Kyle Wang

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EDUCATION

Northwestern University **Evanston, IL**
M.S in Robotics, 2024

Case Western Reserve University **Cleveland, OH**
B.S.E in Electrical Engineering, 2023

SKILLS

Robotics: Embedded Systems; Gazebo; OpenCV; Machine Learning; MoveIt; Robot Kinematics; ROS/ROS2; SLAM;
Programming: AWS; CSS; C; C++; Django; GitHub; HTML; Java; Javascript; MATLAB; Python; Unit Testing;

EMPLOYMENT AND PROFESSIONAL EXPERIENCES

Cleanr - Innovation Engineer **Mar - Aug 2023**
- Developed a data logger system and website to allow efficient real-time and historical data access
- Prototyped an RFID-based tracker for disposable washing machine pods
- Assisted in designing a washing machine buffer tank to adapt to international pump standards
- Designed a custom microprocessor board for electrical systems, optimizing design, prototyping, and production

Viscofan Collagen USA - Electrical Engineer Intern **May - Aug 2021, Jun - Aug 2022**
- Designed a new Programmable Logic Controller and Display system for monitoring and controlling an assembly line
- Designed a Dual-Tank HCl Filling system with multiple control panels for efficient control and operation
- Created power diagrams for one of the buildings and updated old charts to include building renovations
- Created networking diagrams for various components including network switches, PLCs, and computers

Eagle Scout, Boy Scouts of America **Oct 2019**

PROJECTS

Light Painting with Drone Swarm **Jan - Mar 2024**
- Designed a pipeline for using OpenCV to generate a series of waypoints for drones to navigate through
- Developed a ROS2 package utilizing the Crazyswarm ROS API to control any designated quantity of drones

Simultaneous Localization and Mapping (SLAM) **Jan - Mar 2024**
- Developed an Extended Kalman Filter SLAM algorithm from scratch to use with a Turtlebot 3
- Programmed a C++ Library for calculating the kinematics of the robot along with a simulation environment in RVIZ

Robot Coffee Maker **Nov - Dec 2023**
- Worked with a team of 5 to program a 7 DoF Franka Emika Panda robot arm to brew a cup of pour-over coffee
- Built a Python wrapper for the MoveIt 2 package to guide the robot to specified positions, or follow a defined path
- Utilized ROS2, OpenCV, AprilTags, and various features of MoveIt including path constraints and inverse kinematics

KUKA youBot Mobile Manipulation Simulation **Nov - Dec 2023**
- Simulated a mobile robot with mecanum wheels and a 5 DoF robotic arm in CoppeliaSim
- Generated a trajectory to manipulate a block, using feed-forward control and a PI controller

CWRUBOTIX Robotics Team, Combat Team Co-Lead **Aug 2021 - May 2023**
- Designed a chassis, weapon, and electronics system for a 3 pound combat robot with a full-body spinner type weapon
- Programmed an algorithm to convert a 2-axis control system into instructions for a 3-axis triangular drivetrain

Custom Smart Lamp **January 2022 — May 2022**
- Developed an IoT Smart-Lamp using AWS, Raspberry Pi, iOS Apps, MQTT, and Web Frameworks
- Integrated dynamic websites, remote update, analytics, load testing, Bluetooth Low Energy, and security certificates