Ari Hu

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EDUCATION

B.S. in Computer Science, The University of Texas at Dallas, Aug 2021 - May 2024 GPA: 4.0/4.0 Summa Cum Laude

RELEVANT COURSES

Computer Science I/II, Discrete Math I/II, Linear Algebra, Computer Architecture, Prob. and Stats, Data Structures/Algorithms, Systems Programming, Software Engineering, Digital Logic, Database Systems, OS, Advanced Algorithms, Networks, AI, ML

TECHNICAL SKILLS

- Languages: C, C++, C#, Java, Python, SQL, Prolog, Lisp, HTML, CSS, Javascript, Typescript, BASH, SQL
- Frameworks/Libraries: Spring, ASP.NET, Flask, Django, Pytorch, NumPy, Selenium, BeautifulSoup, jQuery, Node, Express, React, Next.js, Bootstrap, Tailwind
- Databases: MySQL, MSAccess, MongoDB, PostgreSQL, Microsoft SQL Server, ChromaDB, Firebase
- Software: MS Office, MS Teams, Visio, Drive, GCS, AWS, Discord, Zoom, Git, Windows, MacOS, Linux, Astah, Docker
- Certifications: Microsoft Office Specialist: Word/Excel/PowerPoint/Access Certified 2019

PROFESSIONAL EXPERIENCE

Smart Data Solutions - Senior Design Project: Healthcare Correspondence LLM January - May 2024

Build an AI chatbot with a group of six that allows customers to ask questions and receive answers from correspondence data history using LLama2 LLM, ChromaDB vector database, Flask backend, and chatbot with HTML, CSS, and Javascript

- Used a Python Script to convert Tesseract OCR JSON data to text to feed it into the ChromaDB database as context.
- Setup LLama2 with Pytorch, Implemented RAG model where ChromaDB's similarity search provides context for the LLM.
- Worked with Amazon Workspaces and added CUDA functionality to decrease inference time from 2 minutes to 10 seconds.
- Setup a flask backend API to run the model given question, and send answer to the frontend chatbot UI.
- Made a status report and presented the project at SDS Dallas Grand Opening and UTD Expo.

ACADEMIC PROJECTS

Systems Programming August - December 2022

Build 3 C projects in a Linux environment: A client and server using sockets that stores info, a multithreaded Merkle hash tree to encrypt a file, and a custom bash shell clone that includes pipelining and built-in commands.

Jos Operating System August - December 2023

Build a JOS operating system in C with QEMU emulator, GDB debugging, and Gitlab. Learned how a Intel x86 i386 chip boots, implemented memory management, environments, exception handling, multitasking, file systems, spawn, and shell.

Dog Knight January - May 2024

Acted as team leader to create a Unity game Dog Knight, a 3D adventure game where you fight monsters. As leader, I came up with a collaboration/version merge plan, and built a timeline. I also added Audio/Visual Effects, combat, and game world.

Insect Pest Recognition using CNN Models January - May 2024

Implemented ResNet18, MobileNet, and GoogleNet with Pytorch to classify insect pests from the IP102 dataset with a group. Created a report in Latex detailing experiment and results, and presented a presentation on our implementation and findings.

PERSONAL PROJECTS

Imager API October 2023

A Java Rest API backend using Spring Boot and Spring Security that allows authenticated users to get, post, delete, and update images from a MySQL database using Hibernate. Learned about Rest APIs and how it connects to the frontend.

QuickPlay December 2023

A Chrome Extension written in HTML, CSS, and Javascript that allows you to change the speed of the video player. Includes shortcuts to increment/decrement/reset speed. Learned about Manifest V3 and Chrome Storage.

ITube May 2024

Created a Youtube Clone that allowed users to view and upload videos once authenticated using Firebase Auth. Learned how to store data in Firebase, and incorporate Express Rest API to process the videos. Created a frontend with React, NextJS, Typescript, Node and TailwindCSS, and learned how to deploy applications to Docker and Google Cloud.

Various TodoList June 2024

Built todolists with 4 swappable backends: MongoDB + Express + Node, MySQL + Java + Spring, PostgreSQL + Python + Django, MS SQL Server + C# + ASP.NET, and 3 frontends: Vanilla HTML/CSS/JS, JQuery + Bootstrap, and React + Tailwind

Virtual Jam July 2024

Made a webpage in HTML, CSS, and Javascript that allows multiple users to concurrently play virtual instruments like Piano and Drums in real time using WebSockets. Integrated the Express WebSocket API as an AWS EC2 instance, registered a domain name in Route 53, generated a SSL certificate, and set up an Application Load Balancer to route to this API.