

J. Pierce Avner

2175 S. Walnut St. Boulder CO, 80302 | (720) 645-0641 | jpavner@gmail.com | <https://pierce-avner.netlify.app>

EDUCATION AND CERTIFICATIONS:

B.S. Exp. May 2025

University of Colorado Boulder

GPA 3.898

Computer Science Major, Electrical and Computer Engineering Minor

- Relevant Courses: Embedded Software Engineering, Data Science, Computer Systems, Computer Organization, Operating Systems, Real-Time Operating Systems, Intro to Artificial Intelligence, Digital Logic, Intro to Cyber Security
- Certified SOLIDWORKS Professional, Certified SOLIDWORKS Additive Manufacturer
- Dean's List (2021-Present), CU Boulder Joseph A. Sewall Esteemed Scholar

ENGINEERING WORK EXPERIENCE:

Special Aerospace Services | Arvada, CO

Software Engineering Co-Op / SAS Advanced Systems Team

June 2024-Present

- Designed and fabricated a lightweight, cost effective, and compact custom PCB sensor interface for a Raspberry Pi 5, centered around the rp2040 microcontroller, capturing approximately 80,000 sensor readings per hour
- Developed embedded software in C to control multiple I2C devices to capture atmospheric and GPS data; sending packets via UART to a flight computer for real-time processing and analysis under AS9100
- Designed and implemented network systems to establish and maintain a wireless ethernet bridge, enabling continuous data streaming between an active-tracking ground station and a high-altitude, moving payload over 35 miles away
- Implemented data science and machine learning data filtering techniques to help analyze and visualize flight data
- Designed and fabricated a PCB to imitate 64 different sensors by controlling 16 SPI devices and 48 digital devices simultaneously at 50 kHz. Implemented redundant power regulation systems to regulate a range of 3V-100V inputs

Tensentric | Boulder, CO

Software Engineering Intern

May 2023-August 2023

- Developed multithreaded software in C and C++ on Zephyr real-time operating system to develop accessible autonomous control systems for people with limited physical mobility
- Worked with an interdisciplinary team to create and test new robotic motion algorithms for medical device software following standard industry operations under ISO 13485
- Communicated directly with clients to generate technical and system requirements; led design-transfer meetings with clients allowing for a smooth transfer of information and identified improvements for future prototypes

PERSONAL PROJECTS:

Full Stack Developer | AI Dungeon Master

January 2023-Present

- Created an AWS EC2 instance to manage a real-time database abstracting OpenAI API calls and data management
- Used data science techniques to improve the memory of early OpenAI models by approximately 950%

Team Lead/Embedded Software and Electrical Lead | Animatronics

August 2020-June 2021

- Designed and manufactured embedded FPGA systems to control an animatronic dinosaur for a mock museum display
- Used C++, and Node JS to write control software using Wi-Fi and Serial Communication Protocols

Side Projects

- Custom Bluetooth Neopixel Lightsabers, rp2040 and STM32 development and product boards, Raspberry Pi Facial Recognition, Bluetooth Smart Home System, Reactive LED Sign, Linux virtual reality game on the Oculus Quest 2

LEADERSHIP:

Chapter Vice Regent | Theta Tau Co-Ed Professional Engineering Fraternity

August 2023- May 2024

- Organized 17 community service, professional development, and social events for over 80 members

Chapter President/State Vice President | Colorado TSA (Technology Students Association)

August 2019- May 2021

- 140% Chapter Growth | Led professional development/engineering workshops | Organized conferences for over 2,200 students | Trained over 2,500 chapter officers from DECA, FBLA, Skills, FFA, TSA, and HOSA

SKILLS AND INTERESTS:

Programming Languages: C++, Python, Java, C#, C, JavaScript, React JS, CSS, HTML, SQL, Ruby, Scala, Assembly

Computer Software: SOLIDWORKS, Adobe Illustrator, Adobe Photoshop, Docker, Firebase, GitHub, GitLab, AWS, Command Line Control, Linux, Zephyr RTOS, Cube MX, Free RTOS, Microsoft Office, Google Applications

Machines and Tools: Table/Miter Saw, Lathe, 3D printers, Embedded Development Boards (STM, Nucleo, ESP32, Arduino, Raspberry Pi, Beaglebone, Teensy), Laser Engravers/Cutters, Milling Machines, Vinyl Printers

Personal Interests: Woodworking, Skiing, Breakdance, Hip-Hop, Golf, Board Games, Ice Hockey, Rep Rap 3D Printing