

NOLAN TUTTLE

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SOFTWARE ENGINEERING SUMMARY

Software engineering student experienced in full-stack web development, microcontroller firmware, and Linux-based embedded systems. Work includes REST API development, frontend development using React and TypeScript, and IoT systems implemented in C/C++. Excel in competitive systems-focused or full stack software engineering tasks.

TECHNICAL SKILLS

- **Languages:** TypeScript, JavaScript, Java, Python, C/C++, C#, SQL, Bash, HTML/CSS, VHDL/Verilog
- **Platforms:** ARM Cortex-M, ESP32, Raspberry Pi, React, Next.js, Tailwind CSS, Node.js, Git, Github Actions, AWS
- **Concepts:** Real-time Control Systems, PID, Linux Services, REST APIs, CI/CD, Agile/SDLC, Server Deployment

EDUCATION/COURSEWORK

Grand Canyon University

Sep 2022 - Apr 2026

B.S., Software Engineering

Phoenix, AZ

- **Coursework:** Embedded Systems, Digital Logic, Embedded Systems II, Operating Systems, Algorithms and Data Structures, Computer Architecture

PROFESSIONAL EXPERIENCE

Independent Consulting

May 2025 - Aug 2025

Multicast Network Tunneling Project

- Benchmarked TCP and UDP throughput using iperf on Linux across three networks (public internet, home-to-cloud, private VLAN); identified buffer size bottleneck and tuned socket buffers, raising throughput from 1.01 Gbps to 2.20 Gbps.
- Validated full end-to-end multicast delivery by deploying a proprietary Android SDK to receive live streams tunneled from Linode VMs over public internet; resolved AMT interface creation bug and drove migration from Fedora to Ubuntu 24.04 after diagnosing kernel multicast forwarding incompatibility.

Director of Operations | <https://aigcu.github.io/AIM-Website/>

Sep 2025 - Present

Canyon Artificial Intelligence Research

Grand Canyon University, Phoenix AZ

- Promoted to Director of Operations; led team to 2nd place at the 2026 GCU Honors Symposium and delivered an oral presentation to Canyon Emerging Scholars, showcasing the Stream 1 depth classification prototype.
- Authored a research paper on stereo-vision localization for autonomous vehicles; personally executed a 150-frame stereo calibration achieving near-coplanar alignment, tuned SGBM parameters (32 disparities, block size 7, 320×240), and optimized the perception pipeline from a 30 Hz target to a sustained 40–60 Hz.
- Led full system integration including 3D-printed camera mounts, electrical assembly, buck converter tuning, and GPIO motor drive configuration.

PROJECTS

PhytoPi – Smart IoT Plant Environment | <https://github.com/nolantuttle/PhytoPi>

September 2025 – April 2026

- Served as Project Manager and Hardware/Integration Lead; built a Raspberry Pi 5 controlled environment system in C with automated soil moisture watering, temperature-triggered ventilation, and a research-optimized 16-hour light cycle, integrated with Supabase cloud sync and a Flutter real-time dashboard.
- Followed full SDLC from customer feedback through IEEE-standard requirements and technical specifications; verified 48+ hours of fully autonomous operation before capstone showcase.

nolantuttle.com - Personal Portfolio Website | <https://github.com/nolantuttle/portfolio-site>

August 2025 - Present

- Built and self-hosted a full-stack portfolio site using Next.js 14 (App Router), React, TypeScript, and Tailwind CSS v4, deployed on a Linode VM and secured via Cloudflare Tunnel.
- Features project showcase, resume download, interactive project UI elements, and a contact form that routes submissions directly to email; 53+ commits with iterative improvements over the project lifetime.

Resistor Classifier – MLOPS Pipeline | <https://github.com/nolantuttle/ResistorClassification>

February 2026 – April 2026

- Built an end-to-end resistor classification system in Python/OpenCV, combining a two-pass GrabCut segmentation pipeline for resistor isolation across varied backgrounds with a multi-output linear SVM on HSV color-histogram features, reaching <70% resistance and <80% wattage accuracy over 37 classes.
- Deployed the trained model as a Flask + Gunicorn service on AWS EC2, migrated to Linode VPS serving live predictions via image upload at <https://nolantuttle.com/resistor-classifier>.