

Rishabh Tole

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EDUCATION

UNIVERSITY OF PENNSYLVANIA

Candidate for: BSE, Major: AI, Minor: Mathematics

Philadelphia, PA

2025-2029

RESEARCH EXPERIENCE

Researcher @ WORCESTER POLYTECHNIC INSTITUTE (Worcester, MA)

Summer 2025-Present

- Equal contributor on a paper that is the first to successfully autonomously navigate obstacles with a quadrotor drone using a multi-pinhole lensless imaging depth-based setup.
- Designed, collected data for, and trained models (CNNs, Vision Transformers, Diffusion) for depth estimation, incorporating physics-inspired priors for improved accuracy.
- Applied quantization for real-time deployment on embedded platforms (Jetson, Raspberry Pi, Coral).
- Submitting to IEEE RA-L (Robotics and Automation Letters)

INDEPENDENT PROJECTS

SedLev: Sediment Level Detection

2023-Present

- Worked with local politicians on a pilot program to implement a sensor to prevent water pollution and street flooding by monitoring sediment levels in storm drain basins.
- Built a prototype, showed it to potential investors, and am working on productizing.

MapPin: Navigation for Visually Impaired

2023-2025

- Created a device and supplemental software to display 2D maps with a topographical, tactile device using helical servos, and had it reviewed by a dyslexia specialist.
- Intended to help people with Dyslexia, which can hinder spatial awareness, especially with maps. Also helps the visually impaired.

Quantum Computing Simulator @ MIT: Introduction to Quantum Computing

2023-2025

- Was selected (1/164) from home high school to take the Intro to Quantum Computing Course at MIT.
- Built a simple quantum computing simulator and attempted to implement Shor's Algorithm to factor large products of primes.

OTHER EXPERIENCE

Software Engineering Internship @ Breeze Travel

Summer 2024

- Redesigned and modernized the UI to transition the company website from a B2C to a B2B SaaS platform.
- Developed features tailored for business clients (e.g., travel agencies) to improve usability and client workflows.
- Produced front-end demo videos to showcase platform capabilities for potential clients and users.

Donor Relations Intern for Ekal Vidyalaya Foundation of USA

Jun 2024 - Aug 2024

- Developed technical solutions to enhance donor engagement by creating a system that compiled and processed donor data to generate personalized thank-you notes.
- Designed a system to notify volunteers when to reach out to donors, optimizing the communication process.

FTC Robotics

2021-2023

- Lead programmer for Tech Tigers 19411 FTC team. Reigning Massachusetts state champions for 4 years. Represented Massachusetts at Worlds 3 times.

ADDITIONAL INFORMATION

- Technical Skills: Python, Java, OnShape, Pytorch, Numpy, OpenCV, LaTeX, OCaml, Excel, GitHub, Bash
- Personal Interests: Hindustani classical music, Dhol, Community Service