Chenyu Li

Tsinghua University. Haidian District, Beijing, 100084, P. R. China
+86 13505040225 ◇ lichenyu20@mails.tsinghua.edu.cn ◇ https://lichenyu20.github.io/

EDUCATION

Bachelor in Software Engineering August 2021 - June 2025(expected)
School of Software, Tsinghua University
GPA:3.89/4.00. Major GPA: 3.93/4.00
Core Courses: Introduction to Artificial Intelligence(A+), Students Research Training(A+), University Physics(A+), Physics for Scientists and Engineers(A), Probability and Statistics(A), Calculus(A), Linear Algebra(A), Practice of Programming(A)

RESEARCH INTERESTS

- Time series analysis.
- Generative AI, probabilistic methods that combine deep-learning based models with probabilistic controls.

PUBLICATIONS

Koopa: Learning Non-stationary Time Series Dynamics with Koopman Predictors
Yong Liu*, **Chenyu Li***, Jianmin Wang, Mingsheng Long. *NeurIPS 2023*

RESEARCH EXPERIENCES

Learning Non-stationary Time Series Dynamics with Koopman Predictors Oct.2022 - Oct.2023
*Advisor: **Mingsheng Long**, Associate Professor, School of Software, 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 experiment 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%** arverage memory usage.
· Accepted by *NeurIPS 2023*.

Apache IoTDB Artificial Intelligence Node Jan 2023 - Present
*Advisor: **Mingsheng Long**, Associate Professor, School of Software, Tsinghua University*

· Participated in the development of IoTDB Artificial Intelligence Node, 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.

Scalable Learning for Large Time Series Models Aug.2023 - Present
*Advisor: **Mingsheng Long**, Associate Professor, School of Software, Tsinghua University*

· Endeavored to develop **the first time series foundation model**, capable of forecasting, classification, imputation and other downstream tasks.
· Built **the largest time series dataset**, covering different domains and different sampling frequencies.
· Designed a model based on VQVAE and employed two-stage training approach.
· Conducted experiment in large-scale datasets and achieved promising results in the first stage of training.

HONORS AND AWARDS

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, Git, LaTeX
Language	Chinese(native), English(TOEFL 107)