Zonglin Lyu

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EDUCATION

University of Central Florida, Orlando, FL — Jan 2025 —
Ph.D. in Computer Science

University of Utah, Salt Lake City, UT (transferred) — Aug 2024 — Dec 2024
Ph.D. in Computer Science

Columbia University, New York, NY — Sept 2021 — Dec 2022
M.S. in Operations Research

University of California San Diego, La Jolla, CA — Sept 2017 — June 2020
B.S. in Applied Mathematics

RESEARCH INTERESTS

- Artificial Intelligence
- Computer Vision
- Multi-modal Learning
- Generative Models

PUBLICATION

*: equal in contribution
†: corresponding author

1. Zonglin Lyu, Ming Li, Xinxin Liu, and Chen Chen†. CPO: Condition Preference Optimization for Controllable Image Generation (Submitted to NeurIPS 2025)
2. Zonglin Lyu and Chen Chen†. TLB-VFI: Temporal-Aware Latent Brownian Bridge Diffusion for Video Frame Interpolation. pdf (Accepted by ICCV 2025)
3. Zonglin Lyu, Ming Li, Jianbo Jao, and Chen Chen†. Frame Interpolation with Consecutive Brownian Bridge Diffusion. ACM MM 2024. pdf
4. Zonglin Lyu, Juexiao Zhang, Mingxuan Lu, Yiming Li, and Chen Feng†. *Tell me where you are*: Multimodal LLMs Meet Place Recognition. (Arxiv 2024). pdf
5. Yiming Li*,Zhiheng Li*, Nuo Chen*, Moonjun Gong*, Zonglin Lyu*, Zehong Wang, Peili Jiang, Chen Feng†. Multiagent Multitraversal Multimodal Self-Driving: The MARS Dataset. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR). 2024. pdf
6. Yiming Li*, Zonglin Lyu*, Mingxuan Lu, Chao Chen, Michael Milford, and Chen Feng†. "Collaborative Visual Place Recognition." (Arxiv 2023).pdf
7. Xuande Feng*, Zonglin Lyu*,†. "How Features Benefit: Parallel Series Embedding for Multivariate Time Series Forecasting with Transformer." In 2022 IEEE 34th International Conference on Tools with Artificial Intelligence (ICTAI) (Oral presentation). pdf

RESEARCH EXPERIENCE

Controllable Image Generation — University of Central Florida, FL
Advisor: Chen Chen — Jan 2025 - present

- Propose a Condition Preference Optimization method to enhance the controllability of image generation models.

Video Generation — University of Central Florida, FL
Advisor: Chen Chen — Feb 2024 - present

- Design a Diffusion-based Frame Interpolation method that achieves SOTA performance, accepted by MM 2024 (paper).
- Further improvement on enabling temporal aware formulation is accepted to ICCV 2025 (paper).

AI4CE Lab — New York University, NY
Advisor: Chen Feng — Jan 2023 - Feb 2024

- Formulate the first framework for Collaborative Visual Place Recognition (paper).
- Collect and benchmark a large-scale outdoor dataset (paper).
- Design a training-free approach to incorporate Multimodal LLMs into VPR (paper).

Transformer in Multivariate Time Series Prediction — Columbia University, NY
Self-desgined research — March 2022 - July 2022

- Conduct literature reviews on time series prediction based on Neural Networks.

- Propose Parallel Series Embedding method applied in transformer-based models to predict time series, achieving notable improvements (at most 50% reduction in RMSE) over the baseline (paper, code).

PROJECT EXPERIENCE

SE-(3) Equivariant Performer Columbia University, NY
Advisor: Krzysztof Choromanski Oct 2022 - Dec 2022

- Conduct literature reviews on equivariant neural networks for point clouds.
- Prove that SE3 equivariance is compatible with Performer (linear transformer).
- Design a novel model based on SE(3)-Transformer, making it compatible to performer. The model achieves a 10% performance increase and 2x speedup over the baseline, and the performer variant archives a 5% performance improvement and more than 20% memory efficiency.
- Implemented with PyTorch. Codebase can be found here.

ACADEMIC SERVICES

- Reviewer: IROS 2024, T-CSVT 2024

SKILLS

- **Relevant Coursework:** Deep Learning, Machine Learning, Simulation, Reinforcement Learning (audit), Computer Vision, Probability, Statistics, Stochastic Processes, Optimization, Numerical Analysis, Linear Algebras
- **Online Courses:** Analysis of Algorithm, Data Structure
- **Programming and Software** Python (Pytorch, Numpy, Pandas, Matplotlib, etc), Java, C, C++, SQL, R, MATLAB, LaTeX.