Caleb Rollf

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EDUCATION

University of Nevada, Las Vegas — May 2026
Bachelor of Science in Computer Engineering

TECHNICAL SKILLS

Languages: C | C++ | Bash Script | Verilog | SystemVerilog | Python | MicroPython
Architectures: ARM | RISC-V | MIPS (Familiar)
Microcontrollers: STM32 Nucleo C0xx | ATmega32U4/328PB | Raspberry Pi | Raspberry Pi Pico
Applications: Git | Microchip Studio | STM32CubeIDE | LTSpice | Altium | Quartus II | Visual Studio Code | KiCAD

INTERNSHIP EXPERIENCE

Engineering Intern, Pololu Robotics and Electronics — May 2024 – Dec 2024

- Built lightweight firmware library for STM32C0xx MCUs to process quadrature encoder signals without STM HAL libraries.
- Programmed and integrated UART libraries for communication between uC and programmable power supply (C) and relay system (Python).
- Designed and programmed a diagnostic unit for a programmable power supply. Created the schematic, performed component calculations, and completed wiring and soldering.
- Operated diagnostic and test equipment including oscilloscopes, multimeters, power supplies, and function generators.
- Documented all project work, code, and procedures in a private internal forum.

PROJECTS

Microcontroller Systems Design, Arcade Prize Dispenser — Spring 25

- *Awarded 3rd Place in UNLV's Spring 2025 Junior Design Competition.*
- Programmed an ATmega328P in bare metal C to control a prize system with a 16x2 LCD, an SPI RFID scanner, and servo motors.
- Enabled RFID card detection, user info display, balance tracking, balance adjustment, prize selection via buttons, and prize dispensing via servo.
- Implemented designed circuit onto a breadboard and constructed a functional vending machine prototype.
- Collaborated in a 2-member team using Git for version control.

Internet of Things, Industrial Equipment Monitoring System — Fall 24

- Developed an IoT system that collects heat, vibration, and force readings from "industrial equipment" through MCU nodes.
- Transmitted sensor data using MQTT, analyzed it in MATLAB, and visualized trends with ThingSpeak.
- Implemented push-alerts to flag the equipment that requires servicing, reducing potential downtime.

Circuits II, Bass Amplifier Speaker — Summer 24

- Designed a bass amplifier for a speaker using an operational amplifier to boost the audio signal and a low-pass Butterworth filter with an adjustable cutoff to enhance bass frequencies.
- Developed and tested the circuit using LTspice simulations and breadboard prototypes.

WORK EXPERIENCE

Device Technician and Trainer, AGIRepair — Apr 2022 – Oct 2023

- Diagnosed, installed, repaired motherboard, and tested hardware issues on various devices daily.
- Highest producing technician in the facility, monthly and annually, exceeded repair standards and averages.
- Trained eight employees on device repair procedures, including the manager for certain models of computers.

OTHER WORK EXPERIENCE

Computer Technician, Staymobile — July 2021 – Apr 2022
Yard Manager, MC Carrier LLC — Jan 2021 – July 2021
Warehouse Worker, Spreadshirt, Inc. — Oct 2020 – Dec 2020
Programming Intern, OutletPC — Feb 2019 – May 2019