Zachary Bauer

zcbauer@umich.edu , +1 (678) 613-8569

linkedin.com/in/zachary-bauer-480a47204

Education

University of Michigan, Ann Arbor, MI

Bachelor of Science in Engineering, Computer Engineering, Cum Laude — Aug 2020 - May 2024

Relevant Courses: Advanced Embedded Systems, Applied GPU Programming, Analog Circuits — GPA: 3.458

Masters of Science, Electrical and Computer Engineering — Aug 2024 - Present

Relevant Courses: Monolithic amplifier design, Discrete event systems, Embedded control systems, — GPA: 3.890

Experience

Graduate Researcher — May 2024 – Present

Interactive Sensing Computing Lab, University of Michigan, Ann Arbor, MI
- Currently Working on mathmatical modeling for microphone array beamforming
- Additionally designing the PCB for the microphone array
- Developed toolchain for taking altium files and turning them into a format that can be laser cut onto copper clad FR4 with a fiber laser, and used toolchain to design and fabricate multi-layer PCBs
- Built amplifier circuits to explore ultrasonic wave generation for sound transmission
- Created 4 layer development PCB kit for testing the ESP recording and cataloging capabilities
- Developed Rigid/Flex PCB for use in phone case for monitoring project
- Designing wrist-mounted wearable for privacy aware sensing and recording

Research Intern — May 2025 – July 2025

Fibarcode, Ann Abror MI
- Designed and built draw tower for polymer fiber creation
- Created control system for operation of the draw tower
- Coded interface for control system
- Created simulation tool to analyze different layer stacks of fiber in Lumerical

Graduate Student Instructor - Engineering Interactive Systems — Jan 2025 – April 2025

University of Michigan, Ann Arbor MI
- Created lab content for and taught labs in Laser cutting, 3D printing, Circuits, Basic Machine Learning, and Basic Mobile app development
- Provided support for group final semester project

Product Development Intern — May 2023 – July 2023

Ford Motor Company, Dearborn, MI
- Worked for 12 weeks on Battery Management Hardware Team
- Developed device for testing the next generation BMS for accuracy
- Expanded skills in embedded systems for hardware testing

Computer Consultant — May 2022 – August 2022

University of Michigan, Ann Arbor, MI
- Assisted with integration of Smart Boards into university classrooms and faculty training
- Responsible for troubleshooting and Smart Board tech support
- Worked on AR/VR development for alternative teaching methods

Skills

- **Software:** Cadence, Altium, Kicad, Fusion360, LTspice, Matlab.
- **Programming Languages:** C/C++, ARM assembly, Verilog HDL, Matlab, Python, Bash, HTML
- **Debugging Tools:** GBD and LLDB, Valgrind, and Perf

Projects

Smart Scoreboard — September - December 2023
- Second Senior Capstone project for Advanced Embedded systems course
- Designed and assembled a PCB for wearable application
- Created protocol for sending commands to the scoreboard wirelessly.

Skin Touch Tracking Device — February - April 2023
- Senior Capstone project for my Human-Computer Interaction course
- Built oscillator that created a 60 MHZ electrical signal that was transmitted through the skin.
- The device was able to detect and localize a person's finger when they touched their arm.