

Zachary Bauman

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SUMMARY

Embedded systems engineer graduating May 2026 with expertise in real-time firmware, C/C++, FreeRTOS, and ARM/STM32/PIC microcontrollers. Skilled in multi-threaded programming, sensor interfacing, data acquisition, and real-time visualization; seeking Embedded Systems or Firmware Engineering roles.

EDUCATION

Texas A&M University | College Station, TX

May 2026

Bachelor of Science in Computer Engineering

GPA: 3.72

- **Corps of Cadets** 25+ hrs/week commitment.

COURSEWORK

- Microprocessor Systems, Computer Architecture, Electronics, Digital IC Design (VLSI), Networking, Data Structures & Algorithms, Software Engineering, Computer Systems, Machine Learning, Software Security.

SKILLS

- **Programming Languages:** C, C++, Python, Assembly (ARM, RISC-V), Verilog.
- **Microcontrollers & RTOS:** ARM Cortex-M, STM32, ESP32, PIC, FreeRTOS.
- **Protocols & Interfaces:** I2C, UART, Bluetooth LE (BLE), TCP/IP.
- **Tools & Frameworks:** MPLAB, STM32Cube, Git, JIRA, Android Studio, Visual Studio Code.

WORK EXPERIENCE

Computer Engineering Intern

May 2025 – Jul. 2025

Universidad Autónoma de Yucatán (UADY) | Merida, Mexico

- Developed a multi-channel structural health monitoring platform to detect early signs of material failure by streaming high-rate sensor telemetry to a PC for real-time data acquisition, analysis, and visualization.
- Built a Python based data acquisition and visualization system receiving I2C streamed data via UART.
- Designed a concurrent payload processing pipeline using O(1) deque buffering and periodic CSV offloads.

Computer Engineering Intern

June 2024 – Aug. 2024

Dover Fueling Solutions | Austin, TX

- Developed and validated a PIC based power monitoring system for fuel dispenser components, implementing test firmware in MPLAB to track subsystem voltages, operational status, and power resets.
- Overhauled legacy firmware and engineered low-level C drivers for microcontroller peripherals (UART, ADC, CRC, WDT), improving system stability and memory usage.

PROJECTS

DC Motor Rotation Control | Senior Capstone Project

Aug. 2025 – Present

- Designed a precision, remote-controlled BLDC motor system with encoder-based RPM and position control, real time closed loop feedback, and wireless operations via custom BLE application.
- Developed the Kotlin-based Android application enabling real-time BLE communication with the STM32WB55, including command transmission, telemetry handling, and device management.
- Built the full mobile UI/UX interface, including live analytic charts, control panel, scanner integration, settings, reconnection logic, and real-time data visualization and motor control.

LEADERSHIP & ACTIVITIES

Corps of Cadets | Texas A&M University

Squadron 5 Scholastics Officer (Project Team Manager)

Aug. 2022 – Present

- Managed a 10-person leadership team, delivering academic programs for 60+ members, and improving engagement and GPA performance through structured mentorship and data driven accountability.
- Developed a peer-mentorship framework with metrics tracking, increasing member retention, academic outcomes, and leadership engagement.