SHARWIN PATIL

sharwin24@gmail.com | +1 (925) 389-8466 | Sharwin24 | SharwinPatil | sharwinpatil.info

EDUCATION

Northwestern University | Candidate for M.S. in Robotics

Expected Graduation: 12/2025 — Chicago, IL

- Relevant Courses: ROS, Robotics Manipulation, Dynamics, Machine Learning

Northeastern University | B.S. in Computer Engineering & Computer Science, Minor in Robotics

Graduated: 05/2024 — Boston, MA

- GPA: 3.6, Dean's List (all semesters)
- Relevant Courses: Object-Oriented Design, Algorithms & Data, Robotics Sensing & Navigation, Robotic Science & Systems, Computer Systems, Embedded Design: Enabling Robotics, Circuits & Signals: Biomedical Applications, Robot Dynamics & Control, Artificial Intelligence, Game Programming.
- Activities: NURobotics Project Lead & Lead Intro Course Instructor, Club Water Polo President, First-year Engineering Tutor, TA for Robot Dynamics & Control.

EXPERIENCE

GreenSight | UAV Robotics Engineer Co–op

06/2023 – 12/2023 — Boston, MA

- Developed RTOS firmware for communications between a swarm of nano-drones and GCS over LoRa.
- Wrote firmware for a micro-controller to manage a charging station for autonomous solar lawn-mowers.
- Implemented a Hardware-Abstraction-Layer (HAL) in C for the ESP32 platform to interface with a custom LoRa chipset.

Fulfil Solutions Inc | Robotics Software Controls Co–op

07/2022 – 12/2022 — Redwood City, CA

- Developed sequencing code in C# for high-level behavior planning and task assignment for heterogeneous robotic agents.
- Composed data fetching functions to bridge C# sequencing code to MongoDB.
- Optimized AGV planning and curated heuristics for improving factory performance.
- Deployed factory-wide alerts and notifications for operators to react with relevant safety measures.

Doble Engineering | Software Engineering Co–op

07/2021 – 12/2021 — Marlborough, MA

- Developed an external data persistence mechanism in C# to be inserted into various Doble proprietary software products built with the .NET framework.
- Designed and deployed an installation wizard using Windows Presentation Foundation (WPF) for updating firmware on Doble instruments.
- Maintained software products in an Agile project management environment.

Northeastern University | Robotic Arm Educational Kit Research

05/2022 – 05/2024 — Boston, MA

- Designed and constructed a robotic manipulator as an educational tool for students to utilize for learning the kinematics and dynamics of robotic manipulators.
- Developed custom libraries in C++ for students with little coding experience to program movements, perform trajectory planning, and compute kinematics.
- Collaborated with professor Rifat Sipahi to introduce the kit to the course ME3460: Robotic Dynamics and Control for the Spring 2024 semester.
- Applied and obtained grant money from the PEAK Experience Award committee.

AWARDS & CERTIFICATIONS

PEAK Experience Summit Award 2023 | SOLIDWORKS Associate (CSWA) | BSA Eagle Scout | VRC CA State Champion 2018 & 2019

SKILLS

C/C++ | Python | C# | Java | Linux | Unity | ROS | MATLAB | SolidWorks | 3D Printing | LaTeX

PROJECTS

AGV Motion-Planning |

09/2022 – 12/2022

NURobotics Club: VEXU Team HSKY

- Implemented an algorithm (Odometry) to compute a mobile robot's absolute position and orientation (pose) for use in autonomous navigation.
- Developed C++ code to update the robot's pose from Odometry in real-time, enabling motion-profiling.
- Designed a motion-planning algorithm to generate robot trajectories from desired pose inputs to follow using Odometry and PID controllers.

Chess Robot |

03/2021 – 05/2022

NURobotics Club Project

- Constructed a X/Y Plotter with a modified manipulator to interact with custom chess pieces. Built with custom-designed, 3D printed parts using SolidWorks and Prusa 3D Printers.
- Implemented Arduino and Rasberry Pi components to control stepper motors, read the board state using computer vision, and display information to the user.

Aquatic Swarm Robots |

04/2022 — Atlanta, GA

RoboTech 2022 Hackathon Submission

- Created a graphical simulation in Python for a swarm of autonomous aquatic drones tasked with cleaning algal blooms within a body of water utilizing path-finding algorithms such as A* Search and RRT.

Image Manipulator |

06/2021

CS3500: Object-Oriented Design

- Developed a Java project to apply manipulations and enhancements to images and export them as various file types.
- Utilized the Model-View-Controller design pattern for improved extendibility and ease of modification.