

Ahmed Alhakem

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EDUCATION

University of California, Berkeley | College of Engineering

Berkeley, California

Bachelor of Science - BS, Electrical Engineering and Computer Science | GPA: 3.65/4.00

May 2027

- **Notable Coursework:** Machine Learning (CS 189), Database Systems (CS 186), Microelectronic Devices and Circuits (ELEN 105), Computer Architecture (CS 61C), Data Structures (CS 61B), Computer Programs (CS 61A), Circuits and Devices (EECS 16B), Signals, Dynamical Systems, and Information Processing (EECS 16A), Discrete Mathematics and Probability Theory (CS 70), Prototyping & Fabrication (DESIGN 22), Instructional Methods in Computer Science (CS 365)

RELEVANT EXPERIENCE

UC Berkeley Solar Vehicle Team, CalSol

Berkeley, California

Electrical Subteam ESP32 PCB/CAN Testbench Project Lead

Jan 2025 - Present

- Led a team to research and develop 3 custom PCBs (including an ESP32 Dev Board, LPC1549 Dev Board, and a CAN Transceiver board), to equip all other CalSol boards (20+ PCBs) with the functionalities of being programmed through a microcontroller, and communicating information across other PCBs with different microprocessor types through CAN Bus.
- Read different data sheets, created a bill of materials (BOM), and tested ideas on LTSpice to design schematics and layouts for these PCBs on KiCAD, before soldering/assembling them then writing their firmware in C/C++ through PlatformIO.
- Mechanically engineered a testbench to simulate how boards would operate with others through communication with CAN.

Electrical Subteam Hardware Lab Design Lead

Dec 2024 - Jan 2025

- Held office hours and led the design and development of an open sourced onboarding hardware lab that teaches 50+ new and returning members how to create efficient PCBs for electric vehicles and other necessary electrical engineering concepts.
- Created a BOM and schematic & layout on KiCAD for a PCB that all members will have to create with the help of the lab which contains a motor that can be controlled through a potentiometer and 555 timer for pulse-width modulation.

Electrical Subteam E-Load Project Team Member

Aug 2024 - Dec 2024

- Researched and developed a custom E-Load circuit board in order to achieve efficient and controlled drainage of the solar vehicle's custom 6kWh/143V battery, improving power management and extending battery lifespan by over 15%.
- Utilized LTSpice and KiCAD to test ideas, create a BOM, and design a schematic and layout of the PCB for this system that allows for the capability of controlling the voltage across the resistive load in order to control power and heat dissipation.

Vision IV (Berkeley SkyDeck)

Yokohama, Japan

Remote Software Engineering Intern - Semiconductor Research

May 2025 - Aug 2025

- Developed 3 separate interactive data visualization tools using Python (Dash) that visualize and compare Vision IV's boron doped diamond semiconductors against Si, GaN, GaAs, SiC, and different diamond dopants (PDD, NDD, HPHT, CVD, etc.), highlighting strengths of BDD devices and enabling Vision IV to assess competitive advantages and market positioning.
- Researched and integrated data on material properties and device metrics to model semiconductor trade-offs (e.g., radiation hardness, thermal conductivity, breakdown voltage), improving R&D decision-making and guiding product strategy.

UC Berkeley Electrical Engineering & Computer Sciences (EECS)

Berkeley, California

COMPSCI 61A Course Staff - Academic Intern

Jan 2025 - May 2025

- Delivered academic support to 600+ students in UC Berkeley's largest and most popular computer science course, teaching students programming ideas by utilizing advanced instructional techniques in computer science such as the Socratic method.
- Debugged students' code and helped them make design choices to improve the performance and readability of their program.
- Facilitated weekly lab sections and office hours to teach CS61A topics (abstraction, data structures, recursion, etc. in Python).

Mathnasium - The Math Learning Center

Walnut Creek, California

Instructor

Oct 2022 - Aug 2024

- Provided individualized math instruction to 10+ K-12 students per hour in order to improve study habits and foundational understanding in all areas of math, including algebra, geometry, and calculus, increasing test scores by over 20% on average.
- Organized and corrected students' worksheets/binders and regularly communicated with parents about their child's progress.

Computer Coaching Club

Walnut Creek, California

President and Founder

Aug 2022 - May 2024

- Using Raspberry Pi 400 kits, taught groups of 10+ students how to code numerous algorithms in Scratch and Java and the basics of binary representation, calculating bits/bytes, and transistors in computer hardware through biweekly presentations.
- Managed logistics, establishing an official partnership with the Ygnacio Valley Library, developing an educational yet appealing curriculum for young students, building a team by recruiting/training volunteers, and advertising on social media.

Northgate High School Athletics

Walnut Creek, California

Web Developer

Jan 2023 - May 2023

- Coded and designed websites for Northgate High School's athletics using HTML, CSS, and JavaScript.
- The website was for the Boys Tennis Team 2023 Season and was sent to 40+ teammates and families to help them keep track of the schedule and upcoming games, consistently making sure that the website is up to date after each event.

ADDITIONAL

Programming: Git, Python, JavaScript, TypeScript, HTML, CSS, Java, Kotlin, Swift, Dart, C++, C, SQL, Matlab, Lisp, Scheme

Software: GitHub, Supabase, Cloudflare, LTSpice, KiCAD, 3DEXperience, SolidWorks, Adobe/Microsoft/Google Workspaces

Languages: English (Native), Arabic (Native), Spanish (Limited Proficiency), American Sign Language (Limited Proficiency)

Other Skills: Programming, PCB Design, Electrical Wiring/Soldering, 2D CAD, 3D CAD, 3D Printing, Laser Cutting, Budgeting

Awards and Honors: Eagle Scout, Semifinalist at VEX Robotics Competition, Seals of Biliteracy in Arabic/Spanish, Northgate High School's Recognition of Academic Excellence (4.67/4.00 GPA), AP scholar with Distinction Award, AP with WE Service Recognition

Certifications/Licenses: CPR, AED, and First Aid Certification, FCC Amateur/Ham Radio Service Technician Class License