

# Aakash Bharat

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## EDUCATION

### University of Michigan

M.S.E. Computer Science and Engineering (GPA 4.00/4.00)

B.S.E. Computer Engineering, Minor in Business (GPA 3.94/4.00)

### Cranbrook Kingswood Upper School

High School Diploma

Ann Arbor, MI

Expected May 2024

Apr. 2023

Bloomfield Hills, MI

Jun. 2020

## RESEARCH

### Wearable Artificial Lung Project: Research Assistant

University of Michigan: Oct. 2021 – Apr. 2022

- Used RS-485 serial protocol to interface flow controllers with TI Hercules board
- Developed a three-layer library to abstract low-level data transmission and offer user-friendly commands
- Utilized interrupt service routines to implement ten-times-faster hardware communication

## WORK EXPERIENCE

### Software Development Engineer (SDE) Intern

Amazon Web Services (AWS): May. 2023 – Jul. 2023

- Redesigned existing CloudWatch Logs cross-account canary for 250% latency improvement and 100% accuracy
- Worked extensively with AWS Lambdas and CloudWatch features to optimally measure and test performance

### Embedded Engineer Intern

Plexim, Inc.: Jun. 2022 – Aug. 2022

- Developed block library for Plexim's PLECS software to interface with Microchip's dsPIC33CK chip family
- Wrote extensive Lua code to configure registers, create block functionality, and generate relevant C code files

## PROJECT TEAMS

### UMARV Embedded Systems Member/Lead

University of Michigan: Sept. 2021 – Present

- Led library development to allow more powerful STM32 to interface with brushless motors via C
- Troubleshooted errors and tuned motor controllers thresholds to effectively control the robot's movement

## Achievements

- Top 3 in the world for IGVC – Design
- Top 6 in the world for IGVC – Overall

## OTHER PROJECTS

### EECS 470-001 Final Project: P6-Inspired Processor

University of Michigan: Feb. 2023 – Apr. 2023

- Collaborated with 5 classmates to design a P6-inspired processor via SystemVerilog
- Created reservation station, store buffer, functional units, and testbenches to facilitate instruction execution and ensure correctness → Worked on all stages of instructions for holistic design and debugging

### EECS 373-001 Final Project: Smart Projector

University of Michigan: Mar. 2022 – Apr. 2022

- Collaborated with a small team to create a device that could automatically center a projected image within a frame
- Interfaced with sensors via I<sup>2</sup>C and ADC to digitally translate data into projector movements and statistics

### Music Composition (Self-Taught)

Independent: Nov. 2011 – Present

- Professionally published 6-minute concert band piece called "Pirate Peril" on JWPepper
- Composed over 100 songs with 56 songs fully scored including 3 concert band pieces

## SKILLS

- |                 |                   |          |              |
|-----------------|-------------------|----------|--------------|
| • C/C++         | • Java            | • CUDA   | • Lua        |
| • RTL Design    | • R               | • Git    | • TypeScript |
| • SystemVerilog | • Shell Scripting | • Python | • MATLAB     |