Ethan Jin

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Education

University of California, Los Angeles

B.S. in Computer Engineering (GPA: 4.00)

- Intro to Computer Science I & II, Computer Organization, Data Structures & Algorithms, Software Construction, Discrete Math

Experience

Materials Design Through Dynamics Lab @ UCLA Nov. 2025 – Present

Undergraduate Researcher

- Architecting a full-stack AI analysis platform to identify unknown substance compositions ∼**200x faster** than manual lab methods
- Designing a dynamic FastAPI backend that selects models from a pool of **18,000 pre-trained neural networks** based on user query
- Optimized model inference pipeline by implementing a **custom LRU cache**, achieving a ∼**99.9% reduction** in model loading times
- Containerizing the application with Docker, packaging the frontend, backend, and ML engine together for seamless deployment

Association for Computing Machinery @ UCLA Oct. 2025 – Present

Software Engineer

- Supporting a community of **3,500+ members & event attendees** by maintaining and optimizing the organization's primary website
- Migrated internship applications to MongoDB by writing new schemas, enabling scalable querying across **400+** applications per cycle
- Created **5 REST API endpoints** for committee management with role-based auth and rate limiting **(100 req/15 min)**

San Diego Supercomputer Center June 2023 – Aug. 2024

Software Engineering Intern

- Developed Python scripts to process and visualize **150+** system dependency files on the Expanse supercomputer, enabling automation of software package installation workflows (project presentation)
- Created a custom **command-line interface tool** that generated Python Pandas dataframe structures and pie chart models from ∼**13M** lines in **60+** module logs to analyze software usage patterns (project presentation)
- **Exposed a time-tracking error** in the original module logging program, improving system-wide data collection accuracy

Projects

Inner Circle | *React, Vite, Firebase, Voyage AI, Claude API* devpost.com/software/inner-circle-tqavge

- Created an **agentic relationship management system** visualized in a constellation graph network, allowing users to store contact data in nodes and reach out via email and calendar automation
- Developed a **custom LLM pipeline** that scores relationship strength across **5 dimensions**, calibrated to **under 2% error** against human-labeled validation anchors
- Implemented a **RAG retrieval system** with Voyage AI vector embeddings, batching up to **128 contact nodes** in a single API call
- Engineered a change-aware caching layer that eliminates redundant API calls, reducing repeat retrieval latency from **273ms → 0.13ms**

LegalEase | *Next.js, Tailwind, Supabase, Google Gemini Live* trylegalease.vercel.app

- Built a legal document assistant that explains content through real-time voice conversations and chat capabilities, supporting **42 languages & 3 reading levels**
- Designed a real-time WebSocket connection to the **Gemini 3.1 Flash Live** API using single-use ephemeral tokens **(30-min limit)**
- Engineered a bidirectional audio pipeline with **sub-20ms** latency, ensuring real-time mic capture and gapless audio playback

Cartelligence | *Flask, Python, Bootstrap, SQLAlchemy, Google Gemini* github.com/alephnull07/Cartelligence

- Created a full-stack grocery assistant generating personalized recipes and **3-4** budget alternatives based on dietary restrictions
- Designed a nutrition analysis dashboard backed by a **SQLite relational database** featuring cascading list-item management

Technical Skills

Programming Languages: Python, Java, JavaScript, TypeScript, C++, SQL

Frameworks/Libraries: React, Node.js, Express.js, PostgreSQL, MongoDB, PyTorch

Tools: Docker, Git, Pandas, Postman, Firebase, Claude Code