Xi Weng (翁熙)

PhD student, School of Computing, National University of Singapore

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Education

Beihang University - **Artificial Intelligence - B.Eng.** Sep 2018 - Jun 2022

Advisor: Prof. Lei Huang

Beihang University - **Artificial Intelligence - M.Sc.** Sep 2022 - Dec 2024

Advisor: Prof. Lei Huang

National University of Singapore - **Computer Science - Ph.D.** Jan 2025 - Present

Advisor: Prof. Jin-Song Dong

Internships

Tencent LIGHTSPEED STUDIOS - **World Models Research Intern (Qingyun Program)** Nov 2026 - Present

Research experience

Homepage：Welcome to Winci's homepage (winci-ai.github.io)

My main research interests are Visual Representation (Self-Supervised) Learning, World Modeling and Multimodal Learning.

Published Papers

Visual Representation (Self-Supervised) Learning：

*How can we learn rich, general-purpose visual representations for VLMs and WMs? This question has been central to my master's and PhD research. My work focuses on **joint-embedding architectures**—a paradigm strongly advocated by Prof. Yann LeCun—with particular interest in the DINO family of models and JEPA.*

- **The Locality Trade-off in Masked Patch Self-Distillation**
  Advances in Neural Information Processing Systems (NeurIPS), 2026
  ***Xi Weng**, Zhaoyu Liu, Lianyu Hu, Jin Song Dong*

- **Clustering Properties of Self-Supervised Learning**
  International Conference on Machine Learning (ICML), 2025
  ***Xi Weng**, Jianing An, Xudong Ma, Binhang Qi, Jie Luo, Xi Yang, Jin Song Dong, Lei Huang*

- **Understanding Whitening Loss in Self-supervised Learning**
  Transactions on Pattern Analysis and Machine Intelligence(TPAMI), 2024
  *Lei Huang, Yunhao Ni, **Xi Weng**, Rao Muhammad Anwer, Salman Khan, Ming-Hsuan Yang, Fahad Shahbaz Khan*

- **Modulate Your Spectrum in Self-Supervised Learning**
  International Conference on Learning Representations(ICLR), 2024
  ***Xi Weng**, Yunhao Ni, Tengwei Song, Jie Luo, Rao Muhammad Anwer, Salman Khan, Fahad Khan, Lei Huang*

- **An Investigation into Whitening Loss for Self-supervised Learning**
  Advances in Neural Information Processing Systems(NeurIPS), 2022 (spotlight, top 5%)
  ***Xi Weng**, Lei Huang, Lei Zhao, Rao Muhammad Anwer, Salman Khan, Fahad Shahbaz Khan*

Multimodal Learning:

- **TennisExpert: Towards Expert-Level Analytical Sports Video Understanding**
  arXiv:2603.13397
  *Zhaoyu Liu, **Xi Weng**, Lianyu Hu, Zhe Hou, Kan Jiang, Jin Song Dong, Yang Liu*

- **TinyLLaVA-Video: Towards Smaller LMMs for Video Understanding with Group Resampler**
  IEEE International Conference on Multimedia and Expo (ICME), 2026
  *Xingjian Zhang, **Xi Weng**, Yihao Yue, Zhaoxin Fan, Wenjun Wu, Lei Huang*

- **TinyLLaVA Factory: A Modularized Codebase for Small-scale Large Multimodal Models**
  arXiv:2405.11788, under review in JMLR (co-first author)
  *Junlong Jia, Ying Hu, **Xi Weng**, Yiming Shi, Miao Li, Xingjian Zhang, Baichuan Zhou, Ziyu Liu, Jie Luo, Lei Huang, Ji Wu*

- **TinyLLaVA: A Framework of Small-scale Large Multimodal Models**
  arXiv:2402.14289
  *Baichuan Zhou, Ying Hu, **Xi Weng**, Junlong Jia, Jie Luo, Xien Liu, Ji Wu, Lei Huang*

Project experience

1. The Science and Technology Innovation 2030 "New Generation Artificial Intelligence" national major project: Research on the mechanisms, methods, and tools for robustness evaluation of foundational models.

2. The project at the Beijing Academy of Artificial Intelligence (BAAI) on the integration of robustness testing tools for the FlagEval large model evaluation platform.

Awards

- Excellent Graduation Thesis of Beihang University, 2024
- Outstanding Graduate of Beihang University, 2024
- **China National Scholarship, 2023**
- Excellent Academic Innovation Achievement Award, 2023
- Academic Excellence Scholarship, 2023