Zerui "Jerry" Ma

Dallas, TX | 747-289-8602 | jerryma@smu.edu | Webpage | LinkedIn

EDUCATION

Southern Methodist University May 2025
Bachelor of Science in Computer Science
Bachelor of Science in Data Science
Bachelor of Art in Mathematics

- GPA: 3.73

Research Interests: Natural Language Processing: Transformer-based Models, Large Language Models (LLMs), Computational Linguistics; Theoretical Machine Learning: Neural Networks, Math of ML, Parallel Computing; ML with Medical Data, Multimodal Models, High Performance Computing

RESEARCH EXPERIENCE

Personality Disorder Detection NLP Research Dallas, TX
Research Assistant December 2023 – Present

- Utilized PyTorch and Transformer architecture to finetune LLMs for Big-Five Personality Disorder predictions.
- Preprocessed real-life interview data with Pandas and NLTK for BERT and LLaMA transformer finetuning.
- Ran batch training jobs with shell script on HPC using Vim (text editor) in command-line interface (CLI).
- Experienced in Ubuntu Linux commands and file system; Deployed efficient directory management with CLI.
- Proposed novel and accurate personality disorder prediction methodologies for NLP and Psychology academia.
- Extracted finetuned roBERTa embeddings for Recurrent Neural Network (RNN) regression tasks.

Recommender Systems for University Curriculum Advising Dallas, TX
Independent Researcher June 2024 – Present

- Designed a relational database using web-scraped data for university curriculum recommendation systems.
- Developed solutions allowing users to retrieve customized recommendations based on their academic state.
- Proposed a novel, fully integrated advising system to enhance curriculum planning.
- Learned to process and code complex logic; experimented with various ML models to make fair recommendation.

PUBLICATIONS

Recommender Systems for University Curriculum Advising, **AAAI Spring Symposium**, *1st Author* (March 2025)
Recommender Systems for University Curriculum Advising, **NCUR**, *1st Author* (April 2025)
Association for Computational Linguistics Rolling Review Submission (under review, 3rd author).
Journal of Psychopathology and Clinical Science (under review, 2nd author).

CONFERENCES & PRESENTATIONS

EMNLP 2024 Miami, FL
Participant November 2024

- Gained insights into innovative research in NLP through workshops, keynote speeches, and poster sessions.
- Networked with academic researchers and industry professionals to exchange ideas and explore recent advancements in NLP methodologies.
- Enhanced understanding of emerging techniques and their applications, contributing to research expertise.

PROJECTS

Social Panacea Full Stack Development Dallas, TX
Full Stack Developer January 2025 – Present

- Worked with in a team of 6 to design a matchmaking algorithm for university students and admin users.
- Utilized to version control using Git commands, submitted pull requests, and resolved file conflicts.
- Used Firebase to handle user data in JSON format; implemented RESTful API for the frontend system calls.
- Built software systems with scalable architectures and contributed in rigorous software testing life cycles (STLC).

InfoSavvy RAG Application (Startup in AI/ML Engineering) Dallas, TX
CTO August 2024 – Present

- Developed a university catalog summarization tool with RAG technique using LangChain framework.

- Designed the software architecture for front and backend dev; formulated retrieval data in a vector database.
- Hosting the containerized software in AWS to scale and handle large web traffic; presenting results to SMU.
- Providing important campus information to 9000+ SMU students through a simple and secure user interface.

University Schema Full Stack Development Dallas, TX
Database Designer April 2024 — May 2024

- Designed and implemented a relational database in MySQL for data management of complex university schema.
- Compiled a frontend using NPM and Node.js while running database commands in a Spring Boot backend.
- Developed an intuitive UI using JavaScript, HTML, and CSS, supported by gem dependencies for reliability.

Automated Debug Assistant Job System Dallas, TX
Programmer August 2023 – Dec 2023

- Utilized mutex locks to prevent race conditions and ensured deadlock-free multithreaded operations.
- Leveraged OpenAI APIs to design a RESTful interface querying a local LLM for iterative debugging.
- Created UML diagrams to design and visualize the architecture of a custom-made operating system.
- Performed parallel programming using Dask for accelerated calculations on HPC systems.
- Identified and resolved memory leaks in C++ programs using Valgrind for optimal system performance.

WORK EXPERIENCE

SMU Computer Science Department Dallas, TX
Teaching Assistance for Advanced Python January 2025 – Present

- Answered student questions on course materials and programming assignments; graded student assignments.

Governor's Champion Summer Camp Dallas, TX
AI and Machine Learning Course Lecturer July 2024

- Designed and delivered an AI and Machine Learning course for high-achieving high school students.
- Covered foundational concepts such as intelligent agents, AI history, data preprocessing, and ML algorithms.
- Facilitated hands-on projects to connect theoretical knowledge with real-world applications.
- Developed curriculum design, enhanced public speaking abilities, and improved academic coordination.

Dedman Center for Lifetime Sports Dallas, TX
Gym Manager October 2022 – December 2023

- Directed team operations with effective leadership and professional communication.
- Maintained seamless facility operations during peak hours, managing a team of 3+ staff members.

ORGANIZATIONS & LEADERSHIP

Google Developer Student Club Dallas, TX
Technical Lead November 2024 – Present

- Organizing on-campus speaker events to promote technical growth and learning among students.
- Coordinated with teammates to invite technical speakers from Google and manage event logistics, including scheduling, marketing, and ensuring high engagement.

Artificial Intelligence Club Dallas, TX
Organizer August 2024 – Present

- Analyzed and implemented solutions to machine learning problems by studying theoretical foundations and applying ML basics in both coding exercises and academic paper reviews, enhancing technical understanding.
- Planned and facilitated biweekly meetings to deliver intriguing lectures or workshops to student peers.
- Collaborated with peers to understand and deconstruct complex neural networks such as Feedforward Neural Networks (FFNN) and Transformers, effectively communicating insights and fostering group learning.

SKILLS

Coding Languages:	Python, C++, Java (Spring Boot), Shell Script, SQL, MIPS ASM, JavaScript/HTML/CSS
AI/ML:	PyTorch, scikit-learn, TensorFlow, batch job, Dask (Parallel Computing), HPC, YOLO, DDP
DevOps:	Git/GitHub, REST API, React, Jekyll, GNU, Valgrind, Docker, Conda, VSC, Vim, JetBrains
Operating Systems:	Linux (Arch, Ubuntu, Fedora, Kali), Windows 7-11, MacOS, Debug Assistant Job System OS
Professional:	Chinese (fluent); Latex, Web Scraping; Microsoft Office