

Yuxiao (Sonia) Lai

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EDUCATION

Northwestern University

M.S. in Robotics, GPA: 3.91/4.00

Evanston, IL

Expected Dec. 2021

Rose-Hulman Institute of Technology

B.S. in Mechanical Engineering, GPA: 3.77/4.00

Terre Haute, IN

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, Sensing Navigation and Machine Learning for Robotics, Electrical Systems, Mechanical Systems, Control Systems, Mechatronic Systems, Introduction to AI, Machine Learning

ACADEMIC EXPERIENCE

Handwriting Camera

Independent Project

Evanston, IL

Winter 2021

- Write a program to recognize letters written in front of a camera
- Learn PyTorch to train and classify letters using the EMNIST letter dataset
- Train an OpenCV Haar Cascade model to track the tip of a customized green pen so that the pen's trajectory can be written on the screen
- Design workflow to integrate Pytorch letter classifier and OpenCV pen tracker

Fast Tower

Group Member, Embedded Systems Final Project

Evanston, IL

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

Robot Manipulation Final Project

Evanston, IL

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

PROFESSIONAL EXPERIENCE

W M Technologies Inc.

Automation Component CAD Intern

Shanghai, China

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)