Yuxiao (Sonia) Lai

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EDUCATION

Northwestern University   **Evanston, IL**
M.S. in Robotics, GPA: 4.00/4.00   *Expected Dec. 2021*

Rose-Hulman Institute of Technology   **Terre Haute, IN**
B.S. in Mechanical Engineering, GPA: 3.77/4.00   *Aug. 2016 - May 2020*
Minor in Robotics, GPA: 4.00/4.00; Computer Science, GPA: 3.70/4.00; Japanese, GPA: 3.83/4.00

Selected Courses: Robotic Manipulation, Embedded Systems in Robotics, Machine Dynamics, Electrical Systems, Mechanical Systems, Control Systems, Mechatronic Systems, Introduction to AI, Android Application Development, Web Programming

ACADEMIC EXPERIENCE

Fast Tower   **Evanston, IL**
Group Member, Embedded Systems Final Project   *Nov. 2020*
- Control a Baxter robot to stack a fixed number of cups into a tower
- Build a system with Baxter ROS Interface and ROS MoveIt to plan and execute fast and stable arm motion to grab and place cups with random or specified locations
- Use ROS Apriltag to detect cups within the workstation and generate coordinate frames in rviz
- Design a simulated environment in Gazebo for debugging before running the system on the actual robot

youBot Manipulation   **Evanston, IL**
Robot Manipulation Final Project   *Nov. 2020 – Dec. 2020*
- Use Modern Robotics: Mechanics, Planning, and Control to set up configuration matrices and calculations
- Develop functions to compute and execute trajectories with feedback control for a youBot in CoppeliaSim
- Design Python scripts to make a youBot grab and place a cube from and to user-specified locations

Robot Speed and Separation Monitoring Safety System Design   **Terre Haute, IN**
Group Member, Multidisciplinary Capstone   *Aug. 2019 - May 2020*
- Design a safety monitoring system to ensure that robots are operating in compliance with ISO standards
- Research best practices to track workers' real-time positions and velocities in a large workspace
- Build the monitoring system using OpenCV and depth cameras to detect workers' positions and velocities
- Design stable stands and protection mounts for cameras to ensure high-quality video

PROFESSIONAL EXPERIENCE

W M Technologies Inc.   **Shanghai, China**
Automation Component CAD Intern   *June 2019 - July 2019*
- Participated in designing a base mount to help stimulate collaboration between workers and a robot arm during assembly and packing controllers
- Created CADs of parts and assemblies for manufacturing
- Defined tolerances and roughness in drawings so that controllers could be assembled within allowable position uncertainties and the design would function properly without wearing too quickly

SKILLS

Technical: Git, Linux, ROS, SolidWorks, MATLAB, Gazebo, MPLAB, Arduino, MongoDB, Firebase
Programming: Java, JavaScript, HTML, CSS, Kotlin, XML, Python, C/C++
Languages: Chinese (Native), English (Fluent), Japanese (Intermediate), French (Entry Level)