SHARWIN PATIL

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EDUCATION

Northwestern University | M.S. in Robotics

Expected Graduation: 12/2025 — Chicago, IL

- Relevant Courses: ROS, Robotic Manipulation, Mechatronics, Dynamics, Machine Learning, Deep 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).
- Lead Intro Course Instructor for NEU Robotics Club, Club Water Polo President, TA for Robot Dynamics & Control.
- Relevant Courses: Robot Sensing & Navigation, Robot Dynamics & Control, Embedded Design, Computer Systems.

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.

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)