Akshera Paladhi
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EDUCATION

University of California Santa Cruz, Santa Cruz, CA — September 2024 – Present
Bachelor of Science in Electrical Engineering B.S., Minor in Astrophysics — Expected Graduation June 2028
GPA: 3.73/4.0

- **Relevant Coursework:** Computer Systems and Assembly Language, Modern Electronics, Introduction to Physics I, Computer Systems and C Programming, Linear Algebra, Vector Calculus, Python Programming, Introduction to Probability Theory, Physics III Introduction to Electricity and Magnetism, Introduction to Scientific Computing

EXPERIENCE

Air Mouse (ESP32 + MPU-6050), (Remote) — December 2025 – Present
Arduino IDE/PCB Project

- Developed a motion-controlled wireless mouse using ESP32 and MPU-6050. Implemented BLE HID, gyro calibration, moving average filtering, and adjustable sensitivity/deadzone for stable cursor control
- Built and testing prototype on Arduino/breadboard; currently developing PCB, demonstrating embedded programming and sensor integration skills.

Learning Support Services Tutor (Hybrid) — Sept 2025 – Present
Large Group Tutor/Individual Tutor

- Leading weekly tutoring sessions for 5+ students in CSE 12, reinforcing ***low-level logic***, ***data structures***, ***RISC-V architecture***, and system-level understanding to improve retention and applied learning
- Providing one-on-one support in ***Linear Algebra***, strengthening conceptual reasoning in ***vector spaces***, ***eigenvalues***, and ***matrix computation***

UC Santa Cruz Quantum Computing (Hybrid) — August 2025 – Present
Vice President/Researcher

- Organizing weekly technical workshops and events for 20+ student members, introducing practical applications of ***quantum algorithms***
- Collaborating with leadership to expand research opportunities, overseeing a project comparing quantum neural networks ***(QNNs)*** with deep neural networks ***(DNNs)*** for ***data-driven analysis***

UC Santa Cruz Institute of Particle Physics (SCIPP) (Hybrid) — June 2025 – Present
Undergraduate Researcher

- Developing ***embedded C/C++*** firmware for ***STM32*** with ***UART/I²C*** for ***real-time data acquisition***
- Debugging ***hardware and software systems*** using ***oscilloscopes***, ***logic analyzers***, and ***multimeters***
- Automating ***calibration*** and logging in Python, increasing hardware testing throughout
- Contributing to a ***Git-managed codebase***, following professional collaboration practices

L'Space Nasa's Proposal Writing and Evaluation Experience (Remote) — May 2025 – August 2025
Research Participant (Workforce Preparation)

- Served as Scientist on a student team in NASA's Workforce Preparation Academy, developing science goals and traceability matrices, conducting ***trade studies***, and creating ***CAD designs*** and using ***Siemens NX***
- Reviewed ***NASA solicitation proposals***, evaluating submissions against rubric criteria and providing structured feedback to proposal teams

SSCS Arduino Contest - IEEE Project, (Hybrid) — April 2025 – August 2025
Research Project

- Designed and implemented ***embedded C signal processing*** for a wearable audio-to-haptic device, ensuring real-time performance with analog filtering and ***UART/I²C*** communication
- Led ***hardware-software integration*** and testing to validate system accuracy and robustness for accessibility applications
- Applied circuit design and ***motor control*** principles to optimize power and system reliability

SKILLS

- **Programming & Software:** C, C++, Embedded C, Python, MATLAB, HTML/CSS/JavaScript, Jupyter Notebooks, Git/GitHub, Linux, Firmware Development, Scientific Computing
- **Hardware & Engineering Tools:** STM32 microcontrollers, UART/I²C/SPI, KiCad, LTspice, PCB Design, Thorlabs CC215MU camera (ThorImageCAM/ThorCam), Machine Learning, Signal Processing, Mathematical Optimization, Data Structures & Algorithms, Probability, Circuit Analysis, Orbital Mechanics, FFT / Frequency-Domain Analysis