Yining Zhao

zhaoyining | robotmonkeybutler | robotmonkeybutler.github.io

Education

ShanghaiTech University — Shanghai, China
Bachelor of Engineering in Computer Science — *Expected Jul. 2026*

University of Illinois Urbana-Champaign — Urbana, IL
Exchange Student, Computer Science — *Aug. 2024 - May. 2025*

Selected Publications

C=Conference, J=Journal, * = equal contribution

[C.1] SOTOPIA-RL: Reward Design for Social Intelligence
Yining Zhao*, Haofei Yu*, Zhengyang Qi*, Kolby Nottingham, Keyang Xuan, Bodhisattwa Prasad Majumder, Hao Zhu, Paul Pu Liang, Jiaxuan You
Under Review of ICLR 2026, Accepted by MTI-LLM @ NeurIPS 2025

[C.2] CTM-AI: A Blueprint for Implementing a General AI System Inspired by Consciousness
Haofei Yu*, ***Yining Zhao****, Lenore Blum, Manuel Blum, Paul Pu Liang
Under Review of ICLR 2026

[C.3] Building Social World Model with Large Language Models
Haofei Yu, ***Yining Zhao***, Guanyu Lin, Jiaxuan You
Under Review of ICLR 2026

[C.4] Implicit U-KAN2.0: Dynamic, Efficient and Interpretable Medical Image Segmentation
Chun-Wun Cheng*, ***Yining Zhao****, Yanqi Cheng, Javier Montoya, Carola-Bibiane Schönlieb, Angelica I Aviles-Rivero
Accepted by MICCAI 2025

[C.5] A User-customized and Untethered Electro-haptic Device for Immersive Human-Machine Interaction
Yining Zhao*, Ziang Cui*, Shanyong Wang*, Yiran Wang, Xingming Wen, Siyuan Chen, Ze Xiong
Under Review

[C.6] MINT: Scaling Multimodal Instruction Tuning via Interaction-Aware Mixture of Experts
Xiaojun Shan, Qi Cao, Xing Han, Haofei Yu, ***Yining Zhao***, Paul Pu Liang
Under Review of CVPR 2026

[C.7] Personalization Under Value Conflict: Preference-Conditional Generation with Paired Fine-Tuning
Shanyong Wang, Shuhang Lin, ***Yining Zhao***, Xi Zhu, Yongfeng Zhang
Under Review of ICLR 2026

[J.1] **MOF-based Magnetically-Manipulated Microwheel-Robots for Triglyceride Degradation**
Zixian Liang, Jiahao Zhang, Qinyi Cao, Wanyuan Li, Yuting Dai, ***Yining Zhao****, Leyan Ou, Dapeng Lei, Kunfeng Liu, Chaohua Qin, Zhuochen Huang, Zonghua Luo, Ze Xiong, Guihua Jiang, Jizhuang Wang, Jinyao Tang, Dan Li*
Accepted by Matter (Impact Factor=17.3), 2025

[J.2] **A printable liquid metal-montmorillonite ink for high-resolution stretchable bioelectronics**
Ziang Cui, Yiqing Zhang, Siyuan Chen, Xingming Wen, ***Yining Zhao****, Yitao Ma, Qihang Yan, Zixiong Wu, Guohui Wang, Ziyuan Tang, You Yu, Ze Xiong*
Accepted by Journal of Materials Chemistry, 2025 (Selected as cover work)

Research Experience

MIT Media Lab, Multisensory Intelligence Group [🌐] Remote
Advised by Prof. Paul Pu Liang | Multimodal Learning, Diffusion models *Jul. 2025 - Present*

- Implemented a principled and testable blueprint for general AI inspired by computational models of consciousness CTM, and demonstrate its utility on diverse tasks including multimodal perception, tool learning and agentic tasks.
- Proposed a unified diffusion model for better multimodal representation learning.

UIUC, U Lab [🌐] Urbana, IL
Advised by Prof. Jiaxuan You and mentor Mr. Haofei Yu | LLM Agents, Social Learning *Oct. 2024 - Present*

- Conducted a fine-grained SWE-bench to analysis on the skill difference between different LLMs and proposed a better method for model selection.
- Proposed utterance-level, attribution-based, multi-dimensional social reward design method, SOTOPIA-RL. Achieve state-of-the-art social goal completion scores 7.17 on Sotopia-hard.
- Proposed SocialWM to reason and predict social belief changes, significantly outperforms traditional models and achieved a 21.56% reduction in RMSE.

University of Cambridge, MATH+ML+X Lab[🌐] Remote
Advised by Prof. Angelica I. Aviles-Rivero | Computer Vision, Medical Image Analysis *Jul. 2024 - Dec. 2024*

- Developed a toolbox to apply continuous ODE block for all kinds of Unet-like image segmentation models with consistent performance improvement about 9.7% on all models.
- Proposed an implicit deep neural network incorporating MultiKAN and second order NODEs, improving interpretability and performance while reducing computational costs.

ShanghaiTech, The Wireless and Smart Bio-electronics (WiSe) Lab[🌐] Shanghai, China
Advised by Prof. Ze Xiong | Bioelectronics *Sept. 2023 - Sept. 2024*

- Designed wearable human-machine interface bioelectronics with highly integrated stimulators and sensors, using silicone rubber as encapsulation and printable liquid metal as sensing material, with 15 sensing channels and 5 stimulation channels.

- Designed a highly customized and programmable pipeline in manufacturing wearable biosensors, with wide application in remote surgery and medical training.

Shanghai Artificial Intelligence Laboratory[🌐] Shanghai, China
OpenCompute Lab *Jun. 2024 - Aug. 2024*

- Mainly worked on large language model fine-tuning and industry applications and heterogeneous computing for large language model training
- Researched on the application of Retrieval-augmented Generation (RAG) and knowledge graph in Large Language Model, conducted three invention patents.

Patents

Methods, Systems, Devices, Equipment, Media, and Products for Heterogeneous Cluster
*Inventor: Yefeng Liu, **Yining Zhao**, Lei Wang, Xingcheng Zhang, Fan Yang. Shanghai AI Lab*
Chinese Invention Patent, Publication Number: CN119415216A

Heterogeneous Communication Method, Device, Equipment, Storage Medium, and System
*Inventor: Yefeng Liu, **Yining Zhao**, Huaan Yang, Xingcheng Zhang, Fan Yang. Shanghai AI Lab*
Chinese Invention Patent, Publication Number: CN119441102A

Heterogeneous Accelerator Load Balancing Method, Device, Equipment, Medium, and Program Product
*Inventor: Yefeng Liu, **Yining Zhao**, Huaan Yang, Xingcheng Zhang, Fan Yang. Shanghai AI Lab*
Chinese Invention Patent, Publication Number: CN119415247A