

# SHARWIN PATIL

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## EDUCATION

### Northwestern University | Master of Science in Robotics

📅 Expected Graduation: 12/2025

📍 Chicago, IL

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

📅 Graduated: 05/2024

📍 Boston, MA

## 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.
- Implemented a Hardware-Abstraction-Layer (HAL) in C for the ESP32 platform to interface with a custom LoRa chipset.
- Wrote firmware for a micro-controller to manage a charging station for autonomous solar lawn-mowers.

### 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 maintaining the factory's health while improving 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# running on the .NET framework for various Doble software products.
- Designed and deployed a firmware installation wizard using Windows Presentation Foundation (WPF) for Doble instruments.

## PROJECTS

### Automated Poker Table | 🔄

📅 01/2023 – 04/2023

- Designed a sensor-driven automated shuffler and card dealer with high repeatability.
- Developed firmware for I2C and Serial communications between STM32 microcontrollers and a Raspberry Pi.
- Delivered a complete and sophisticated system, awarding us first place for Northeastern's ECE Capstone 2023.

### AGV Motion-Planning | 🔄

📅 09/2022 – 12/2022

- Implemented Odometry from scratch in C++ with multithreading to asynchronously compute the robot's absolute pose.
- Designed a trajectory generator using Hermite splines and Bezier curves.

### Robot Arm Educational Kit | 🔄

📅 05/2022 – 05/2024

- Designed a 3-link planar robotic manipulator as an educational tool for students learning the kinematics and dynamics of manipulators.
- Developed custom libraries in C++ for students with little coding experience to program movements and perform trajectory planning.
- Collaborated with professor Rifat Sipahi to package the robot arm into a kit for the course ME3460: Robotic Dynamics and Control.

### Chess Robot | 🔄

📅 03/2021 – 05/2022

- Designed a 3-axis gantry system in SolidWorks with an end-effector to grab custom chess pieces.
- Devised a custom serial interface between a Raspberry Pi and Arduino devices using command messages to perform low-level tasks.
- Implemented a computer vision model for identifying the game state and verified over several games.

## SKILLS

Embedded C

C++

Python

C#

Java

Linux

Git

Unity

ROS/ROS2

MATLAB

SolidWorks (CSWA)