

Zhaodong Liu

Email: zl4789@nyu.edu | Tel: (+86) 131-5629-6623

EDUCATION

New York University Shanghai Shanghai, China
Bachelor of Science; Double Major: Computer Science, Mathematics Sep 2022-May 2026 (expected)
Cumulative GPA: **3.811/4.0** | CS Major GPA: **3.941/4.0** | Math Major GPA: **3.926/4.0**

- **Study-away Experience:** NYU New York, Fall 2024 and Spring 2025
- **Relevant Coursework:** Multivariable Calculus, Honors Linear Algebra, Probability & Statistics, Honors Numerical Analysis, Discrete Mathematics, Analysis, Ordinary Differential Equations, Data Structures, Basic Algorithms, Operating Systems, Introduction to Databases, Machine Learning, Natural Language Processing
- **Honors:** Dean's List (Academic Years: 2022-2025)

RESEARCH EXPERIENCE

Research Assistant, New York University Shanghai May 2025-present
Generative Retrieval for Recommendation System
Advisor: Prof. Hongyi Wen, Department of Computer Science, Data Science and Engineering

- Developed a multimodal framework to predict user behavioral patterns on Amazon datasets.
- Designed and evaluated model architectures, implemented quantization methods of VQ-VAE, RQ-VAE, OPQ, to capture discrete behavior patterns, achieving 47.2% performance improvement (from 0.0339 to 0.0499).
- Implemented BPE-inspired partitioning tokenization, improving sequence coherence and representation quality.

Research Assistant, New York University Shanghai May 2024-Aug 2024
Efficient Driving Route Optimization Considering Traffic Light Timings
Advisor: Prof. Zhibin Chen, Department of Computer Science, Data Science and Engineering

- Built a traffic-aware driving route optimization model under real-world map and constraints on SUMO platform.
- Simulated model on real traffic signal datasets, reducing travel time compared to baseline routing algorithms.
- Applied energy consumption models for EV and gasoline vehicles, balancing energy efficiency and travel time.

SELECTED PROJECTS

Finetuning on Pretrained LM to Efficiently Perform Retrosynthesis of Chemical Reactions Sep 2024-Dec 2024
Center for Data Science, New York University

- Developed predictive models for chemical reaction retrosynthesis using SMILES notation.
- Applied an LLM for dataset reconstruction and augmentation, improving Top-1 Accuracy by 26.2% (from 0.588 to 0.742) while reducing reliance on expensive laboratory data.
- Employed fine-tuning strategies (encoder freezing, MLP adapters, LoRA) to optimize training efficiency.

WORK EXPERIENCES

Data Engineer, Data Strategy Department, McDonald's China Dec 2025-present

- Developed and validated scalable database schemas and enterprise-level data maps.
- Designed a similarity recommendation algorithm based on menu composition and user historical interactions.
- Implemented an AI agent that significantly enhanced data panel classification and visualization.

LEADERSHIP & ACTIVITIES

Treasurer, PEER-Pal Club, New York University Shanghai May 2023-Aug 2024

- Managed financial operations and annual budgeting for student-led educational initiatives.
- Facilitated letter exchanges and Q&A sessions with high school students from Hunan Province.

Trombone Section Leader, Chamber Orchestra, New York University Shanghai Sep 2022-present

- Directed the trombone section, coordinated rehearsals, and oversaw instrument storage logistics.

DISTINCTIONS

Mathematical Contest in Modeling, Certificate of Achievement, Honorable Mention May 2023

- Preprocessed large datasets to remove anomalies and ensure data quality.
- Built predictive models using methods including Bayesian regression for regional market data analysis.

SKILLS AND OTHERS

- **Programming:** Python, Java, C, SQL, Stata
- **Frameworks & Tools:** Git, PyTorch, Pandas, NumPy, LaTeX
- **Languages:** Chinese (Native), English (Fluent)