Zach Heidenreich

Atlanta, GA | 608-509-2530 | zach@gatech.edu | U.S. Citizen

Objective

Electrical Engineering major with experience leading interdisciplinary teams and a strong ability to learn and adapt. Passionate about cutting-edge computer architecture and semiconductor fabrication. Seeking an internship for Summer 2025.

Education

Georgia Institute of Technology | Atlanta, GA *August 2022 – Present*

Bachelor of Science in Electrical Engineering, GPA 3.93 Expected Graduation, May 2027

Skills

Programming: Python, C#, C++, C, MIPS/RISK-V Assembly, Java, MATLAB, VHDL, Verilog
Hardware: Raspberry Pi, ARM Mbed Microcontroller, FPGAs, Oscilloscope, Logic Analyzer, 3D Printing
Software: Altium, KiCad, Fusion 360, ModelSim, Unity, VSCode, Microsoft/Google Suite, Quartus Prime, Github
Languages: English (Native), Japanese (Intermediate)

Experience

Trigon Labs | Atlanta, GA *August 2024 – Present*

Co-Founder

- Conducted customer discovery interviews with hundreds of potential users to refine product-market fit.
- Designed a laptop PCB in KiCad from the ground up, optimizing for power efficiency and performance.
- Collaborated with a mechanical engineer and international suppliers to ensure scalable, cost-effective manufacturing.

Arm | Chandler, AZ *May – August 2024*

Intern / Post Silicon Validation

- Developed a real-time SoC monitoring tool with interpolated temperature visualization and power rail analytics
- Designed dynamic graphing and statistical analysis for voltage and current monitoring
- Reverse-engineered sensor data protocols to parse and convert ring oscillator counts into accurate readings

Yellow Jacket Space Program | Atlanta, GA *September 2022 – January 2024*

Avionics Engineer

- Designed Battery Management System for "Fullscale" liquid fueled rocket
- Tested Propulsion and Avionics systems for Subscale launch
- Developed Avionics stack in Altium for rocket planned to reach the Kármán line

University of Nebraska Omaha |Omaha, NE *May – August 2024*

Intern / Innovation Science and Technology

- Created interactive game to demonstrate the capabilities of Microsoft HoloLens to 12 other interns
- Developed app in Flutter and Dart to track user's sleep and give incentives and tips to improve
- Deployed sleep app to iOS and tested on 10+ users

Projects

Silicon IC Fabrication *Fall 2024*

Engineer

- Fabricated CMOS test devices, including ring oscillators and logic gates, following full IC manufacturing steps.
- Operated cleanroom equipment for photolithography, etching, and deposition to process silicon wafers.
- Conducted electrical testing on fabricated devices to validate CMOS functionality and performance.

Hacklytics Hackathon *February 2023*

Developer

- Developed Node.js website for F1 racing visualization and prediction tool, "Formulytics"
- Worked with multi-disciplinary team of 3 to efficiently develop project in 36 hours
- Won $500 "Best Sports Project" along with "Best use of Twilio"

Relevant Coursework

Quantum Mechanics I: Theoretical principles and problem solving skills applied to the quantum world of atoms, molecules and photons.
GPU Programming for General Computing: Development, analysis, and optimization of general programs that take advantage of the computational capabilities of modern GPU hardware.