Yu-Hao Huang

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Educational Background

School of Computer Science, Nanjing University **Nanjing, China**
Ph.D. Student, Computer Science and Technology Sept. 2021-Expected 2026
- Supervisor: Professor Wu-Jun Li
- Research interest: **machine learning**, especially in applying cutting-edge machine learning techniques (i.e. Transformers, reinforcement learning, diffusion models) on **quantitative finance** problems (i.e. portfolio management, market simulation).

School of Management and Engineering, Nanjing University **Nanjing, China**
Bachelor Degree, Computer Science and Financial Engineering (Aka. FinTech Class) Sept. 2017-Jun. 2021
- Bachelor thesis: Knowledge-fused Portfolio Learning Model.

University of California, Berkeley **CA, USA**
Summer Session 2019 Jul. 2019-Aug. 2019
- Courses: Investment, Introduction to Cognitive Science

Experiences

Microsoft Research Asia
Research Intern at Machine Learning Group Feb.2023-Aug.2024
- Worked on projects of financial market simulation, time series forecasting, time series generation and invariant learning.
- Dived into the application of diffusion model for cross-domain time series analysis and generation.
- Finished five research papers that are either published or under peer-review as first author or co-author.

Institute for Interdisciplinary Information Core Technology
Quantitive Investment Lab Intern Nov.2019-Oct.2020
- Supervised by Prof. Jian Li of IIIS, Tsinghua University to mine for effective quantitive factors and effective trading strategies on Chinese future market.
- Built and maintain a backtesting framework for the research group.

Selected Publications (For full publication list please refer to Google Scholar link)

TimeDP: Learning to Generate Multi-Domain Time Series with Domain Prompts **AAAI 2025**
***Yu-Hao Huang**, Chang Xu, Yueying Wu, Wu-Jun Li, Jiang Bian*
- Introduce a multi-domain time series diffusion model with domain prompts (TimeDP), using a time series semantic prototype module which defines time series prototypes to represent time series basis and a prototype assignment module to extract the extract domain specific prototype weights, for constructing domain prompts as generation condition.

Bootstrapping Text to Control Time-Series Generation via Multi-Agent Iterative Optimization and Diffusion Modelling **ICML 2025**
Hao Li, **Yu-Hao Huang***, Chang Xu, Viktor Schlegel, Renhe Jiang, Riza Batista-Navarro, Goran Nenadic, Jiang Bian*
- Introduce a text-controlled time-series generation framework, integrating semantic prototypes with text description for supporting domain-level guidance.

Controllable Financial Market Generation with Diffusion Guided Meta Agent **WWW Workshop on AI4TS (Oral) 2025**
***Yu-Hao Huang**, Chang Xu, Yang Liu, Weiqing Liu, Wu-Jun Li, Jiang Bian*
- Introduce the Diffusion Guided Meta Agent (DiGA) model, which leverages conditional diffusion model as meta controller to capture minute level market dynamic, and an agent-based model as order generator to generate order flow following guidance from meta controller. Empirical results show that DiGA can generate diverse synthetic market scenarios and support downstream tasks such as trading strategy discovery.

InvDiff: Invariant Guidance for Bias Mitigation in Diffusion Models **KDD 2025**
*Bowen Deng, Chang Xu, Hao Li, **Yu-Hao Huang**, Min Hou, Jiang Bian*

TarDiff: Target-Oriented Diffusion Guidance for Synthetic Electronic Health Record Time Series Generation **KDD 2025**
*Min Hou, Yueying Wu, Chang Xu, **Yu-Hao Huang**, Chenxi Bai, Le Wu, Jiang Bian*

MG-TSD: Multi-Granularity Time Series Diffusion Models with Guided Learning Process **ICLR 2024**
*Xinyao Fan, Yueying Wu, Chang Xu, **Yu-Hao Huang**, Weiqing Liu, Jiang Bian*

Skills

- **Languages:** Proficiency in English (TOEFL: 101, CET-6: 604) Native language: Mandarin Chinese (Level 1 b), Cantonese.
- **Computer Skills:** Experienced in machine learning modeling. Proficient in Python, C++, R, MATLAB. Familiar with PyTorch, TensorFlow machine learning toolkits, Hadoop, Spark big data processing platforms and Web development. Skilled in Wind, FactSet and MS-Office.
- **Others:** Held an American Heart Association Heart Saver Certificate