

Minghan Lyu

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EDUCATION

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

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| Eukaryotic Gene Structure Prediction with HMM | Oct2025-Jan2026 |
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Advisor: Jun Wang (Professor) | Homepage: <https://scholar.google.com/citations?hl=en&user=A95MOjcAAAAJ>

- 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.

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| Multimodal Understanding for Product Live-stream | Sep2025-Dec2025 |
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Advisor: Lei Meng (Professor) | Homepage: <https://scholar.google.com/citations?hl=en&user=KuukGGkAAAAJ>

- 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.

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| Traffic Forecasting on METR-LA | Seq2025-Dec2025 |
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Advisor: Yongshun Gong (Professor) | Homepage:

<https://scholar.google.com/citations?hl=en&user=WIHqungAAAAJ>

- 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.

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| Brand-Geographic Grid Prediction | Mar2025-Jul2025 |
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Advisor: Meng Chen (Associate Professor) | Homepage: <https://scholar.google.com/citations?hl=zh-CN&user=xE4gacoAAAAJ>

- 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) | Homepage: <https://faculty.sdu.edu.cn/lianli/>

- 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) | Homepage: <https://scholar.google.com/citations?hl=zh-CN&user=4CVXyOkAAAAJ>

- 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