Xu Zhang

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EDUCATION

New York University New York, NY

The Master in Computer Science *September 2024 – May 2026*

The University of Texas at Austin Austin, TX

B.S. in Mathematics (with honor): GPA: 3.95 • 75th Annual Natural Sciences College Scholars (2023) *January 2021 – May 2024*

KEYWORDS: Meta-learning, Few-Shot Learning, Computational Cognitive Science, Bioinformatics.

Research Interest: Do well on ALL 5 tasks of Omniglot -- I want to build deep learning models that embodies the essence of human learning.

SKILLS

Programming Languages: C, UNIX/Bash, Python, Java, MATLAB.

Machine Learning: Pytorch, scikit-learn, Numpy, Pandas, R.

Biology Lab Skills: Bowtie2, Primer design, PCR reactions, Gel electrophoresis.

Other: LaTeX, Diamond Sutra, I Ching, Windmill, Thomas Flare.

COURSES TAKEN

Machine Learning: FDTNL TECH in ML/Data SCI (A, Grad), PREDICTIVE ANALYTICS (A), INTRO TO DSGN/ARTFCL INTEL (A)

Statistics and Math: MATH STATISTICS (A), REAL ANALYSIS I&II (A), NUMERICAL ANALYSIS (A-)

Biology: BIG DATA IN BIOLOGY (A), GENERAL BIO (A), GENETICS (for credit)

RESEARCH&INTERNSHIP EXPERIENCE

Capgemini Automobile Manufacturer LLM-based Market Sentiment Analysis Pipeline *Shanghai, China*

AI Engineering Assistant (NLP) *June 2024 – August 2024*

- Co-developed a FastAPI server for hosting fine-tuned LLMs to extract key insights from market opinion on car parts in the client's products.
- Led the experiments on evaluating how vLLM enhances models' performance (including Qwen, Chatglm, etc.) and manages multi-thread requests through experiments on the FastAPI server we developed.
- Discovered and verified the crucial observation that using vLLM will result in outputs different from original models given fixed parameters due to vLLM's different implementation of attention kernel.

Gene Expression Study in Binge-like Alcohol-Drinking Mice Across Brain Regions Austin, TX

Research Assistant (Supervised by Professor Dhivya Arasappan) *February 2023–June 2024*

- Conducted concordance and discordance analyses to identify genes with closely aligned expression levels across multiple brain regions.
- Executed pathway analysis to identify responsible pathways for differentially expressed concordant genes and those with closely aligned expression levels in multiple brain regions.
- Presented the work at Heart of Texas Research Conference.

Effect of Monk Fruit on Enterobacter cloacae Austin, TX

Research Assistant (Supervised by Dr. Katie Hansen) *February 2022–May 2022*

- Designed experiments and conducted bacteriostatic assays to assess the impact of NNS Monk fruit on Enterobacter cloacae growth.
- Developed gene primer designs and performed PCR and gel electrophoresis.
- Employed bioinformatics tools GenBank, KEGG pathways, and Primer3 for gene and pathway identification, analyzing experimental results.

CONFERENCES & EVENTS

Heart of Texas Research Conference (Baylor University**)**

Presenter *April 20, 2024*

- Presented our research on cross-brain-regions gene expression profiling in binge-drinking mice (High Drinking in the Dark line).
- Demonstrated a novel statistical method I developed to identify genes with similar expression patterns across brain regions and mouse lines by utilizing concordant pairs and a novel notion of distance.
- Presented a way to use permutation importance to select the most influential features from machine learning models for sample group prediction tasks, in order to proceed with further biological analysis.

CNS Donor Appreciation Event Austin, TX

Presenter *Feb 17, 2024*

- Invited as one of student representatives to the Year of AI event.
- Presented ongoing research projects in Big Data in Biology FRI stream to donors of College of Natural Science.

EXTRACURRICULAR ACTIVITIES

Funkamental Crew Austin, TX

Founding Member *September 2022–Present*

- Co-founded the breaking (break dance) crew "Funkamental Crew" with fellow Bboys in Austin area.
- The crew became one of the largest breaking crews in the Austin area.