Shangjie (Henry) Zheng

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EDUCATION

Southern Methodist University (SMU) ·· May 2024
Master of Science in Computer Science — GPA: 3.97/4.00

University of Missouri-Kansas City (UMKC) ·· May 2021
Bachelor of Science in Mechanical Engineering — GPA: 3.52/4.00

PROFESSIONAL EXPERIENCE

Lion Energy LLC. ·· Dec. 2024 – Present
Control Systems Engineer | Embedded C, Python, MATLAB, Simulink, Simscape, CAN, I2C — American Fork, UT

- Researched and optimized embedded software for Energy Management System (EMS) and Battery Management System (BMS).
- Collaboratively designed and implemented EMS Interface Control Module (ICM), integrating inter-controller communication protocols (CAN, UART, I2C etc.) to enable seamless coordination among DC/DC, BMS, inverters, and extension battery packs.
- Oversaw the complete software lifecycle for ICM, ensuring stable data transmission, scalability and robust system functionality.
- Refined and enhanced existing BMS control system software, conducting cell characterization test to develop an improved state-space model of the battery pack in MATLAB Simulink. Programmatically process test data using Python to support model analysis.
- Collaborated with Validation Engineers creating automated tests using CANalyzer, Ozone J-Link, ensuring system performance.

Lion Energy LLC. ·· Jul 2024 – Dec. 2024
Software Intern, Control Systems | Embedded C, MATLAB, Simulink, MCU, CAN — American Fork, UT

- Collaborated in the development and research of embedded software for Battery Management System (BMS).
- Refined SoC estimation through end-of-charge/discharge state Amp-Volt mapping optimization, increasing accuracy by over 30%.
- Redesigned cell balancing algorithm to discharge optimal balancing current from target cells, speeding process from days to hours.

Southern Methodist University ·· Aug 2023 - Present
Graduate Research Assistant | Python, GPT, Gemini, Keras, spaCy — Dallas, TX

- Developed and refined a machine learning toolset aiming to translate tax domain-specific knowledge into code-like representations using LLMs and machine learning techniques, enabling more efficient automation and decision-making.
- Fine-tuning GPT and Gemini LLMs with pre-annotated tax documents by classifying contexts into (non-)environmental variables, leveraging Keras, spaCy libraries to develop a specialized classifier that accurately interprets domain-specific language.
- Implemented programs to automate the data collection and sanitization, populate datasets, and validate raw internet data sources.
- Advancing model development to accurately translate natural language into logical form through ongoing optimization efforts.

SELECTED PROJECTS

Shop-Core, High-Concurrency E-Commerce Backend System ························ Fall 2024
Spring Boot, Redis, MySQL, MyBatis, Kafka, JMeter, Thymeleaf, Nginx — American Fork, UT

- Implemented a robust high-concurrency e-commerce backend system. The enhanced data pipeline seamlessly integrated the Redis cache layer over MySQL, enhancing QPS capability by over 20 times while preserving transaction consistency and reliability.
- Built backend services with Spring Boot, improving page rendering speed by 70% and reducing main server traffic through caching template variables, pre-loading static HTML on remote servers, and rerouting static content requests using Nginx reverse proxy.
- Integrated Kafka Message Queue to decouple Redis single-thread handling from incoming message rates and mitigate peak loads.
- Employed MyBatis ORM to streamline database interactions, abstracting SQL operations to enhance development manageability.
- Conducted comprehensive unit testing with Junit achieving 76% overall code coverage, and performed load tests using JMeter.

TA Management System ·· Fall 2023
TypeScript, React, Node.js, MySQL, Jest, GitHub — Dallas, TX

- Developed a dynamic full-stack TA Management System for the Engineering school at SMU to support 1,000+ potential users.
- Implemented a reactive web front-end using React, integrated with TS-based Node.js back-end, and MySQL database system.
- Managed Git version control, ensured program met coding standards, co-reviewed PRs and merged approved submissions.
- Drove development in a Scrum team, overseeing development cycle from requirements analysis to application deployment.

PROFESSIONAL SKILLS

- **Programming Languages**: Java, Python, C++, Embedded C, SQL, MATLAB, JavaScript, TypeScript, HTML, CSS
- **Databases & Data Streaming:** MySQL, PostgreSQL, SQLite, MongoDB, Amazon S3, Redis, Kafka, Hibernate, MyBatis
- **Frameworks and Platform:** Spring Boot, Django, React, Node.JS, Express, Amazon Web Services, Linux
- **Development Libraries/Tools:** Maven, Git/GitHub, Postman, Simulink, Apache JMeter, Nginx, CANalyzer, spaCy, NLTK