Xu Zhang

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Personal Website: https://xuzhangnyu.github.io/

EDUCATION

New York University New York, NY

The Master in Computer Science : GPA: 3.72 *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*

SKILLS

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

Machine Learning: Pytorch, CUDA, Hugging Face, WANDB, lmdb processing, Scikit-learn, Numpy, Pandas, R.

Other: html, Singularity, LaTeX, PowerBI, Bowtie2, PCR reactions, Diamond Sutra, I Ching.

RELATED COURSES TAKEN

Embodied Learning, Computer Vision for Science and Engineer, Machine Learning, Predictive Analytics, Math Stat, Real Analysis I&II, Numerical Analysis

RELATED PROJECTS

Two-stream View-Invariance SSL on Assembly101, YOLOv6 with few-shot learning, Reimplementation of MViT & Prototypical Network. More Details at: https://github.com/XuZhangNYU/Two-stream-View-Invariance-SSL-on-Assembly101

RESEARCH&INTERNSHIP EXPERIENCE

Capgemini Automobile Manufacturer LLM-based Market 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.

Dr. Katie Hansen's Lab Austin, TX

Lab Assistant *February 2022–May 2022*

- Designed experiments, cultivated bacteria, and conducted bacteriostatic assays to assess the impact of non-nutritive sweeteners on bacterial growth.
- Developed gene primer designs and performed PCR and gel electrophoresis.
- Employed bioinformatics tools such as GenBank, KEGG pathways, and Primer3 for gene and pathway identification, as well as analyzing experimental results.

Dr. Heng Zhang's Lab Chongqing, China

Lab Assistant *October 2018–July 2019*

- Conducted literature reviews and organized research papers related to wearable devices and attitude algorithms project that improves Kalman filter in wearable device.
- Created programs for various tasks, including data visualization and data type conversion.

TEACHING EXPERIENCE

Calc Lab Austin, TX

Tutor *Jan, 2024 – May, 2024*

- Worked as a tutor in the department of mathematics Calc Lab, a tutoring program to assist students in calculus classes.
- Provided assistance to students with their calculus questions.
- Offered further explanations on important calculus concepts to help students' understanding.

FRI Peer Mentor Austin, TX

Mentor *Jan, 2024 – May, 2024*

- Worked as a peer mentor in the FRI Big Data in Biology research stream.
- Answered students class questions inside and outside the lectures.
- Held mentor meetings to guide students with activities to further understand class concepts.

Python Boot Camp Austin, TX

Tutor *Feb, 2024*

- Worked as a tutor in the February Python Boot Camp for the FRI research stream.
- Taught life science students basic Python skills and useful coding techniques.

CONFERENCES & EVENTS

Undergraduate Research Forum 2024 Austin, TX

Presenter *April 26, 2024*

- Poster presentation on our cross-brain-regions gene expression profiling research 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.

Heart of Texas Undergraduate Research Conference

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.

Undergraduate Research Forum 2022 Austin, TX

Presenter *April 22, 2022*

- Presented research on the potential effects of monk fruit on Enterobacter cloacae and the associated pathways.
- Communicated the significance of non-nutritive sweeteners studies to researchers from diverse fields.
- Provided feedback on biology and mathematics posters presented by other researchers.