LUXI HUANG

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OBJECTIVE

Seeking full time entry level software engineer position

WORK EXPERIENCE

Robotics Software Engineering Intern **Jun. 2020 - Sept. 2020**
Shirley Ryan AbilityLab *Chicago, IL*

- Rewrote and update autonomous wheelchair behavior packages in C++ with ROS
- Updated 3D object detection packages for doorway detection, ramp detection, and wheelchair desk-docking
- Wrote test plans to test software on actual hardware
- Generated a final report in IEEE paper format and an end-of-internship presentation

Research Assistant **Jan. 2017 - Dec. 2018**
The Sensor and Actuator lab - UMD *College Park, MD*

- Development of code and experimental platforms, running experiments and analyzing data in C and Matlab
- Implemented data-driven algorithms for sensing and control of robotic platforms
- Conducted research into wheeled robotics track moving barriers using ultrasonic signals

SELECTED PROJECTS WEBSITE

Geometric Morphometrics on Seal Whisker Shapes - NU **Mar. 2020 - Oct. 2020**

- Estimated the parameters for the major axis of an undulated seal whisker based on 2D scans
- Implemented Computer Vision techniques and programmed in MATLAB to automatically calculate specific geometric properties(arclength, base diameter, average peak to peak length, average crest height, etc.)

EKF SLAM on Turtlebot3 - NU **Jan. 2020 - Mar. 2020**

- Developed 2D kinematics and navigation library in C++ for wheel robot on ROS platform
- Generate circular feature detection algorithm for LiDAR scanner
- Implemented a landmark-based EKF SLAM algorithm to optimize the path trajectory and avoid obstacles

Mapping by Sensor Fusion with IMU and Camera - NU **Jan. 2020 - Mar. 2020**

- Built Mapping Function with PCL on Intel tracking camera T265 and depth camera D435i individually
- Achieved loop closure property on depth camera by sensor fusion on IMU with RGBD, and accomplished loop closure on tracking camera by sensor fusion on IMU with fisheyes
- Designed experiments to compare mapping quality between tracking camera and depth camera

ReThink Robot Build Lego - NU **Sept. 2019 - Dec. 2019**

- Collaborated in team of 4 to develop a system in controlling a Baxter (Rethink Robotics) to build with Legos
- Programmed 7-DOF arm navigation algorithm using ROS MoveIt (in Python) to accomplish motion planning, obstacle avoiding, and control the force on grippers
- Wrote script to test success rate and the result was greater than 90 percent to build a Lego pyrimid

SKILLS

Robot: ROS, Gazebo, Moveit, Robot Manipulation, Computer Vision, Machine Learning, Motion Planing
Libraries: Point Cloud Library (PCL), Eigen, PyTorch, OpenCV
Programming Languages: C/C++, Python, MATLAB/SimuLink
Others: Linux, Version Control (Git), Unit Test, CMake

EDUCATION

Northwestern University (NU), Evanston,IL **Aug. 2019 - Dec. 2020 (Expected)**
Master of Science in Robotics
Related Courses: Robotics Manipulation, Machine Learning and Artificial Intelligence for Robotics, Machine Dynamics, Embedded Systems in Robotics, Design and Analysis of Algorithms, Quadrotor Design and Control

University of Maryland (UMD), College Park, MD **Aug. 2015 - Dec. 2018**
Bachelor of Science in Mechanical Engineering; Mathematics