SHARWIN PATIL

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EDUCATION

Northwestern University | Master of Science in Robotics

Graduated: 12/2025 *Chicago, IL*

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

Graduated: 05/2024 *Boston, MA*

SKILLS

Robotics: ROS/ROS2, Nav2, MoveIt, RViz2, Gazebo, OpenCV, Robot Kinematics, Dynamics, & Manipulation, Kalman Filtering
Software: Embedded C, C++, Python, C#, .NET, Java, Matlab, Linux, Git, Unity, Docker, SolidWorks (CSWA)
Machine Learning: Computer Vision, PyTorch, CNNs, Reinforcement Learning (DQN, PPO), Mujoco

EXPERIENCE

Fulfil Solutions | Robotics Software Engineer

10/2025 – Present *Mountain View, CA*

- Developed C# behavior orchestration code for automated fulfillment systems optimizing multi-robot coordination
- Optimized multi-agent task scheduling algorithms, increasing system throughput by 10–15%

Locus Robotics | Planning & Controls Intern

06/2025 – 09/2025 *Remote*

- Developed ROS services bridging C++ navigation stack and Python behavior layer to optimize fleet-level coordination
- Performance-tested ROS services on large-scale maps to validate scalability for fleets of hundreds of robots
- Integrated reusable navigation features into existing ROS architecture to expand access to fleet behaviors

GreenSight | UAV Robotics Engineer Co–op

06/2023 – 12/2023 *Boston, MA*

- Developed RTOS firmware for communications between a swarm of drones and GCS over LoRa for collecting real-time weather data
- Implemented a Hardware-Abstraction-Layer (HAL) in C for the ESP32 platform to interface with a custom LoRa chipset using SPI

Fulfil Solutions | Robotics Software Controls Co–op

07/2022 – 12/2022 *Redwood City, CA*

- Developed planning code in C# for high-level behavior and task assignment for up to 50 robots in a warehouse automation setting
- 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

PROJECTS

Open Source Potential Field Motion Planner

04/2025 – 12/2025

- Developed a real-time C++ motion planning library using potential fields for whole-body collision avoidance
- Authored a modular C++ framework and ROS2 package enabling rapid integration across diverse robot platforms
- Engineered trajectory generation with RK4 integration, soft saturation, and rate limiting for smooth motion

Extended Kalman Filter for 6-Wheel Mars Rover

07/2025 – 09/2025

- Derived and implemented an Extended Kalman Filter in C++ fusing IMU, wheel encoder, and LiDAR measurements
- Simulated rover kinematics in Python to tune process and measurement noise covariances
- Architected a ROS2 package for real-time sensor interfacing and state estimation pipelines

KUKA Mobile Manipulator Pick and Place Simulation

11/2024 – 12/2024

- Implemented a task-space feed-forward controller for the KUKA YouBot in Python for pick and place tasks
- Derived combined Jacobians for omni-directional base and arm to generate coordinated velocity trajectories