

# Minghao Fu

PH.D. STUDENT · HALICIOĞLU DATA SCIENCE INSTITUTE

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## Education

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### 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

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My works cover world models (multi-modal learning, VLMs, temporal state-space models), decision-making (VLAs, reinforcement learning), and theoretical aspects of generative models.

## Publications & Preprint

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### 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.

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.

Jinzhou Tang, Fan Feng, **Minghao Fu**, Wenjun Lin, Jing Yang, Biwei Huang, Keze Wang. *DreamSAC: Learning Hamiltonian World Models via Symmetry Exploration*.  
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*.  
ICLR 2026.

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*.  
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.

### THEORY OF GENERATIVE MODEL

**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 (*Uncovering Causality in Science*).

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.

**Minghao Fu**, Sheng Zhang, Guangyi Chen, Zijian Li, Yifan Shen, Fan Feng, Shaoan Xie, Kun Zhang. *From Comparison to Composition: Understanding Machine Cognition of Unseen Categories.*  
NeurIPS 2025 CogInterp (*Interpreting Cognition in Deep Learning Models*).

## Professional Experience

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### **Cradle AI**

*Abu Dhabi, UAE*

#### COFOUNDER & CTO

*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**

*Shanghai, China*

#### RESEARCH INTERN, ARK NLP GROUP

*Nov 2022 – Mar 2023*

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

### **SAP**

*Chengdu, China*

#### CLOUD DEVELOPER, INTERNSHIP

*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

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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

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SERVICE & OUTREACH Volunteer, Neurips 2025

*Dec 2025*

Organizer, CradleAI LetBabyTalk Hackathon

*Dec 2024*

Mentor, "Sadeeq" MBZUAI Buddy

*Aug 2024 – Jun 2025*

Mentor, MBZUAI Undergraduate Research Internship Program (UGRIP)

*Jun 2024 – Aug 2024*

#### PEER REVIEW

**Journals:** IEEE TIP 2024

**Conferences:** CVPR 2026, WMW 2026, ICLR 2026, NeurIPS 2025, BMVC 2023

## Skills

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**Deep Learning:** PyTorch, Tensorflow, scikit-learn, Weights & Biases

**Programming:** Python, C++, Bash, MATLAB