# Ayan Nair

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## EDUCATION

**University of Michigan** — Ann Arbor, MI
*Bachelor of Engineering in Computer Science, Minor in Electrical Engineering* — *December 2026*

**Honors/Awards:** *Dean's List, University of Michigan Regents Merit Scholarship*

**Relevant Coursework:** *Data Structures and Algorithms, Computer Organization, Web Systems, Logic Design*

## EXPERIENCE

**Product and Ecosystem Intern** — May 2025 – Present
*Astera Labs* — *Santa Clara, CA*

- Incoming Summer 2025

**Project Manager** — Jan 2025 - May 2025
*Kappa Theta Pi Professional Technology Fraternity* — *Ann Arbor, MI*

- Led a team of peers to develop and deploy an RTL-based Pong game using SystemVerilog, achieving **95%** completion on time with over **100** active users
- Oversaw the maintenance and enhancement of the official Kappa Theta Pi website, attracting over **250 unique users** per semester and increasing overall engagement
- Coordinated team efforts to ensure on-time delivery of project milestones and maintained efficient collaboration

**Software Engineering Intern** — May 2024 – Aug 2024
*DeepCharge Inc.* — *Boston, MA*

- Spearheaded development of hardware and software features of AI-driven wireless charging product
- Devised 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.

## PROJECTS

**AlbumAce** | *Python, Flask, React, BERT, MongoDB*

- Developed a platform allowing over **500 users** to rate music albums to democratize music reviews.
- Performed 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

**Scalable Search Engine** | *Python, MapReduce, Flask, SQL, BeautifulSoup*

- Built a scalable search engine indexing 50,000+ Wikipedia articles using a MapReduce pipeline to generate tf-idf and PageRank–weighted inverted indexes
- Developed a Flask REST API and web frontend to serve ranked search results with adjustable PageRank weighting
- Parsed HTML with BeautifulSoup to extract metadata and populate a SQL database of 50,000+ documents

**visuAIize** | *Python, Gemini API, OpenCV, Toga GUI*

- Constructed a software with Google's Gemini API to serve as an aide for visually impaired persons
- Assembled 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%**.

## SKILLS

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

**Frameworks and Tools**: Flask, Node.js, Express.js, React.js, TensorFlow, MySQL, MongoDB, ModelSim

**Technical Skills**: Embedded Systems Programming, Full-Stack Development, Design Verification, Machine Learning