

# AJAYA DAHAL

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## FULL STACK EMBEDDED SYSTEM

ajayadahal1000@gmail.com

### EDUCATION

Master of Science  
Bachelor of Science

Major: Electrical and Computer Engineering

May 2024  
December 2022

Mississippi State University

MSU GPA: 4.0/4.0

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Starkville, Mississippi

### SIGNIFICANT COURSEWORK

Algorithms, Advanced Circuit Design, Advanced Java, Computational Intelligence, Computer Architecture, Data Communication, Data Structures, Digital System Design, Embedded System, Machine Learning and Artificial Intelligence, Microprocessor, Multisensor Fusion, Operating System, Sensor Processing for AV, Sensor Fusion 2.0 (Camera and Lidar), SDR-based Sensing.

### TECHNICAL SKILLS

- Software:** C/C++, Python, Java, JavaScript, SQL, Tensorflow, Keras API, Android Studio, Backendless, RESTful API, GIMP, Agile Jira
- Hardware:** Full Stack Embedded System Design, Altium, Proteus, KiCAD, Quartus Prime, Vivado, STM32, PIC24, Renesas's, Arduino, Raspberry Pi, FPGAs and other MCUs, Verilog, Petalinux, Yocto, Robot Operating System (ROS1/2), 3D printing, 3D modeling in SOLIDWORKS, OrCAD, LabVIEW, Wireless Insite, and PX4.

### WORK EXPERIENCE

- Advanced Micro Devices (AMD) — Remote — Based in Austin, TX**

Jan 2023 — Present

Senior Product Application Engineer

Focused on embedded systems and high-speed Ethernet design from 10Mbps (TEMAC) to 800G (DCMAC). Maintain 15+ Ethernet reference designs covering 1000BASE-X, SGMII, USXGMII, 10GBASE-R, and 100GBASE-R protocols. Skilled in creating, upgrading, and troubleshooting complex designs involving GTM/GTY/GTH/GTYP transceivers. Support spans bare-metal, PetaLinux, and Yocto OS integrations for MPSoC and Versal platforms. Own and maintain public GitHub repos and user documentation for AMD IPs and boards. Regularly mentor engineers to build cross-functional expertise in embedded Ethernet. Honored with 6 spotlight awards from FAEs, director, and manager for solving customer-critical issues, backed by a consistent 5/5 customer satisfaction score.

- Hunter Engineering Company — Electronics Plant — Raymond, Mississippi**

Jan 2020 — Jan 2022

PCB Design Engineer Co-Op

Designed system-level functional testers for PCBs used in Hunter Engineering products (e.g., car lifts, wheel balancers, and tire changers). Created end-to-end test systems, including custom PCBs, displays, and interfaces, to verify board functionality before assembly. Developed intuitive LabVIEW GUIs and C/C++ backend code to ensure ease of use by operators with no technical background, minimizing user error. Integrated camera-based defect detection using OpenCV and built testers compatible with Aegis Factory Logix. Delivered robust, operator-friendly systems that improved quality control and production efficiency.

- Mississippi State University — Electrical and Computer Engineering — Starkville, Mississippi**

Aug 2019 — Dec 2023

(Graduate) Research Assistant

Collaborated with CAVS researchers on autonomous vehicle perception systems using LIDAR, radar, and low-cost cameras. Leveraged GPUs and deep learning frameworks (TensorFlow, OpenCV) to detect and track lanes under diverse road conditions. Applied ML techniques like SqueezeSeg for camera-LIDAR sensor fusion. Led multiple SDR-based projects: (1) AI-powered triangulation system to locate contraband cell phones in prisons, (2) spectrum scanning system to detect RF activity using IQ data for passive microwave sensing, and (3) Wi-Fi-based human activity recognition using ML. Selected as 1 of 10 for the MSU/USDA Summer Research Experience. Contributed to 5G research with 5 universities and National Instruments, experimenting with srsLTE/RAN, OAI, and Amarisoft as a Part 107 FAA-certified drone pilot.

- Amazon — Woot! Merch by Amazon — Dallas, Texas**

March 2019 — Aug 2019

Quality Control

Ensured quality assurance in a high-volume T-shirt manufacturing facility by inspecting printed garments for accuracy, color consistency, and print defects. Verified customer specifications and maintained production standards. Played a key role in minimizing defective shipments and supporting efficient fulfillment operations.

### PERSONAL PROJECTS

2018 — Present

- Created an app that keeps track of local videos that are watched completely. The app consumes Google Search API and YouTube API (1 million quotas). Developed a cooling system with a mobile app for real-time temperature monitoring of legacy servers, using Google Firebase and a real-time database backend.
- Successfully created a program using Google TensorFlow and Keras API to detect the Darth Vader character in any given picture.
- Designed, simulated, and fabricated custom PCBs for various embedded systems like inverted pendulum, drones, robotic arm for window cleaning drone, dollar tree foam board RC planes, bench power supply, and tire pressure monitoring systems for old cars using ATMEGA microcontroller and 315 MHz receivers. Conducted several seminars on campus on topics like analog circuit design, digital circuit design, microcontrollers, full stack embeded system.

### LEADERSHIP EXPERIENCE

- Team Lead Senior Design Team — MSU
- President Nepalese Student Association — MSU
- Software Lead Xipiter Unmanned Aircraft System Integrated Products Team — MSU
- Vice President Phi Theta Kappa: Sigma Tau Chapter — El Centro College

2022 — 2023

2021 — 2022

2021 — 2023

2017 — 2018

### AWARD ACCOMPLISHMENTS

- Recipient of Team Player Award Q4 2024 from the Director — AMD 2024
- Recipient of Second Place Senior Capstone Design Award — MSU 2022
- Recipient of Certificate of Excellence ECE 3424 Microprocessors — MSU 2021
- Recipient of MSU Undergraduate Research Program funding for applying deep learning techniques to autonomous vehicle systems. 2020
- Recipient of a 2020-2021 Mississippi Automotive Manufacturers Association Scholarship — MSU 2020
- Bonus prize winner of NXP HoverGames Challenge 2: Help Drones, Help Others During Pandemics 2020