Aaron Hsu

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EDUCATION

University of Michigan - College of Literature, Science, and Arts **Ann Arbor, MI**
B.S in Computer Science, Minor in Statistics *December 2025*

- **Relevant Coursework:** Data Structures and Algorithms | Computer Organization | Database Management Systems | Statistical Computing | Intro to AI | Intro to Computer Security | Conversational AI | Statistics and AI | Web Systems
- **Extracurriculars:** Tau Epsilon Kappa (Co-ed Professional Technology Fraternity), Michigan Club Soccer

SKILLS

- **Languages:** Python, SQL, C++, C, Java, JavaScript, HTML, CSS, R
- **Libraries/Frameworks:** React, Flask, TensorFlow, Keras, PyTorch
- **Tools/Platforms:** Git, Visual Studio, VS Code, Jupyter Notebook, Microsoft Office, AWS, Docker
- **Interests:** Soccer (Tottenham Hotspur), Piano, Cooking, Lifting

WORK EXPERIENCE

First Solar **Perrysburg, OH**
Software Engineering Intern *May 2024 - September 2024*

- Implemented automatic, **30-second interval retry configurations** for MassTransit consumers inside of RabbitMQ integrated applications, allowing the system to effectively handle transient/idempotent errors and prevent data loss
- Built an end-to-end retrieval augmented generation system using **LangChain on 500+ company documents**, successfully deploying a GPT-integrated web application and reducing mean time to repair (MTTR) from 5 hours to 3 hours
- Applied prompt engineering techniques to optimize SQL queries, reducing execution and retrieval times by **up to 50%**
- Presented AI-driven solutions to C-Suite executives, highlighting enterprise benefits and efficiency gains through Generative AI

Tiimo **Copenhagen, DK**
Web Development Intern *May 2023 - September 2023*

- Conducted biweekly smoke tests of Android beta application alongside the development team
- Documented issues in Notion/Linear; developed solutions for **30+ functionality bugs** and proposed various UI/UX fixes
- Integrated code-level changes based on feedback from user reviews to enhance accessibility for neurodivergent users

Shinsung SoundMotion **Ann Arbor, MI**
Engineering Intern *May 2022 - September 2022*

- Designed various PCBs using Sprint Layout and Cut2D, integrating models into silicon neural probes for clinical testing
- Engraved designs on copper boards using a Wegstr CNC Prototyping Mill aiding in production of prototyping

University of Michigan - Center for Entrepreneurship & College of Engineering **Ann Arbor, MI**
Instructional Aide *September 2023 - Present*

- Oversee operations for two upper-level courses including attendance, grading, and preparing lecture material

PROJECTS

Automated Retrieval Augmented Generation (RAG) Quality Assessment

- Developed a script to evaluate RAG systems across different GPT/embedding model combinations, fully automating the testing process and eliminating the need for manual data entry
- Conducted 10+ experiments using various LLM parameter settings (chunk size/overlap, temperature, top-k, etc.)

AI Cooking Assistant

- Developed an open-source chatbot that helps users create recipes/meal plans and provide suggestions based on user preferences
- Integrated Hugging Face LLMs with a Python/Flask backend and React frontend, utilizing SQLite to manage user data

Social Media Platform

- Generated static pages using Jinja2 templating in HTML and JSON data. Implemented secure user authentication mechanisms using Flask session cookies and SHA-512 password hashing with salt
- Developed a Flask-based web application with a RESTful API that serves data from a SQLite database, enabling AJAX calls from a React frontend to enable dynamic modification of the DOM
- Deployed the application on AWS IaaS by provisioning EC2 instances, configuring Nginx as a reverse proxy for a Gunicorn-powered Flask application, and automating the environment setup with shell scripts

Graph Traversal and Optimization Algorithms

- Implemented classes to represent graph structures, leveraging abstraction and encapsulation to model vertices, edges, and spatial constraints in graph traversal algorithms
- Utilized algorithms including Minimum Spanning Tree (Prim's/Kruskal's) and heuristic/branch-and-bound approaches for TSP, optimized with priority queues, adjacency lists, and dynamic distance calculations for large datasets