SHARWIN PATIL

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EDUCATION

Northwestern University | Candidate for M.S. in Robotics

📅 Expected Graduation: 12/2025   📍 Chicago, IL

- Relevant Courses: Robotics Machine Learning, Computer Vision, Embedded Systems, Robotics Algorithms, Robotics Systems, Robotics Perception, Robotics Manipulation.
- Activities:

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, Course Grader 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.

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.

AWARDS & CERTIFICATIONS

PEAK Experience Summit Award 2023   SOLIDWORKS Associate (CSWA)

BSA Eagle Scout   VRC CA State Champion 2018 & 2019