

## Luisa Chiu

San Francisco, CA | (415) 819-7248 | [luisachiu1@gmail.com](mailto:luisachiu1@gmail.com) | <https://luisaschiu.github.io/>

### EDUCATION

California Polytechnic State University, San Luis Obispo, CA Graduated September 2024

- Bachelor's and Master's Degree in Mechanical Engineering, Concentration in Mechatronics, 3.86 GPA
- Minor in Computer Science

### EXPERIENCE

*Associate Robotics Solutions Engineer, Johnson and Johnson Medtech* Apr 2025 – present

- Lead system-level debugging to restore robotic functionality critical to meeting program deadlines
- Diagnose and resolve system issues through real-time log analysis to ensure uptime in clinical labs
- Conduct field operations, including system installation, de-installation, and functional testing
- Collaborate with cross-functional engineers to troubleshoot and optimize system performance

*Applications Engineering Intern, Yaskawa America, Inc. – Drives and Motion Division* Jul 2022 – Sep 2023

- Developed motion control function blocks using SLERP to prevent singularities in robotic path planning
- Tested function block performance using path calculation and pick-and-place application for a 6-DOF robot arm
- Audited code by analyzing and testing existing function block code and documenting bugs and inconsistencies
- Programmed PLC's using MotionWorksIEC to develop over 200 test cases for a new controller release
- Assembled test stand for controller prototype using motors, servo drivers, and other electronic components

### PROJECTS

**Master's Thesis: Dynamic Maze Puzzle Navigation using Deep Reinforcement Learning** Sep 2023 – Sep 2024

- Developed a computer vision robot pose estimation algorithm using OpenCV and ArUco markers
- Conducted research on autonomous mobile robot navigation and deep reinforcement learning algorithms
- Implemented Deep Q-Learning in a maze environment simulation using TensorFlow, matplotlib, NumPy, etc.

**Algorithm Development for an Autonomous Mobile Robot** Sep 2023 – Dec 2023

- Developed code in C for a microcontroller to interface with IR sensors, range sensors, and servo motors
- Created simulation for a robot to localize itself and knock over target towers using Monte Carlo localization
- Developed line-following algorithms using proportional control and convolutional neural networks (CNNs)

**Automated Produce Slicer Machine** Sep 2022 – Dec 2022

- Developed code in C++ for an ESP32 microcontroller to control motors, sensors, and limit switches
- Ensured accurate timing execution through implementation of a real-time operating system using FreeRTOS
- Collaborated on a PCB (printed circuit board) designed for project application using Autodesk Eagle
- Designed 3D printed parts through CAD modeling with emphasis in tolerancing for clearance and press fits

**Interdisciplinary Senior Project: Bike to the Future** Sep 2021 – Jun 2022

- Designed sensor feedback system with a focus on usability and functionality for a visually impaired biker
- Integrated LiDAR and ultrasonic sensors for object detection, with tactile and audio feedback to alert the user
- Created and iterated 3D-CAD models of project assembly containing over 20 parts using SolidWorks
- Produced a comprehensive instructional and informative video to guide customer in product assembly and use

**Ball Balancing Platform** Sep 2021 – Dec 2021

- Simulated closed-loop motor speed control using MATLAB and Simulink to efficiently find P-controller gains
- Developed Python code for STM32 microcontroller to interact with motors, IMU (I2C), and resistive touch panel
- Designed the multitasking program structure through implementation of task diagrams and finite state machines

### ACTIVITIES

*Member, Society of Women Engineers* Sep 2018 – present

*Member, Cal Poly ASI Intramural Sports Teams (volleyball, flag football)* Sep 2018 – Jun 2023

*Orientation Leader, Cal Poly SLO New Students and Transitions: Week of Welcome* Jan 2021 – Sep 2021

### SKILLS

**Programs:** SolidWorks, MATLAB (Simulink), Autodesk Eagle, LTspice, AutoCAD, Arduino, ROS/ROS2

**Programming Languages:** Python, C++, C, Java, Bash

**Other:** Computer Vision, 3D Printing, Drafting (GD&T), Prototyping, Manufacturing (CNC mill, lathe, welding)