

Shangjie (Henry) Zheng

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EDUCATION

Southern Methodist University (SMU)	May 2024
<i>Master of Science in Computer Science</i>	GPA: 3.97/4.00
University of Missouri-Kansas City (UMKC)	May 2021
<i>Bachelor of Science in Mechanical Engineering</i>	GPA: 3.52/4.00

PROFESSIONAL EXPERIENCE

Lion Energy LLC.	Dec. 2024 – Present
<i>Control Systems Engineer C, Python, MATLAB, Simulink, Zephyr RTOS, CAN, J1939</i>	American Fork, UT
<ul style="list-style-type: none">• Researched and optimized embedded software for Energy Management System (EMS) and Battery Management System (BMS).• Designed and implemented J1939 CAN communication across all product series, achieving ~200% increase in transmission rate over the original RS485. Integrated key features, including distributed controller broadcasting, multipacket, peer-to-peer messaging.• Collaboratively architected and executed 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.• 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.	
Lion Energy LLC.	Jul 2024 – Dec. 2024
<i>Software Intern, Control Systems Embedded C, MATLAB, Simulink, MCU, CAN</i>	American Fork, UT
<ul style="list-style-type: none">• 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
<i>Graduate Research Assistant Python, GPT, Gemini, Keras, spaCy</i>	Dallas, TX
<ul style="list-style-type: none">• 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
<i>Spring Boot, Redis, MySQL, MyBatis, Kafka, JMeter, Thymeleaf, Nginx</i>	American Fork, UT
<ul style="list-style-type: none">• 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
<i>TypeScript, React, Node.js, MySQL, Jest, GitHub</i>	Dallas, TX
<ul style="list-style-type: none">• 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, AWS, Linux, Zephyr RTOS, CAN, J1939
- **Development Libraries/Tools:** Maven, Git/GitHub, Postman, Simulink, Apache JMeter, Nginx, CANalyzer, spaCy, NLTK