Tawedzerwa K. Vhurumuku

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Education

Stanford University   **Sep 2023 - Jun 2027**

Bachelor's Degree, Electrical Engineering, Computer Science

- **Coursework:** Accelerated introduction to programing with web development, Programming Abstractions in C++, Circuits, RISC-V architecture, assembly language and machine-level code, Operating systems, Digital Systems Design and Verilog, Computer Architecture, Signals and Systems, Computer Networking (current), VLSI systems (current), Parallel computing (current), Data Structures and Algorithms, Machine Learning, Probability for Computer Science

Work Experience

Stanford Computer Science   **May 2025 - Present**

Software Engineering/Computer Science Teaching Assistant   *Stanford, CA*

CS198 program -Introductory data structures and algorithms

- Lead weekly discussion sections (10–12 students each) in Python/C++ for a class with 900+ students
- Staffed about 4 hrs/week of office hours delivering 80–100 one-on-one debugging sessions/quarter, focusing on problem decomposition, testing, and algorithmic thinking
- Ran 60+ interactive grading (IG) sessions/quarter for my section; provided rubric-based feedback and code reviews, emphasizing style, asymptotic reasoning, and test coverage

Uncommon.org + Stanford CS for Social Good   **Jun 2024 - Aug 2024**

Software Developer Intern   *Harare, Zimbabwe*

- Revamped marketplace search: added typo-tolerance, relevance/recency ranking, category filters, and pagination; shipped with tests and docs
- Built the Uncommon blog end-to-end in Next.js/TypeScript: content schema, API routes, SSR pages, and an admin dashboard
- Implemented reusable modal contact forms with server-side validation and rate-limiting

Stanford Student Technical Support   **Oct 2023 - Present**

Technology Specialist   *Stanford, CA*

- Resolved 250+ Wi-Fi/Ethernet, DHCP/DNS, and eduroam/Stanford-WiFi tickets across macOS/Windows/iOS/Linux; restored service via safe-mode isolation, firewall resets, and DHCP checks
- Brought devices to compliance (FileVault/BitLocker, Jamf/CrowdStrike), set up Cardinal Key, and help troubleshoot software related issues such as system file corruption
- Wrote concise updates and actionable ticket escalations (repro steps, logs, screenshots); standardized notes that cut time-to-resolution ~30% for common issues (e.g., wall-plate AP/Mist migrations, VLAN/firewall constraints)

Projects

Mango Pi Curtain Opener

- Built bare-metal C firmware; wrote RTC and I²C drivers with a simple scheduler for timed open/close events.
- Added a UART shell for config (set time, create/delete schedules, manual open/close, status) so changes don't require reflashing.
- Implemented an IR sensor library and command layer for remote overrides; co-tested and refined behavior with a partner

WanderWise - iOS Travel Planner | Mobile App

- Built a 3-tab iOS app in Swift (Discover, Favorites, Map): REST networking with URLSession/async, Codable models, and MapKit pins with detail sheets.
- Added an LLM chat that gives per-destination tips; sends trip context (dates, interests, budget) and returns structured suggestions users can save to Favorites
- Implemented MVVM state + persistence:ObservableObject view models, data passing via bindings, and Favorites/response caching with UserDefaults + file cache; supports Dynamic Type and dark mode

Sobel Edge Detection in C++

- Implemented single- and multithreaded grayscale + Sobel filters; profiled and eliminated hotspots
- Vectorized convolutions with ARM NEON intrinsics and aligned loads/stores leading to an increase from 5 FPS to 100 FPS (1900% speedup), cutting frame time from 200 ms to 10 ms (real-time)
- Benchmarked across core counts; reported throughput and latency

Certifications

- **Intro to iOS development:**Codepath 2025
- **Regeneron ISEF finalist delegate Zimbabwe:**Society for Science 2022
- **Broadcom Foundation Award:**Africa Science Buskers Festival 2022

Skills

- **Software & Scripting**: C++, Python, JavaScript, TypeScript, Git, Assembly (RISC-V), Object Oriented Programming, TensorFlow, NumPy, Pandas, Matplotlib, Docker, AWS, Linux
- **Systems Engineering and Hardware**: Operating Systems, Multithreading, Digital Systems Architecture, Timing Analysis, Parallel Programming, C Programming, Arduino (Embedded C), FPGA
- **Web Engineering**: Next.js, React, Node.js, CSS, HTML, Sanity.io GROQ, MongoDB