

# Zachary Bauman

College Station, TX | zbauman@tamu.edu | (512)-690-6625 | U.S. Citizen

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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  
GPA: 3.72  
*Bachelor of Science in Computer Engineering*

- **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.