YUNFEI XIE

Email: xieyunfei01@gmail.com · Homepage: https://yunfeixie233.github.io/

RESEARCH INTERESTS

LLM Post-training, LLM-agents, Vision-Language Models

EDUCATION

Rice University, Houston, TX   09/2025-
Ph.D. in Computer Science, Advisor: Prof. Chen Wei
Awards: Lambda Research Grant ($10,000)
Huazhong University of Science and Technology, Wuhan, China   09/2021-06/2025
Bachelor of Engineering in Artificial Intelligence
Awards: Science and Technology Scholarship (Top 2% in school)

PUBLICATIONS

First Author Publications:
1. **Play to Generalize: Learning to Reason Through Game Play**
Yunfei Xie, Yinsong Ma, Shiyi Lan, Alan Yuille, Junfei Xiao, Chen Wei
Under review, 2025. [link]
2. **MedTrinity-25M: A Large-scale Multimodal Dataset with Multigranular Annotations for Medicine**
Yunfei Xie, Ce Zhou, Lang Gao, Juncheng Wu, Xianhang Li, Hong-Yu Zhou, Sheng Liu, Lei Xing, James Zou, Cihang Xie, Yuyin Zhou
ICLR 2025. (350+ GitHub stars) [link]
3. **COPER: Agentic Context Significantly Improves and Stabilizes LLM in Multi-Player Game**
Yunfei Xie, Kevin Wang, Bobby Cheng, Jianzhu Yao, Zhizhou Sha, Alexander Duffy, Yihan Xi, Chen Wei, Pramod Viswanath, Zhangyang Wang
Under review, 2025. [link]
4. **From Pixels to Objects: A Hierarchical Approach for Part and Object Segmentation Using Local and Global Aggregation**
Yunfei Xie, Cihang Xie, Alan Yuille, Jieru Mei
ECCV 2024. [link]
5. **Brain Tumor Segmentation Through Supervoxel Transformer**
Yunfei Xie, Ce Zhou, Jieru Mei, Xianhang Li, Cihang Xie, Yuyin Zhou
IEEE ISBI 2024. [link]
6. **A Preliminary Study of o1 in Medicine: Are We Closer to an AI Doctor?**
Yunfei Xie, Juncheng Wu, Haoqin Tu, Siwei Yang, Bingchen Zhao, Yongshuo Zong, Qiao Jin, Cihang Xie, Yuyin Zhou
Under review, 2025. [link]
7. **Few-Shot Medical Image Segmentation via Supervoxel Transformer**
Yunfei Xie, Alan Yuille, Cihang Xie, Yuyin Zhou, Jieru Mei
Under review, 2025. [link]
8. **SCING: Towards More Efficient and Robust Person Re-Identification through Selective Cross-modal Prompt Tuning**
Yunfei Xie, Yuxuan Cheng, Juncheng Wu, Haoyu Zhang, Yuyin Zhou, Shoudong Han
Under review, 2025. [link]
Co-author Publications:
9. **Story-Adapter: A Training-free Iterative Framework for Long Story Visualization**
Jiawei Mao, Xiaoke Huang, **Yunfei Xie,** Yuanqi Chang, Mude Hui, Yuyin Zhou
Under review, 2025. (900+ GitHub stars) [link]

RESEARCH EXPERIENCE

Rice University, Houston, TX   02/2025-
Research Assistant, Advisor: Prof. Chen Wei

- Proposed Visual Game Learning, showing that on post-training multimodal language models on simple arcade games such as Snake improves performance on math and broader reasoning benchmarks, without any exposure to worked solutions, equations, or diagrams during training.
- Proposed a self-evolving agent framework that continuously optimizes context and memory via retrieval, updating, and deletion.

VLAA Lab, University of California, Santa Cruz, Santa Cruz, CA   02/2024-02/2025

Research Assistant, Advisor: Prof. Yuyin Zhou and Prof. Cihang Xie

- Developed a RAG-enhanced automated data synthesis pipeline that generates 25 million high-quality multimodal medical samples with multigranular annotations for vision-language model pretraining.
- Proposed a long story generation framework that iteratively refines images using all prior-iteration frames via training-free global reference cross-attention for consistent semantics.
- Constructed a comprehensive medical benchmark for holistic evaluation of OpenAI o1's medical capabilities.

CCVL Lab, Johns Hopkins University, Baltimore, MD   08/2023-02/2024

Research Assistant, Advisor: Prof. Alan Yuille

- Integrated differentiable superpixels into vision transformers to enhance fine-grained segmentation.

SKILLS

Programming Languages: Python, Shell, LaTeX, HTML
ML Frameworks: PyTorch, TensorFlow, JAX, Hugging Face Transformers, OpenRLHF, Verl
Tools & Infrastructure: Git, Docker, Slurm, Linux, Vim, Weights & Biases
Research Fields: Reinforcement Learning, LLM Pre-training, LLM Post-training, Segmentation

ACADEMIC SERVICE

Reviewer:
2026: CVPR, ICLR
2025: ICCV, ICLR, CVPR, ICML, TMM, NeurIPS, TPAMI
2024: CVPR, ICML, IEEE ISBI