

Ali Albaghdadi

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EDUCATION

University of Illinois at Urbana-Champaign

Expected Dec. 2024 | GPA: 3.83/4.00

Bachelor of Science in Electrical Engineering

Relevant Coursework: Discrete Mathematics, Computing Systems & Programming, Intro to Electronics

Current Coursework: Digital Systems & FPGA Lab, Data Structures, Physics E&M, Differential Equations

Awards: Dean's List (Spring '22)

EXPERIENCE

Formula SAE Project Lead

Aug 2022 – present

Illini Formula Electric

- Spearheading design and production of team's first in-house 3-phase electric motor controller unit
- Writing embedded C to run real-time magnetic flux monitoring, field-oriented control and space vector PWM
- Software encompasses Assembly-accelerated matrix math, PID, sigma-delta digital filtering, and more

Software Engineering Intern

Jun 2022 – Aug 2022

Cboe Global Markets

- Improved user-friendliness of a C++ library that repackages options trade data into a custom data structure
- Wrote a Python query API for the trade database using existing Java and C++ source code and pybind11
- Enabled high-value customers and internal software teams to integrate the database using a new language

Formula SAE Project Lead

Sep 2021 – Feb 2022

Illini Motorsports

- Led a team of 4 to develop a driving-critical part on the steering wheel
- Programmed an Atmel AT90CAN128 MCU to send CAN bus messages directly to other control units on the car
- Enabled switches on the steering wheel to communicate driver decisions to the car with minimal latency

PROJECTS & RESEARCH

NeuroTechX @ UIUC

Sep 2022 – present

- Performing research on a live brain cell sample to attempt to create and train it to behave as a neural network
- Utilizing an FPGA and high-speed DSP techniques to send and receive electric signals to and from the cells

IoT Home Security Microcontroller

Oct 2021 – Dec 2021

- Designed a power outage and water detector using an ESP8266 development board and backup battery
- Device behaved as a WiFi AP for setup, logged events using sensors, and communicated with an AWS server

EXTRACURRICULARS

Association of Computing Machinery

- Currently ranked in the top 20 performers in a university ACM SIG for ethical hacking and cybersecurity
- Familiar with cybersec techniques to attack and reverse-engineer programs and websites
- Team is globally competitive in hacking and competitive programming competitions

University Community Outreach

- Created and currently manage an online chat group serving over 1,500 students at UIUC
- Provided admissions and course advice, offered homework help, and organized game nights and social events

TECHNICAL SKILLS

Programming Languages: Java, C, C++, Python, Arduino, Assembly, SystemVerilog

Tools: Git, Apache SVN, Jira, Unix terminal, VirtualBox, Solidworks, Altium Designer, Simulink, Intel Quartus

Libraries: Java Swing, NumPy, pandas, Matplotlib, pybind11, Boost, POCO (C++)