

Sebastian

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Education

University of Texas at Dallas

Richardson, TX

B.S. in Electrical and Computer Engineering

August 2023 - May 2027

- **Coursework:** Digital Circuits, Electrical Network Analysis, Signals and Systems, Embedded Systems, Systems and Controls, Operating Systems, Electronic Circuits, Computer Architecture, Software Engineering

Involvement

Electrical Systems Lead

Richardson, TX

Dallas Formula Racing (FSAE)

August 2024 - Present

- **Directing a 40-member team** in the design and integration of safety-critical EV systems, including the **Vehicle control, data acquisition, and Battery management**
- Standardized embedded workflow by onboarding new members to **Altium Designer and embedded C**.
- Managed the end-to-end lifecycle of **custom PCBs**, from schematic capture and routing to firmware development and testing.

Projects

Vehicle Control and Power Delivery

August 2025 - Present

- Constructed a custom VCU using dual **STM32H5 microcontrollers** and **FreeRTOS** to process redundant pedal sensor data and command motor torque via **CAN**.
- Developed a high-reliability Power Delivery Module (PDM) to distribute regulated power to low-voltage systems
- Architected a custom CAN communication protocol in firmware to ensure cohesive, low-latency data transmission across all vehicle nodes.

Data Acquisition System

August 2025 - Present

- Reduced EV wiring by designing a **seven node daisy-chained system** utilizing STM32s, FreeRTOS, and CANFD.
- Engineered custom PCBs with **eFuses** and transient voltage suppression for harsh EV environments.
- Implemented a bespoke OpenBootloader over CAN for **over-the-air firmware updates** and **wireless telemetry**.
- Built a **full-stack** monitoring GUI in **React and Rust** with Docker-based CI/CD pipelines for **real-time data visualization and cloud logging**.

Home Server and Networking

2024 - Present

- Designed and manufactured a small-form-factor server rack in OnShape to house a “data-center-in-a-box”.
- Deployed and managed containerized services using Proxmox and ZFS redundancy for high availability.
- Hardened network security using Cloudflare Tunnels and Authentik (IdP) to provide remote access to team resources.

Experience

STEM Tutor

Carrollton, Texas

The Tutoring Center

2022 - 2025

- Mentored students in advanced mathematics and physics, including Calculus, Statistics, Algebra, and Geometry
- Developed unique learning plans by breaking complex engineering-level math down into simple components.

Skills

Programming

C/C++, Rust, Python, TypeScript, React, Java, MATLAB, CMake

Hardware & EDA

Altium Designer, KiCad, STM32 (ARM), RISC-V, CAN(FD), PCB Design, SPICE, Onshape, Raspberry Pi

Embedded

FreeRTOS, STM32Cube, GDB, Docker, Git, Linux, Oscilloscopes, Logic

& Infrastructure

Analyzers, Just, Cmake