# SHARWIN PATIL

@ sharwin24@gmail.com

**1** +1 (925) 389-8466

Sharwin24

in 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

**i** 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

**i** 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

### 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

**i** 05/2022 - 05/2024

Boston, MA

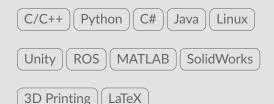
- Designed and constructed a robotic manipulator as an educational tool for students to utilize for learning the kinematics and dynamics of robotic manipulators.
- Developed custom libraries in C++ for students with little coding experience to program movements, perform trajectory planning, and compute 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



### **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 realtime, 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 | 😱



**i** 03/2021 - 05/2022

#### **NURobotics Club Project**

- Constructed a X/Y Plotter with a modified manipulator to interact with custom chess pieces. Built with customdesigned, 3D printed parts using Solid-Works 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

### Aquatic Swarm Robots | 😱



**=** 04/2022



#### 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 pathfinding algorithms such as A\* Search and

### Image Manipulator | 😱



**6** 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.