Dhiaeddine Boudjatit

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Education

Texas A&M University **August 2024 – December 2027**
*B.S. in Electrical Engineering — **GPA: 3.5*** *College Station, Texas*

Relevant Coursework: Computer Architecture (ARMv8), Digital Systems Design, Electronics, Signals & Systems, Electrical Circuit Theory, Program Design (C++), Engineering Computation (Python), Machine Learning for Electrical Engineering

Technical Skills

Programming: C, C++, Python, MATLAB, ARMv8 (AArch64) assembly, Linux, Git
Embedded & Networking: ESP32-C5, Teensy 4.0, Arduino, FreeRTOS, ESP-IDF, I2S, I2C, SPI, UART, UDP/lwIP, sockets
Digital Design: Verilog, FSM design, RTL simulation, FPGA validation, Vivado, testbenches, GTKWave
Hardware & Tools: Oscilloscope, logic analyzer, DMM, soldering, hardware debugging, EasyEDA, LTspice, Multisim

Experience

GOWell Oilfield Technology **June 2026 – July 2026**
Electrical Engineering Intern *Dubai, United Arab Emirates*
- Supported **testing, repair, and validation of 12+ electronic measurement tools used in oil and gas wells**, troubleshooting sensor interfaces and analog circuitry for customers including **SLB, Halliburton, Baker Hughes, and Weatherford**.
- Diagnosed a saturated channel in a **40-channel sensor system**, using **oscilloscope probing and wiring diagrams** to trace signals through analog multiplexing, conditioning, and ADC acquisition, isolating the fault to a signal-processing IC.
- Performed **temperature calibration and verification testing**, recording raw sensor counts at ∼10°C increments in a hot-air oven to characterize measurement response across temperature and verify calibrated operation.

Atlob – Technology Startup **June 2024 – January 2026**
Founder & Product Lead *Al Khobar, Saudi Arabia*
- Founded an AI-driven ordering and payment startup for restaurants and hospitality businesses, securing a **$500K investor funding commitment** supported by a 5-year P&L and operating model developed with the investor's CFO.
- Led a **15+ member development team** delivering **3 interconnected applications** for customers, businesses, and platform administrators; defined technical requirements and coordinated weekly development sprints through MVP delivery.
- Translated business needs into **user workflows and product specifications**, reviewed interface designs, and tested iterative builds to identify defects and verify ordering, payment, and account-verification functionality.

Projects

Skribe | *ESP32-C5, ESP-IDF, FreeRTOS, C, I2S, UDP/lwIP, Python, Linux* **July 2026 – Present**
- Developed a **real-time embedded audio system** in C on an ESP32-C5, capturing 16 kHz / 16-bit mono PCM audio from an INMP441 MEMS microphone over **I2S**.
- Designed **concurrent FreeRTOS tasks** for audio acquisition and Wi-Fi transmission, using inter-task buffering to decouple real-time sampling from network communication.
- Implemented **UDP streaming** to a Python/Linux host using asynchronous I/O and `select()`, reconstructing received PCM data into WAV recordings for validation.

Sandia National Laboratories Hackathon | *ESP32-C5, ESP-IDF, C, I2C, UART, Python* **November 2026**
- Earned **First Place ($5,000) and Best Prototype** at the Sandia-sponsored competition, building and demonstrating a **structural monitoring prototype** with a multidisciplinary team in **48 hours**.
- Developed **embedded C firmware using ESP-IDF** on an ESP32-C5, integrating an **MPU-6500 accelerometer over I2C** and HC-SR04 ultrasonic sensor through GPIO trigger/echo timing for **10 Hz sensor acquisition**.
- Integrated **UART telemetry over USB** with a **Python serial bridge and real-time web dashboard**, demonstrating reference-based ceiling-lowering detection, vibration alerts, and tablet-based monitoring.

Texas Student Rocket Propulsion Lab | *Avionics, Teensy 4.0, SPI, PCB Design* **February 2026 – Present**
- Designed the **avionics architecture** for a dual-deployment rocket targeting **10,000 ft apogee**, integrating a Teensy 4.0, IMU, barometer, and SPI microSD logging; selected sensors using a reliability- and noise-based decision matrix.
- Designed a **2S Li-Po power architecture** with buck conversion and 3.3 V regulation, incorporating **MOSFET-switched parachute deployment circuitry** and electrical arming mechanisms.
- Developed **schematics, pin mappings, PCB layout, and a bill of materials**, documenting component selection and electrical interfaces to support hardware integration and preliminary design review.

Gesture-Controlled Glove Mouse | *Arduino, Python, I2C, IMU* **January 2026**
- Built a **wearable mouse interface** using an Arduino, IMU, and force sensor to translate hand gestures into on-screen cursor movement and click inputs.
- Integrated the IMU over **I2C** and streamed gyroscope and force-sensor readings over **serial** to a Python host for real-time input processing.
- Implemented **gyro calibration, dead-zone filtering, and smoothing** to reduce unintended cursor drift and stabilize gesture-based control.

Leadership

Aggie Internship Club – Events Officer for a 1,000+ member organization; organized career events including a Meta-related panel with 100+ attendees.

AggieAsk – Founder; secured classroom pilot approval from multiple professors and recognition and support from the **Assistant Dean of AI at Mays Business School**; pitched to ∼60 attendees through Aggie Innovators.