Nolan Tuttle

(971)-320-9557 | nolantuttle@nolantuttle.com | https://linkedin.com/in/nolan-tuttle-07295830a/
https://github.com/nolantuttle | https://nolantuttle.com/

Summary

Embedded software engineering student experienced in real-time control, microcontroller firmware, and Linux-based embedded systems. Work includes ARM Cortex-M and Raspberry Pi platforms, sensor integration, and PID-controlled thermal systems implemented in C/C++. I'm seeking a competitive embedded or systems-focused software engineering internship.

Technical Skills

Languages: Embedded C, C++, Python, VHDL
Platforms: ARM Cortex-M, RP2040, ESP32, Raspberry Pi
Concepts: Real-time Control Systems, PID Control, Linux Services, Memory-mapped I/O

Professional Experience

Summer Externship – Akamai Technologies May 2025 – August 2025

- Developed a proof-of-concept for automatic multicast tunneling between Linux machines using AMT, smcroute, and iperf; provisioned and managed test environments using Linode VMs.
- Wrote Bash scripts to configure tunnel endpoints and analyzed network performance characteristics over private VLAN and public internet.

Research Intern September 2025 – Present

Grand Canyon University, Canyon Artificial Intelligence Research *Phoenix, AZ*

- Working in a team of 5 engineers to deliver a robot prototype navigating with strictly computer vision; no LiDAR or GPS.
- Implemented a Raspberry Pi 5-based embedded controller with multiple cameras for stereovision and real-time processing. Assisted development of depth-based classification for a 72% CPU usage reduction. Responsible for market research for the Autonomous Image-based Machine (AIM) research group.

Projects

Gaggietto - PID Espresso Machine Controller (https://github.com/nolantuttle/Gaggietto) June 2025 – Present

- Built custom controller on a Teensy 4.0 microcontroller, migrating from a Raspberry Pi Zero 2 WH and achieving < 2s startup time, over a 90% improvement from initial release. Utilizes SSR to switch the boiler for PID control cycles, tuned for the boiler's high thermal inertia.
- Features button debouncing and controls for steam mode and temperature adjustment settings in a custom open-source 3D printed enclosure.
- Accurate boiler PID control within ±1ºC, drastically improving shot pull consistency, graphical OLED display showing heat curve.

Pager - A Virtual Memory Manager (https://github.com/nolantuttle/VirtualMemoryManager) March 2025

- Implemented a simplified virtual memory manager in C, simulating logical-to-physical address translation using page tables.
- Mapped logical pages to physical frames and handled reading/writing memory pages between input and output files for demonstration.

Education

Grand Canyon University, Phoenix, AZ

B.S. Software Engineering *Fall 2022 – Expected Graduation April 2026*

Relevant Coursework:

- Embedded Systems
- Digital Logic and Design
- Embedded Systems II
- Operating Systems
- Algorithms and Data Structures
- Computer Architecture