

Minghao Fu

PH.D. STUDENT · HALICIOĞLU DATA SCIENCE INSTITUTE

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Education

University of California, San Diego

PH.D. STUDENT, HALICIOĞLU DATA SCIENCE INSTITUTE

- Advisor: Biwei Huang

San Diego, CA, USA

Aug 2025 – Present

Carnegie Mellon University

VISITING STUDENT, CLEAR, PHILOSOPHY DEPARTMENT

- Advisors: Peter Spirtes & Kun Zhang

Pittsburgh, PA, USA

Jun 2024 – Nov 2024

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)

M.S. IN MACHINE LEARNING

- Advisor: Kun Zhang
- Thesis Committee: Kun Zhang (chair), Mingming Gong, Biwei Huang (external)

Abu Dhabi, UAE

Aug 2023 – Jun 2025

University of Electronic Science and Technology of China

B.S. IN SOFTWARE ENGINEERING

- Graduated with Honor Research, Outstanding Undergraduate Thesis

Chengdu, China

Sep 2019 – Jun 2023

Research Interests

My research centers on **inverting observation-generating process to unveil the hidden world**. I explore: (1) how to identify a hidden world based on the assumed generative mechanism, and (2) how such a hidden world instructs the observed world evolving in response to the environment?

Publications & Preprint

WORLD MODEL & REINFORCEMENT LEARNING

Minghao Fu, Fan Feng, Wenyuan Wang, Biwei Huang. *Superstructuring a Task-Sufficient World Model on Top of Visual Foundational Model*.

Under Review at WMW 2026 (World Modeling Workshop).

Fan Feng*, Yujia Zheng*, **Minghao Fu**, Yongqiang Chen, Guangyi Chen, Kevin Patrick Murphy, Biwei Huang, Kun Zhang. *Learning Task-Sufficient World Models via Intervention-Curriculum Co-Design*.

Under Review at ICLR 2026.

Jinzhou Tang, Fan Feng, **Minghao Fu**, Wenjun Lin, Jing Yang, Biwei Huang, Keze Wang. *DreamSAC: Learning Hamiltonian World Models via Symmetry Exploration*.

Under Review at CVPR 2026.

Fan Feng, Selena Ge, **Minghao Fu**, Zijian Li, Yujia Zheng, Zeyu Tang, Yingyao Hu, Biwei Huang, Kun Zhang. *Ada-Diffuser: Latent-Aware Adaptive Diffusion for Decision Making*.

NeurIPS 2025 EWMDM Workshop (Embodied World Models for Decision Making). Under Review at ICLR 2026.

Zijian Li*, **Minghao Fu***, Junxian Huang, Yifan Shen, Ruichu Cai, Yuewen Sun, Guangyi Chen, Kun Zhang. *Towards Identifiability of Hierarchical Temporal Causal Representation Learning*.

NeurIPS 2025 (The 39th Conference on Neural Information Processing Systems).

REPRESENTATION LEARNING & CAUSALITY

Minghao Fu, Biwei Huang, Zijian Li, Yujia Zheng, Ignavier Ng, Guangyi Chen, Yingyao Hu, Kun Zhang. *Learning General Causal Structures with Hidden Dynamic Processes for Climate Analysis*.

NeurIPS 2025 CauScien Workshop (Uncovering Causality in Science). Under Review at ICLR 2026.

Zijian Li, Changze Zhou, **Minghao Fu**, Sanjay Manjunath, Fan Feng, Guangyi Chen, Yingyao Hu, Ruichu Cai, Kun Zhang. *Online Time Series Forecasting with Theoretical Guarantees*. NeurIPS 2025 (The 39th Conference on Neural Information Processing Systems).

Loka Li*, Wong Yu Kang*, **Minghao Fu**, Guangyi Chen, Zhenhao Chen, Gongxu Luo, Yuewen Sun, Salman Khan, Peter Spirtes, Kun Zhang. *PersonaX: Multimodal Datasets with LLM-Inferred Behavior Traits*. Under Review at ICLR 2026 (The 14th International Conference on Learning Representations).

Professional Experience _____

Cradle AI
COFOUNDER & CTO

Abu Dhabi, UAE
Jun 2024 – Jun 2025

- Co-founded an AI startup improving parenting and early education.
- Secured >**50,000 AED** seed funding from the Innovation & Entrepreneurship Center (IEC).
- Launched LetBabyTalk, an AI-powered parenting app with **200+ active users**, decoding infant cries and providing guidance.
- Led machine learning model development for baby cry detection (data collection, training, configuration) and oversaw app design and development for UX and performance.

Shanghai Artificial Intelligence Laboratory
RESEARCH INTERN, ARK NLP GROUP

Shanghai, China
Nov 2022 – Mar 2023

- Mentor: Lingpeng Kong
- Research Topics: Non-Autoregressive Transformer, Linear Attention, Machine Translation

SAP
CLOUD DEVELOPER, INTERNSHIP

Chengdu, China
Jan 2022 – Mar 2022

- Hands-on experience with cloud architecture and environment setup.
- Integrated cloud services into applications to enhance functionality and performance.

Awards, Fellowships, & Honors _____

Jun 2025	Machine Learning Citizen Award (1/37) , MBZUAI
May 2023	The First-ever Human Phenotype Project Hackathon, Rank-1st , Weizmann Institute of Science & MBZUAI
May 2023	Advanced Study Scholarship (< 5%) , UESTC
Apr 2023	Undergraduate High-Level Paper Award (<1%) , UESTC
Jun 2023	Honor Research Scholarship (< 1%) , UESTC
2020-2023	Excellent Student Scholarship (<10%) , UESTC

Service & Professional Activities _____

SERVICE & OUTREACH

Volunteer, Neurips 2025
Organizer, CradleAI LetBabyTalk Hackathon
Mentor, "Sadeeq" MBZUAI Buddy
Mentor, MBZUAI Undergraduate Research Internship Program (UGRIP)

Dec 2025
Dec 2024
Aug 2024 – Jun 2025
Jun 2024 – Aug 2024

PEER REVIEW

Journals: IEEE TIP 2024
Conferences: ICLR 2026, NeurIPS 2025, BMVC 2023

Skills _____

Languages: English (fluent), Chinese (native)
Deep Learning: PyTorch, Transformers, NumPy, Triton, JAX, scikit-learn
Programming: Python, C++, Bash, MATLAB

Research Tools: \LaTeX , Jupyter, Weights & Biases, Git