • C++ • JavaScript
R • Matlab • LaTeX

SOFTWARE

ROS • Solidworks

DEVELOPMENT TOOLS

Git

RESEARCH/WORK EXPERIENCE

TEMPO AUTOMATION | Full Stack Intern

June 2018 – August 2018 | San Francisco, CA

- Created Python/C++ package to collect and decode machine data
- Wrote Python API to store/retrieve data from remote database
- Created dashboard to display live factory statistics with HTML/Python

CMU CUBEROVER | Avionics Team Member

August 2018 – December 2018

- Wrote API for SPI connection between main flight board and micro-controllers
- Create watchdog to detect corrupted systems by examining heartbeat messages over SPI

PROJECTS

MULTI-ROBOT EXPLORATION AND TASK COORDINATION

August 2018 - Present | Github: autonomous_drone_project

- Develop localization, path planning, and target detection for autonomous drone with Professor George Kantor
- Built two ground robots capable of moving to target locations with 3 degree-of-freedom arms
- Ground robot location goals set by overhead drone

ROBOTIC AIR HOCKEY TABLE

December 2018 - January 2019 | Github: robotic_air_hockey

- Built two 2 Degree-of-freedom robot arms to play against people with only camera feedback, no sensors
- Puck trajectory calculations and inverse velocity kinematics for arm motion planning

RIDEABLE VR FLIGHT SIMULATOR

January 2018

- Harry Potter flight game with tilt-to-steer controls in C# and Unity
- Helped design spring-based haptic rig in Solidworks
- Added user-fired projectiles, enemies in pursuit, and health points

ACTIVITIES

CARNEGIE MELLON SOLAR RACING (CMSR) | Optimization Team Lead

2017 - 2018

- Designing android app dashboard and web GUI for telemetry
- Currently developing 360 degree stereo vision system to determine other boat positions, plot on Google Maps using local GPS
- Mentor of New Member Project, guiding design of RC boat with remote controls, python GUI for telemetry data
- Lead workshops teaching about serial bluetooth communiation, motor controllers, electronics boxes