Julian Shah

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Education

Olin College of Engineering, *Needham, MA*

Bachelor of Science, Electrical and Computer Engineering, May 2028

Relevant Coursework: Computational Robotics (machine vision, bayesian filtering), Fundamentals of Robotics (robot arm control, trajectory generation), Software Systems (systems programming in C), ISR: Robotics Practicum in C++ (ROS2 C++ project with advisor), QEA2 (vector calculus)

Skills

Software C/C++, Python, ROS2, OpenCV, WebGPU, MATLAB, Adobe (Premiere Certified)
Algorithms V-SLAM, Gaussian/Triangle Splatting, Gradient Descent, Inverse Kinematics, Path Planning
Languages English (Native), German (Professional Proficiency), Japanese (Elementary Proficiency)
Personal Interests Making & Serving Coffee (Cafe Manager), Filmmaking

Experience

Olin Robot Lab, Needham, MA — Sep 2024 - Present

Research Roboticist

- Circuit design and testing for capacitive soil moisture probe, currently integrating into a PCB
- Created drone control pipeline, configured PX4 firmware, and implemented Mavlink control with Python scripts on an onboard Nvidia Jetson Nano
- Autonomous drone landing routing using real-time adjustments from OpenCV april-tag detection
- Used Gazebo to simulate drone movements and validate code before hardware deployment

Small Car Performance, Kent, WA — Aug 2023 - Sep 2023

Product Engineering Intern

- Emulated CAN signals using Arduino C to comply with California emission standards
- Performed data analysis on Subaru Forester CAN signals to isolate transmission CAN ID
- Designed coolant reservoir, alternator mounting bracket, and multi-thousand part engineering drawings

Code Ninjas, Seattle, WA — Dec 2022 - Sep 2024

Coding Instructor

- Taught students how to program (Python, C#, Lua) and solve computer math problems (like leetcode)
- Understood student codebases to diagnose and resolve bugs
- Effectively conveyed information and assisted with implementation for student projects

Projects

Swarm Robotic Chair & Bin — October 2025 - Present

- Project Manager responsible for timeline, meetings, reminders, project completion
- Human centered computer vision using mediapipe python (developing C++ integration to use GPU)
- Implemented PI motion control and velocity multiplexer for command prioritisation

3D Reconstruction By Splatting — November 2025 - Present

- Created custom structure from motion (SFM) pipeline and self-implemented mono-camera triangulation
- Developed camera calibration script using OpenCV Python and extracted intrinsics of various cameras

Eigenface Facial Recognition — Oct 2025 - Nov 2025

- Performed singular value decomposition (SVD) on a set of faces to extract eigenfaces
- Used eigenfaces to map new faces in vector space and detect whether people are smiling or not