Ayan Nair

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EDUCATION

University of Michigan — Ann Arbor, MI
Bachelor of Engineering in Computer Science and Robotics — *Expected May 2026*
Honors/Awards: *Dean's List, University of Michigan Regents Merit Scholarship*
GPA: *3.81/4.00*
Relevant Coursework: *Operating Systems (Spring 2025), Computer Organization, Data Structures and Algorithms*

EXPERIENCE

Embedded Systems Engineering Intern — July 2024 – Aug 2024
DeepCharge Inc. — *Boston, MA*
- Contributed to the development of hardware and software features of AI-driven wireless charging product
- Developed primary cooling system and camera-server communication framework using Flask and Embedded C, resulting in an **82% improvement** in charger performance.
- Generated SQL database of over **1,500** images to train and fine-tune OCR model for tracking charging percentages
- Presented product and its capabilities to a **Fortune 500** company and other potential stakeholders.

Undergraduate Research Assistant — Nov 2021 – Aug 2023
Michigan State University — *East Lansing, MI*
- Developed a machine learning model to predict the location of atoms from the backbone of mutated proteins under professor supervision
- Normalized over **10,000** molecular datasets and implemented PyTorch for designing machine learning framework
- Performed with a minimum accuracy of **95%** across all atom types in classification

Instructional Aide — Mar 2023 - Aug 2023
Mathnasium — *Okemos, MI*
- Provided personalized math instruction to over **200 students** of various ages and skill levels
- Designed and implemented tailored learning plans, addressing individual learning needs and helping **90%** of students meet or exceed their goals by **3 times**
- Monitored student progress and provided ongoing feedback to ensure comprehension and academic growth

PROJECTS

AlbumAce | *Python, Flask, React, BERT, MongoDB* — July 2024 – Sept 2024
- Developed a platform allowing over **500 users** to rate music albums to democratize music reviews.
- Implemented sentiment analysis using BERT models on **over 2,500** YouTube album reviews
- Built Flask backend to fetch and transcribe YouTube reviews with Whisper and the YouTube Data API, reducing manual transcription time by **70%**
- Designed and deployed a React frontend to display sentiment scores and leveraged MongoDB to store user ratings

visuAIize | *Python, Gemini API, OpenCV, Toga GUI* — April 2024 – April 2024
- Developed a software with Google's Gemini API to serve as an aide for the visually impaired
- Designed frontend and backend with Toga GUI to capture real-time footage and integration with Gemini API
- Utilized OpenCV and Threading libraries to parallelize uploading captured footage and retrieving responses, improving processing speed by **40%**.

COVID-19 Chest X-ray Predictor | *Python, TensorFlow, Keras, PIL, SciPy* — Nov 2020 – May 2021
- Derived a convolutional neural network model from ResNet50 to predict COVID-19 diagnosis from chest X-rays
- Employed TensorFlow and Keras frameworks to construct a 10-layer model
- Attained an impressive accuracy of **98.3%** with a minimal false positive rate of **only 0.82%**
- Presented findings at the International Science and Engineering Fair (ISEF)

SKILLS

Languages: Python, C++, JavaScript, Java, Embedded C, Verilog

Frameworks: Flask, Node.js, Express.js, React.js, TensorFlow, MySQL, MongoDB

Technical Skills: Machine Learning, Full-Stack Development, Embedded Systems Programming, Product Management