Minghan Lyu

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EDUCATION

SHANDONG University (SDU), Jinan, China — Sep2023 - Now

B.S. in School of Software, GPA: 85.46/100, got an IELTS score of 7 in my freshman year of college.

Related courses: Numerical Computing (92), Information Retrieval (92), Linear Algebra (91), Computer Organization and Architecture (90), Introduction to the Artificial Intelligence Major (95), Social Networks and Recommender Systems (90)

RESEARCH EXPERIENCE

Eukaryotic Gene Structure Prediction with HMM — Oct2025-Jan2026

Advisor: Jun Wang (Professor)

- Framed gene boundary inference as repeat-sensitive genome sequence labeling.
- Engineered FASTA/GFF3 preprocessing to produce auditable aligned samples and splits.
- Implemented a multi-state HMM with CDS phase modeling and standardized GFF3 decoding.
- Quantified nucleotide/exon Sn–Sp to guide iterations and targeted refinements.
- I have open-sourced this project on GitHub.

Multimodal Understanding for Product Live-stream — Sep2025-Dec2025

Advisor: Lei Meng (Professor)

- Diagnosed noisy live-stream content and weak cross-modal alignment for product retrieval.
- Built a reproducible pipeline to align keyframes, speech text, and product metadata.
- Mined hard negatives via embedding similarity to sharpen fine-grained contrastive learning.
- Reduced background noise with ROI localization and improved fusion stability via late ensembling.
- I have open-sourced this project on GitHub.

Traffic Forecasting on METR-LA — Seq2025-Dec2025

Advisor: Yongshun Gong (Professor)

- Tackled multi-step traffic forecasting under non-stationary dynamics and missing observations.
- Built an end-to-end pipeline from cleaning and windowing to masked metric evaluation.
- Modeled spatiotemporal dependencies with graph priors and multi-branch sequence learning.
- Reduced test MAE/RMSE/MAPE to 3.57/7.37/10.17% on METR-LA.
- I have open-sourced this project on GitHub.

Brand-Geographic Grid Prediction — Mar2025-Jul2025

Advisor: Meng Chen (Associate Professor)

- Formulated site selection as next-grid prediction from sparse, weakly timestamped trajectories.
- Engineered grid-aligned sequences with density-aware ordering and sliding-window supervision.
- Built a multimodal predictor fusing trajectory encoding with geographic/context features.
- Achieved Acc@1/5/10=0.270/0.567/0.724 and MRR=0.450 on test data.

News Recommendation with NPA — Jan2025-Jun2025

Advisor: Li Lian (Associate Professor)

- Reproduced NPA as a reliable baseline for personalized news ranking on MIND.
- Built end-to-end impressions and user-history pipelines with controlled negative sampling.
- Enhanced text representations with Transformer-style encoders for deeper semantic matching.
- Improved offline ranking metrics (AUC/MRR/nDCG@K) with stable training and tuning.

LLM-based Paper Screening — Nov2024-Dec2024

Advisor: Yuqing Sun (Professor)

- Addressed slow and inconsistent systematic-review screening for titles and abstracts.
- Designed structured prompts aligned with inclusion/exclusion criteria and project constraints.
- Applied LLM-based classification with reproducible logging and lightweight quality checks.
- Increased screening throughput while maintaining consistent decision quality.

AWARDS AND HONORS

- 2024 Mathematical Modeling National Contest, Problem C, Provincial First Prize(10%)
- 2025 Mathematical Modeling National Contest, Problem C, Provincial First Prize(8%)
- Innovation Research Specialty Scholarship, 2024-2025 Academic Year

SKILLS AND OTHERS

Programming language: C/C++, Python, Java, MySQL, MATLAB , LaTex ,R

Framework & Tools: PyTorch, Github, TensorFlow, Java IDE, Spring Web, Thymeleaf, Hugging Face, ROS, Ubuntu, Anaconda, BLAST, MEME Suite, Rstudio