

# Ching (Jason) Chang

Staff ML Research Scientist at Pravāh – Foundation Models • Multimodal • Agentic RL • Reasoning • Time Series

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📄 Work Authorization: EB-1A I-140 Approved • Currently on O-1A (new O-1A petition required for transfer)

## Education

### National Yang Ming Chiao Tung University

Doctor of Philosophy, Computer Science (Advisor: Prof. Wen-Chih Peng)

Hsinchu, Taiwan

2021/09 – 2026/03

- Research Topics: Time Series Analysis, Large Foundation Models, Causal Discovery, Multimodal Reasoning
- GPA: 4.25/4.3, 14 publications, 6 scholarships, 1 competition award, 19 academic services

### University of California, Los Angeles

Visiting Graduate Researcher in Scalable Analytics Institute (Advisor: Prof. Wei Wang)

Los Angeles, USA

2025/02 – 2026/02

- Research Topics: Time Series Analysis, Large Foundation Models, Multimodal Reasoning, Interaction Prediction

### National Chiao Tung University

Master of Science, Computer Science and Engineering (Advisor: Prof. Wen-Chih Peng)

Hsinchu, Taiwan

2016/09 – 2018/09

Bachelor of Science, Electrical and Computer Engineering

2012/09 – 2016/06

- Research Topics: Time Series Analysis, Motif Discovery, Root Cause Analysis
- GPA: 3.56/4.0 (M.S.), 3.06/4.0 (B.S.), 1 publication

## Selected Publications (Total Citations: 681)

**Ching Chang**, Jeehyun Hwang, Yidan Shi, Haixin Wang, Wen-Chih Peng, Tien-Fu Chen, Wei Wang, “Time-IMM: A Dataset and Benchmark for Irregular Multimodal Multivariate Time Series”, NeurIPS 2025. [paper]

**Ching Chang**, Wei-Yao Wang, Wen-Chih Peng, Tien-Fu Chen. “LLM4TS: Aligning Pre-Trained LLMs as Data-Efficient Time-Series Forecasters.” ACM Transactions on Intelligent Systems and Technology (TIST) 2025. [paper]

**Ching Chang**, Yijia Xiao, Jade Xu, Fred Xu, Chenchen Ye, Ruoyan Li, Junkai Zhang, Yihe Deng, Kyle Zheng, Ethan Ji, Alexander K Taylor, Weikai Li, Maryam Haghifam, Anthony Cuturrufo, Renliang Sun, Jiahang Sha, Yidan Shi, Wen-Chih Peng, Yizhou Sun, Wei Wang, “Training Recipes for Agentic Reinforcement Learning in LLMs: A Survey”, submitted to ACL 2026 (under review). [paper]

**Ching Chang**, Yidan Shi, Defu Cao, Wei Yang, Jeehyun Hwang, Haixin Wang, Jiacheng Pang, Wei Wang, Yan Liu, Wen-Chih Peng, Tien-Fu Chen, “A Survey of Reasoning and Agentic Systems in Time Series with Large Language Models”, submitted to TMLR 2025 (under review). [paper]

**Ching Chang**, Ming-Chih Lo, Chiao-Tung Chan, Wen-Chih Peng, Tien-Fu Chen, “Perseus: Interactive Time Series Segmentation with Sparse Supervision via Stateful Memory”, submitted to KDD 2026. [paper]

Haixin Wang, Ruoyan Li, Fred Xu, Fang Sun, Kaiqiao Han, Zijie Huang, **Ching Chang**, Xiao Luo, Wei Wang, Yizhou Sun, “FD-Bench: A Modular and Fair Benchmark for Data-driven Fluid Simulation”, KDD 2026. [paper]

Wei Yang, Rui Zhong, Ze-Yu Song, Hengwei Ju, Yuecheng Li, Yiqun Chen, **Ching Chang**, Gengshuo Liu, Chi Lu, Peng Jiang, “Cross-Modal Factor Reasoning with LLMs: Toward Semantic-Structured Generalization for Recommendation”, submitted to ICLR 2026 (under review). [paper]

Yidan Shi, Fang Sun, Yuanzhou Chen, Yanqiao Zhu, Jeehyun Hwang, **Ching Chang**, Yizhou Sun, Wei Wang, “FraMe: Fractal Generative Framework for Molecular Dynamics”, submitted to ICML 2026 (under review). [paper]

**Ching Chang**, Ming-Chih Lo, Wen-Chih Peng, Tien-Fu Chen, “PromptTSS: A Prompting-Based Approach for Interactive Multi-Granularity Time Series Segmentation”, CIKM 2025. [paper], [video]

**Ching Chang**, Chiao-Tung Chan, Wei-Yao Wang, Wen-Chih Peng, Tien-Fu Chen, “TimeDRL: Disentangled Representation Learning for Multivariate Time-Series”, ICDE 2024. [paper], [video]

Ting-Yun Ou, **Ching Chang**, Wen-Chih Peng, “COKE: Causal Discovery with Chronological Order and Expert Knowledge in High Proportion of Missing Manufacturing Data”, CIKM 2024. [paper]

Zheng-Ming Lin, **Ching Chang**, Wei-Yao Wang, Kuang-Da Wang, Wen-Chih Peng, “Root Cause Analysis In Microservice Using Neural Granger Causal Discovery”, AAAI 2024. [paper]

Ming-Chih Lo, **Ching Chang**, Wen-Chih Peng, “Text2Freq: Learning Series Patterns from Text via Frequency Domain”, NeurIPS 2024 Workshop on Time Series in the Age of Large Models. [paper]

## Research & Industry Experience

### Staff ML Research Scientist | Pravāh

Demand Forecasting · Time Series Analysis

San Francisco, CA, USA (Remote)

2026/03 – Present

- Lead machine learning research and development for load forecasting in electric grid demand.

### Research Consultant | TSMC

Demand Forecasting · Time Series Analysis

Hsinchu, Taiwan

2025/09 – 2026/02

- Advised the data science team on part demand prediction and error analysis, establishing a clear pipeline for model evaluation and improvement.
- Improved prediction accuracy by 5.52% through model calibration and data-driven diagnostic analysis.

### Research Scientist (Intern) | TSMC

Root Cause Analysis · Causal Discovery · Time Series Analysis

Hsinchu, Taiwan

2022/09 – 2025/02

- Improved root-cause localization accuracy by up to 71.5% on microservice datasets by developing RUN, a neural Granger causal model fusing logs, traces, and metrics (AAAI '24).
- Enhanced causal graph accuracy by up to 62.6% on TSMC manufacturing data by developing COKE, a graph-attention causal discovery model leveraging expert knowledge and process order to handle 90% missing data (CIKM '24).
- Developed a unified time series analysis platform adopted in sales prediction and wafer demand forecasting projects.

### Research Scientist (Intern) | GoEdge.ai

Hsinchu, Taiwan

Time Series Analysis · Large Foundation Models · Causal Discovery

2021/01 – 2025/01

- Reduced forecasting MSE by up to 4.3% in production-scale sensor and demand prediction tasks by developing LLM4TS, a large-language-model-based forecasting module fine-tuned for data-limited time-series (ACM TIST '25).
- Improved segmentation accuracy by 10.86% on a proprietary industrial dataset from GoEdge.ai's vendor by developing PromptTSS, a prompting-based model that adapts to evolving production patterns with minimal labeled data (CIKM '25).
- Designed a unified multivariate time series analysis platform for manufacturing data.

### Machine Learning Engineer | TSMC

Hsinchu, Taiwan

Root Cause Analysis

2019/07 – 2020/12

- Used ensemble models to analyze sensor data of wafers and found root causes to increase yield of manufacturing wafers.
- Developed the core kernel function of the defect-mining platform.
- Integrated and processed different data sources and designed analysis algorithms for heterogeneous data.

### Machine Learning Engineer (Intern) | EPISTAR

Hsinchu, Taiwan

Root Cause Analysis

2018/04 – 2018/09

- Analyzed machine sensor data, incorporating the diversity of states/stages in the manufacturing process.
- Evaluated correlations at various time-lags separately to enhance understanding of machine sensor data relationships.

## Invited Talks

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2025/09 **Time Series AI for Strategic Business Intelligence and Manufacturing Optimization**, TSMC AI4BI Innovation Center [slides]

- Delivered a talk on leveraging AI-driven time series analysis to generate actionable business intelligence.

2025/06 **Advanced Time Series Analysis Techniques for Industrial Applications**, University of Southern California [slides]

- Delivered a talk on cutting-edge time series analysis methods tailored for deployment in industrial and manufacturing settings.

2023/08 **Time Series Analysis with LLMs**, 2023 LLM Industry-Academia Technical Exchange Conference, National Center for High-Performance Computing [website], [slides], [video]

- Discussed the application of LLMs in analyzing time series data and their potential benefits in various industries.

## Awards

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2025/12 **Financial Assistance Award**, NeurIPS 2025

San Diego, USA

2025/06 **Outstanding Reviewer Award (Top 10% of Reviewers)**, KDD 2025

Toronto, Canada

2024/11 **Overseas Postgraduate Research Fellowship Program**, National Science and Technology Council

Taipei, Taiwan

2024/06 **International Conference Scholarship**, National Yang Ming Chiao Tung University

Taipei, Taiwan

2024/05 **International Conference Scholarship**, National Science and Technology Council

Taipei, Taiwan

2024/02 **AAAI Student Scholarship**, 38th AAAI Conference on Artificial Intelligence

Vancouver, Canada

2022/02 **Xin Miao Key Technology Doctoral Scholarship**, Xin Miao Education Foundation

Taipei, Taiwan

2021/09 **Industry-Academia Cooperative PhD Project Scholarship**, Ministry of Education Republic of China (Taiwan)

Taipei, Taiwan

## Academic Services

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**Reviewer for Conferences** | NeurIPS ICLR ICML KDD AAAI WWW ICDE

**Reviewer for Journals** | TNNLS TIST TMLR TSC ESWA

## Competitions

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2023/02 **4th Place in License Plate Recognition and Parking Management**, TSMC IT CareerHack 2023, [website], [code] Taipei, Taiwan

## Technical Skills

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**Programming Languages (in order of familiarity):**

Python (PyTorch, TensorFlow), C++, Java

**Language:**

English: C1 (IELTS: 7.5, TOEIC: 875)