MATTHEW DAVIDSON

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EDUCATION

Texas A&M University August 2021 – May 2025

Pursuing B.S. in Computer Engineering GPA: 3.35

EXPERIENCE

Texas A&M Sounding Rocketry Team

Avionics Manager April 2024 – Present

- Leading a team of 9 in the development and integration of onboard electronics for a 50-meter hop vehicle
- Overseeing modifications to an FMCW radar payload as well as the creation of new camera and telemetry systems for the team's solid rockets

Payload Team Member August 2023 – April 2024

- Designed an FMCW radar to collect altitude and velocity data at a range of up to 500 meters as part of a payload that flew on the team's Telemachus rocket at the 2024 Spaceport America Cup
- Calculated various figures of merit for the radar payload, including signal-to-noise ratio, maximum range, and resolution to optimize performance within strict design constraints
- Contributed to the modification and testing of a real-time analog video streaming payload and helped improve battery life by over 3 hours

Texas A&M Engineering Business Office February 2022 – Present

Student Worker

- Fulfilled job responsibilities for 12 hours per week, alongside a busy academic schedule
- Processed 10+ invoices daily and handled problems that arose in the business process
- Assigned purchase orders to faculty and staff within 15 minutes to maintain efficient operations
- Reduced invoice processing time by 25% using available tools and software

PROJECTS

Pseudo-3D Game Engine December 2022

- Created a 2.5-D raycasting game engine from scratch in Java without the use of external dependencies
- Implemented additional features such as textures, non-player entities, and adaptive audio system
- Designed to run single-threaded and CPU-only to allow porting to low-power devices

Conway's Game of Life February 2021

- Implemented Life on a fixed-size, periodic universe, allowing for simple, fast, and accurate simulation
- Modified the original program to run in a text-only shell using Java's process control API

Nearest Plane App November 2020

- Command line app that connects to the OpenSky API to determine the nearest aircraft to any location in the world and report its flight telemetry in a presentable format
- Built a modern web UI to improve the user experience and simplify documentation

TECHNICAL SKILLS

Software: Python, C/C++, Java, MATLAB, TypeScript, Rust, ARM assembly, Git/GitHub
Hardware: LTSpice, KiCad, Verilog, soldering
Interests: Embedded systems, RF electronics, low-level programming and optimization