Jamal Bouajjaj

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Education

University of New Haven | West Haven, CT — 8/2022 → 5/2023
Master of Science in Electrical Engineering — GPA: 3.96

- Notable Courses: System On Chip, DSP2, VLSI Design, Wireless Communication, HDL, Random Processes
- Research project: Wide-band digital pre-distortion [09/2022 → 5/2023]
  - Researching into adaptive filtering methods to be added before a pre-distortion system for a wide-band amplifier
  - Researched into current digital-predistortion techniques, with an example implementation in MATLAB
  - Implemented an LMS algorithm for an amplifier's low pass characteristic in MATLAB

University of New Haven | West Haven, CT — 8/2018 → 5/2022
Bachelor of Science in Electrical Engineering — GPA: 3.88

- Senior Design project: Researched into HF communication for low-latency cross-continental data transfer.
- Junior Design project: Designed a LIFI transceiver circuit
- Notable Courses: DSP1, Autonomous Robotics, Intro to IOT, Random Signals, Embedded Systems, Computer Architecture

Professional Experience

Strain Measurement Devices | Wallingford, CT — 6/2023 → Present
Design Engineering

Strain Measurement Devices | Wallingford, CT — 4/2019 → 6/2023
Electrical Engineering Intern

- Designed hardware and firmware and products for various projects such as a Bluetooth sensor, a non-invasive liquid detector, and a non-invasive flow meter
- Designed various internal testing fixtures and test software
- Notable Project: Non-Invasive Flow Meter [05/2022 → Present]
  - Designed the circuit and PCB for an ultrasonic flow meter
  - Programmed the MCU firmware for the sensor in C
  - Programmed customer, internal test, and data analysis applications in Python

University of New Haven | West Haven, CT — 08/2023 → 12/2023
Adjunct Professor: Intro To Python

- Prepared course materials, including lecture slides and tests
- Assigned and assessed team projects

Skills

- Circuit and PCB Layout: Altium Designer and KiCad
- Embedded Firmware: AVR, STM32, PIC, and MSP430 MCUs
- Languages: C, Python, VHDL, Verilog, MATLAB, LaTeX
- Mechanical Modeling: FreeCAD and Solidworks
- Misc Skills: RF Planning, Linux server administration, SPICE simulation, ROS for robotics
- Equipments: Laser Cutters, 3D Printers, Soldering Irons, CNC machine

Other Projects

2023 MITRE eCTF Competition | *Lead Designer and Attacker* — 01/2023 → 04/2023

- Developed a secure C car-fob firmware implementation
- Attacked other team's designs with buffer overflow and weak-RNG attacks
- Placed 14th place out of 61 active competitors

Addressable LED Controller | *Full-Stack Designer* — 08/2023 → Present

- Designed a custom addressable LED board that includes an ESP32 microcontroller, a POE controller, and an Ethernet controller