Chaoran Huang

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Technical Skills

Languages : JAVA, Python, C/C++, SQL (MySQL), JavaScript, TypeScript, Assembly
Frameworks :Spring Boot, Flask, Django, Pytorch, Tensorflow, SpaCy, Crypto++, jQuery, React, Angular, Node.js, ExpressJS, Bootstrap
DevOps and API Tools : Git, Docker, Kubernetes, Jekins, Postman
Cloud and Security Tools : ***Amazon Web Services (AWS)*** , ***Google Cloud Platform (GCP)*** , SQL Server, Linux (Configuring and Managing)

Education

Brown University MS in Computer Science, GPA: 3.8 Sept 2022 - May 2024
University of California, Irvine BS in Computer Science, Major GPA: 3.9 Sept 2017 - June 2021

Experience

Software Developer | *My Car Auction, Inc, Irvine, CA* *March 2021 - July 2022*

- Contributed to the development of an automated car inspection application and management system, including web app and software development and micro-service integration to enhance business operations.
- **Project 1: Competitor Price Scraping System**
  - Designed and developed a web scraping system using ***Selenium and Puppeteer/Pyppeteer*** to fetch competitor pricing data
  - Leveraged ***Axios/Express, AWS DynamoDB, and Vaadin framework*** for data processing and presentation
  - Automated the system with ngrok and researched anti-scraping techniques for efficiency
  - Successfully scaled the system to scrape over **30000** competitors' auction vehicle prices daily across the entire U.S., providing comprehensive market insights.
- **Project 2: Oracle NetSuite Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) System**
  - Developed and integrated NetSuite CRM and ERP system software with iTextPDF, DocuSign, PandaDoc, and Auto-lead Data Format (ADF) using ***Java Spring Boot, OAuth2.0, and Retrofit2***
  -Coordinated and customized company's Financial & Accounting team's requirements in collaboration with Oracle NetSuite consultants, greatly boosted working efficiency
- **Project 3: Named Entity Recognizer for Used Vehicles (Github)**
  - Designed ***Natural Language Processing model*** with ***SpaCy*** to recognize important attributes from customers' descriptions and facilitate search engine algorithm to retrieve regulated vehicle information
  - Completed a workflow from inital data collection & cleaning, model training & deployment and software integration.
  - Dived into different models: ***CNN, LSTM and transformers: BERT*** , analyzed their performance based on their strength and weakness.
  - Enabled offshore team to rapidly receive valuable and pertinent information, greatly improved the auto-lead number by **70%** per day.
- **Project 4: Sales Visualization Dashboard Web App**
  - Developed an interactive dashboard using ***Flask, Angular, and ECharts*** for visualizing sales data, enabling better marketing decisions and automating commission calculations for employee payroll
  - Integrated micro-services for offshore teams and the Finance Department to track sales processes and vehicle auction stages

Projects

Full-Stack Developer, Co-founder | *Shuxiang Fayun Technology Co., Ltd., Shanghai, China* *August 2023 –Present*

- Spearheading the development and integration of an all-in-one business management webapp and a QA-focused ***large language model (LLM)*** for legal professionals. Played a pivotal role in designing the system architecture and workflow, ensuring efficient and seamless operation.
- **Project: Integrated Issue Management Webapp and Language Model for Legal Practice**
  - Orchestrated the system design, defining the architecture and workflow logic to optimize communication and case management in legal practices.
  - Built the webapp using full-stack technologies, focusing on ***React, Next.js, and Tailwind*** for the frontend, and ***Spring Boot with AWS DynamoDB, ElasticBeanstalk, EC2*** for the backend.
  - Developed the LLM with PyTorch and Transformers to aid lawyers in legal case understanding and document preparation.
  - Integrated advanced third-party components like Tiptap for rich text editing and ***Spring Boot Retrofit2, Spring Security*** for enhanced functionality.
- **Achievements:**
  - The bespoke system design significantly streamlined communication and workflow within law firms.
  - The project was widely adopted by multiple law agencies and solo practitioners, generating considerable revenue. ***(> 1 million)***

Activation Checkpointing for Deep Neural Network Training | *Harvard University* *Jan 2024 - May 2024*

- Developed and implemented techniques to optimize memory usage in deep neural network (DNN) training using PyTorch.
- Created a comprehensive ***computational graph profiler*** to analyze memory and computation time for each operation, categorizing inputs/outputs, and generating peak memory usage graphs.
- Designed and implemented an algorithm to selectively store and recompute activations during training, reducing peak memory requirements by up to ***70-85%.***
- Developed tools to manage activation storage and recomputation, ensuring efficient gradient computation during the backward pass.
- Achieved significant memory savings, enabling the training of larger models with larger mini-batch sizes, and provided detailed experimental analysis on performance improvements.

Data & Web App Development | *University of California, Irvine* *March 2020 - June 2020*

- Developed a movie search website using ***Java*** and ***JavaScript*** , managing the backend database with ***MySQL*** , and deploying the project via ***Amazon AWS*** for an average load time under **300ms in pressure text**.
- Enhanced website functionality by implementing full-text search, auto-complete, stored procedures, and various performance-tuning techniques.
- Strengthened website security with ReCAPTCHA and encrypted passwords, while expanding versatility by creating an accompanying ***Android*** mobile app with ***Google firebase*** .

Web Crawler & Search Engine | *University of California, Irvine* *March 2020 - June 2020*

- Developed a ***Python-based*** web crawler to navigate all web pages under ics.uci.edu, utilizing packages such as ***Requests, Re, and BeautifulSoup.***
- Created a web-based UI search engine via techniques: like ***TF-IDF*** , for querying user-entered text in local databases, leveraging ***cosine similarity*** to measure the relationship between input text and crawled web pages.
- Achieved a response time of **100ms** for search queries, enabling fast and efficient user interactions.
- Presented a comprehensive report detailing the accurate number of pages within the specified domain and successfully avoiding crawler traps.