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Miles Osborne

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EDUCATION

Embry-Riddle Aeronautical University   **May 2023**
Major: Software Engineering   **GPA:** 3.561   *Daytona Beach, FL*
Relevant Coursework: Microprocessor Systems, Real-Time Systems, Computer Architecture

WORK EXPERIENCE

Embedded Software Engineer Intern   **Garmin**   **Summer 2022**
- Launched application to verify hardware requirements based on ARINC 653 specification
- Prototyped applications to demonstrate inter-partition and host-to-target communication
- Debugged python scripts to automate compilation with Boost build system
- Enabled multicore processing on Zynq-7000 FPGA

Teaching Assistant   **Embry-Riddle Aeronautical University**   **January 2022-Present**
- Tutoring multiple students in ARM microprocessors, ARM assembly, and C programming
- Responsible for assisting students with in-lab activities and course assignments
- Writing a self-contained document detailing the fundamentals of C programming

SOFTWARE PROJECTS

Spectre MK0   **November 2022 – December 2022**
- Streamlined active stabilization module developed using Nexys A7-100T
- Utilized ADXL362 accelerometer to calculate approximate orientation
- Defined angle mapping based on scaled accelerometer data in Y axis
- Tested using Spectre MK1 flight equipment

NASA Vestibular Chair Restoration   **September 2022 – Present**
- Collaborate with ERAU faculty to restore vestibular chair functionality
- Integrate STM32 Nucleo microcontroller to actuate analog components
- Maintain documentation for legacy hardware and new features

RTOS Water Tank Simulator   **March 2022 – May 2022**
- Created a user-configurable water-tank simulation using VxWorks RTOS
- Developed partial GPIO driver for NXP i.MX6 Quad processor
- Integrated Adafruit soundboard to indicate current state based on water level

STM32F4 MCU Drivers   **March 2021 – September 2021**
- Low-level drivers for STM32F4 microcontroller
- Support for I2C, SPI, and GPIO peripherals
- Developed interrupt-based API for serial protocols

Spectre, Software Lead   **Experimental Rocket Propulsion Lab (ERPL)**   **January 2020 – Present**
- Leading development of active stabilization unit on high-powered experimental rocket
- Developing servo control API for ATmega2560 and NXP i.MX RT1062 processors
- Designed Arduino shield PCB to interface flight computer with peripherals
- Built a Linux server running a self-hosted instance of GitLab for Spectre
- Re-architected design and requirements to improve maintainability and performance

SKILLS

- **Software:** Embedded C, C/C++, Python, Verilog
- **Hardware:** STM32, ARM, NXP, Arduino, Artix-7
- **Protocols:** I2C, SPI, UART, USB
- **Web Development:** HTML, CSS, Javascript
- **CAD/Design:** Autodesk Fusion 360, KiCad
- **Operating Systems:** VxWorks