Hengrui Zhang

Email: hengruiz@andrew.cmu.edu
Phone: (412) 313 4476
Webpage: hengruizhang.com

EDUCATION

Carnegie Mellon University, Class of 2019
Bachelor of Science in Mechanical Engineering; Additional Major: Robotics

- GPA: 3.67/4.00
- Dean's List College of Engineering
- Relevant Courses: Dynamics System and Control, Mobile Robots (Graduate), Robot Kinematics and Dynamics, Imperative Programming, Introduction to Computer Systems, Stress Analysis, Machine Shop Practice, Computer Aided Design, Numerical Methods

WORK EXPERIENCE

The Air Lab, The Robotics Institute, Carnegie Mellon University Pittsburgh, PA
Mechatronics Intern Summer 2018

- Designed and built a sensor pod with high resolution 3D reconstruction and thermal texture capabilities.
- Fabricated thermal camera calibration targets and performed thermal camera intrinsic parameters calibration.
- Conducted extrinsic calibration of a 16-ring Velodyne Puck LiDAR and stereo RGB cameras.
- Implemented software for synchronized sensor triggering and a URDF robot description file for the sensor pod.

Dorabot, Inc Shenzhen, China
Mechanical Engineering Intern Summer 2017

- Designed a mobile manipulator robot (MOMA) with multiple components and sensors, including LiDAR, motors, computer, batteries, etc.
- Manufactured parts with 3D printing and CNC machining.
- Collaborated with electrical and software engineers to complete the project.

Computational Engineering and Robotics Lab, Carnegie Mellon University Pittsburgh, PA
Research Assistant Fall 2017-Spring 2018

- Built a gesture recognition software with machine learning algorithms.
- Utilized Leap Motion and its API for extracting hand position and joints' velocities.
- Constructed the system using Robotics Operating System.

PROJECT

Build18 Hardware Hackathon Spring 2018
Gesture Controlled Drone

- Built a drone from scratch with a drone frame, a CC3D flight controller, a onboard computer and a battery.
- Established wireless communication between onboard computer and ground station using TCP/IP protocol.
- Used Leap Motion to capture user's hand poses (position and orientation).

Mobot Competition 2018 Spring 2018
Line Following Robot, Third Place

- Assembled a mobile robot with additional onboard computer and camera.
- Implemented a vision algorithm to extract white lines from background and identify cross-sections.

Skill

Proficient: Solidworks, C, Git, Python, Machining, CNC, 3D Printing, Laser Cutting, MATLAB, Simulink, ROS, MS tools
Familiar: Cero, Java, LaTex, FEA