

Rishi Pudipeddi

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EDUCATION

University of Pennsylvania

B.S.E. Computer Science, Accelerated Master's in Robotics, Class of 2030

Philadelphia, PA

August 2026 – Present

Eastside Preparatory School

High School Diploma, 3.99 unweighted GPA

Bellevue, WA

September 2022 – June 2026

Relevant Coursework: AP Calculus BC, AP Physics C, AP CS, Data Structures & Algorithms, Cybersecurity

EXPERIENCE

Oceaneering International – Aerospace & Defense Technologies

Hanover, MD

Software Engineering Intern

May 2026 – August 2026

- Implemented and integrated a new sensor end-to-end into the ROS 2/C++ software stack for the TETRA unmanned underwater vehicle, from hardware interface through network communications and operator display.
- Added full-coverage unit tests for the new subsystem, debugged and refactored components in a large, multi-developer codebase, and helped perform in-water vehicle testing.
- Authored customer-facing documentation and collaborated with software, mechanical, and electrical engineers throughout the development lifecycle. Contributions were shipped in a customer build and product demo.
- Worked in a controlled-unclassified-information (CUI) environment under defense program handling requirements.

Levo.ai

Remote

Software Engineering Intern

March 2024 – June 2024

- Developed Linux eBPF instrumentation that hooked OpenSSL calls from JVM applications, capturing pre-encryption traffic for a production network-vulnerability monitoring platform.

Eastside Preparatory School

Bellevue, WA

Software Engineering Intern; Hack Club President

June 2023 – June 2026

- Maintained a Flask and Docker schedule application used daily by 500+ students, deployed behind Cloudflare with a Redis cache fed by scheduled GCP polling for cached, low-latency reads.
- Led 5+ student developers through code review and release cycles, delegating features and bugfixes.
- Built a Django and MongoDB backend for user media uploads, with OAuth2 Azure Active Directory tenant login.

PROJECTS & TEAMS

BrownieOS | Creator

Bellevue, WA | June 2023 – Present

- Building an x86 operating system from scratch in C with a monolithic kernel and POSIX-compliant userspace, booting via GRUB into 32-bit protected mode.
- Implemented multitasking with round-robin scheduling, ring 3 processes, system calls, and handling for kernel traps and hardware interrupts. Researched and implemented concurrency primitives: spinlocks, mutexes, semaphores.
- Wrote a physical memory manager, a kernel-space slab allocator, a `kmap()` implementation for physical-memory access, and VGA terminal, timer, and interrupt-controller drivers; currently adding FAT32 and a shell.

MATE ROV Underwater Robotics | Captain, Lead Programmer

Bellevue, WA | September 2023 – June 2026

- Researched, implemented, and tuned feedback controllers for depth, angular velocity, and orientation, enabling highly stable manual and autonomous 6 DOF vehicle control.
- Built a custom C video pipeline streaming MJPEG over UDP with OpenGL topside rendering, achieving 60ms end-to-end latency with four simultaneous 1080p30 cameras.
- Designed a bidirectional checksum-based protocol carrying pilot input and live control telemetry from topside to the ROV Raspberry Pi over Ethernet, and from the Pi to its microcontroller over serial.
- Rewrote a BlueRobotics depth-sensor driver to cut read time 30×, doubling thruster control-loop rate.
- Led the team to 2 Pacific Regional Championships and a 4th-place finish at the MATE World Championship.

FIRST Tech Challenge Robotics | Captain, Lead Programmer

Bellevue, WA | September 2022 – April 2026

- Wrote control software for an omnidirectional drivetrain using Guided Vector Fields for autonomous pathing.
- Built game-object detection and 3D localization pipeline with OpenCV to autonomously interact with game pieces.
- Captained the team to a Washington State Championship berth, setting world-record autonomous and match scores.

Auroral Detection System | Creator

Bellevue, WA | September 2023 – April 2024

- Trained a TensorFlow/Keras classifier on >100,000 labeled images and ran live inference on a Raspberry Pi Zero to detect auroras overnight, alerting the user over RF via a wearable vibration module in a weather-resistant field enclosure.

TECHNICAL SKILLS

Languages: C, C++, Rust, Python, C#, Java, Assembly, JavaScript, SQL, HTML/CSS

Systems & Embedded: OS/kernel development, eBPF, Linux, microcontrollers, serial and networking protocols, OpenGL

Robotics & Perception: ROS 2, feedback control systems, sensor integration, state machines, OpenCV, ML, data analysis

Tools: Git, Debugging (GDB, LLDB, Valgrind), CMake, gtest, WSL, Docker, GCP, AWS, Cloudflare, AI & agentic programming