Chenyu Li

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Education

University of Illinois Urbana-Champaign **Aug. 2025 - May. 2027**
Master's student in Computer Science

New York University **Jun. 2024 - Sep. 2024**
Visiting Student in Courant Institute of Mathematics

Tsinghua University **Sep. 2021 - Jul. 2025**
Bachelor's degree in Software Engineering

Publications

(* indicates eqaul contribution)

- PISA Experiments: What Video Diffusion Models Learn from Watching Stuff Drop
  Chenyu Li*, Oscar Michel*, Xichen Pan, Sainan Liu, Mike Roberts, Saining Xie
  Forty-second International Conference on Machine Learning (ICML, 2025) [PDF][Code][Project Page]

- Timer: Generative Pre-trained Transformers Are Large Time Series Models
  Yong Liu*, Haoran Zhang*, **Chenyu Li***, Xiangdong Huang, Jianmin Wang, Mingsheng Long
  Forty-first International Conference on Machine Learning (ICML, 2024) [PDF][Code]

- Koopa: Learning Non-stationary Time Series Dynamics with Koopman Predictors
  Yong Liu*, **Chenyu Li***, Jianmin Wang, Mingsheng Long
  Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS, 2023) [PDF][Code]

Research Experience

Evaluation and Enhancement of Intuition Physics of Video Diffusion Models **Apr.2024 - Apr.2025**
Advisor: Saining Xie, Assistant Professor, New York University

- Proposed **PISA** (**P**hysics-**I**nformed **S**imulation and **A**lignment), a framework to evaluate and enhance video diffusion models' understanding of intuitive physics.
- Curated and annotated 361 real-world videos of free-fall and designed 3 spatial metrics, enabling the evaluation of intuitive physics of state-of-the-art image-to-video diffusion models.
- Synthesized data with Kubric and proposed Physics Supervised Fine-Tuning (PSFT) and Object Reward Optimization (ORO), significantly improving the physical accuracy of video generation for falling objects.
- Accepted by Forty-second International Conference on Machine Learning (ICML, 2025).

Generative Pre-trained Transformers for Large Time Series Models **Aug.2023 - Apr.2024**
Advisor: Mingsheng Long, Associate Professor, Tsinghua University

- Developed **Timer**, a generative pre-trained Transformer designed for large-scale time series analysis, addressing various downstream tasks like forecasting, imputation, and anomaly detection.
- Curated large-scale datasets comprised of 1B time points and proposed a unified format for heterogeneous time series data, enabling Timer to adapt across different tasks and datasets while scaling up.
- Conducted experiments in real-world benchmarks for different tasks and demonstrated the ability to achieve state-of-the-art performance with few samples and zero-shot capability.
- Accepted by Forty-first International Conference on Machine Learning (ICML, 2024).

Apache IoTDB Artificial Intelligence Node **Jan.2023 - Dec.2023**
Advisor: Mingsheng Long, Associate Professor, Tsinghua University

- Participated in the development of IoTDB Artificial Intelligence Node (AINode), a native machine learning engine integrated into Apache IoTDB. Users build, train, manage and use machine learning models in IoTDB databases using SQL statements.
- Designed and implemented storage module and inference module(core modules in Artificial Intelligence Node), a unified inference framework which supports user-defined models(imported from local directory or huggingface) and built-in models for inference.
- Artificial Intelligence Node has been released at the IoTDB User Conference in December 2023 and has been applied in industrial production.

Non-stationary Time Series Forecasting with Koopman Predictors **Oct.2022 - Oct.2023**
Advisor: Mingsheng Long, Associate Professor, Tsinghua University

- Proposed Koopa as novel **Koop**man forec**a**ster for non-stationary time series forecasting based on modern Koopman theory.
- Devised the stackable structure of Koopa composed of modular Fourier Filter and Koopman Predictor, which can hierarchically disentangle and exploit time-invariant and time-variant dynamics for time series forecasting.
- Conducted experiments in six real-world benchmarks and demonstrated a competitive performance with state-of-the-art model while saving 77.3% average training time and 76.0% average memory usage.
- Accepted by Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS, 2023).

Selected Honors and Awards

- KDD Excellent Reviewer (Top 10%), KDD Program Chairs **2025**
- Outstanding Graduates of Beijing (Top 1%), Beijing Municipal Education Commission **2025**
- Outstanding Graduates of Tsinghua (Top 1%), Tsinghua University **2025**
- National Scholarship (Top scholarship in China; 0.2% domestically), Ministry of Education **2024**
- SenseTime AI Scholarship (30 undergraduates domestically), SenseTime **2023**
- Huawei Scholarship (Top 5%), Tsinghua University **2023**
- Software Innovation Competition(1st place), Tsinghua University **2023**
- 12·9 Scholarship(Top scholarship; 1 student per department), Tsinghua University **2022**
- National College Students Physics Competition(Second prize), Bejing Physical Society **2021**

Skills

- **Programming Languages**: Python, C/C++, Java, Javascript
- **Professional Software**: Pytorch, NumPy, Pandas, Git, LaTeX
- **Language**: Chinese(native), English(TOEFL 107 [R30/L25/S23/W29])

Academic Services

- Reviewer: NeurIPS (2025), ICML (2025), ICLR (2026), KDD (2025, 2026), AAAI (2025)