# SHARWIN PATIL

## Co–op/Internship Availability: July – December 2023

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## EDUCATION

### Northeastern University | Candidate for Bachelor of Science in Computer Engineering & Computer Science, Minor in Robotics

Expected Graduation: 05/2024 — Boston, MA

- GPA: 3.6, Dean's List (all semesters)
- Relevant Courses: Object Oriented Design, Algorithms and Data, Computer Systems, Embedded Design: Enabling Robotics, Circuits and Signals: Biomedical Applications, Robot Dynamics and Control.
- Fundamental Courses: Computer Science (II), Electronics, Digital Design and Computer Organization, Networks, Cornerstone of Engineering, Calculus (III), Differential Equations & Linear Algebra, Probability and Statistics.
- Activities: NURobotics Club Project Lead and Lead Intro Course Instructor, Club Water Polo Vice President. First-year Engineering Tutor.

### Dougherty Valley High School

06/2019 — San Ramon, CA

- Activities: Vex Robotics Competition (VRC) (Team Captain and Lead Design/Build), Led VRC team to Vex Robotics World Championship in 2018 & 2019. Varsity Water Polo (Captain).

## EXPERIENCE

### Fulfil Solutions Inc | Robotics Software Controls Co–op

07/2022 – 12/2022 — Redwood City, CA

- Developed automation software in C# for various robotic systems.
- Brainstormed innovative solutions for optimizing factory operations.

### 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 propietary 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 | First-Year Engineering Tutor

01/2021 – 05/2022 — Boston, MA

- Tutor first-year students in SolidWorks, C++, AutoCAD, MATLAB, and Arduino.
- Assist students with projects utilizing workshop machines (Bandsaw, Laser Cutter, 3D Printers).
- Member of FYELIC Advisory team, which guides and aids prospective FYELIC tutors.

### Dougherty Valley Robotics Club | Team Captain & Summer Camp Mentor

09/2015 – 06/2019 — San Ramon, CA

- Drove the design, engineering and fabrication process for a competitive robot that was able to interact with physical objects and perform tasks.
- Wrote robot micro-controller in C++ for the control system.
- Documented and recorded the engineering process to present to judges at tournaments.
- Developed a curriculum to teach 30 middle school students the fundamentals of robotics with the VEXIQ system, students were ultimately able to construct and program a robot capable of completing multiple tasks and compete against other teams.

## AWARDS

BSA Eagle Scout | VRC CA State Champion 2018 & 2019 | VRC Awards (17x) | Varsity Water Polo MVP 2018 & 2019

## SKILLS

C# | C/C++ | Java | Python | Arduino | MATLAB | SolidWorks | Linux | LaTeX | 3D Printing | Lisp

## PROJECTS

### Robot Arm Educational Kit |

05/2022 – present

- Designed and constructed a 3-link planar 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 and perform trajectory planning.
- Collaborated with professor Rifat Sipahi to make the robot arm into a kit for the course ME3460: Robotic Dynamics and Control.

### Chess Robot |

03/2021 – 05/2022

**NURobotics Club**

- 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 Simulation |

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.