

# YUNFEI XIE

## RESEARCH INTERESTS

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

## EDUCATION

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**Rice University** | Houston, TX

**Ph.D. in Computer Science** | September 2025 – Present Advisor: Prof. Chen Wei

Awards: Lambda Research Grant (\$10,000)

**Huazhong University of Science and Technology** | Wuhan, China

**Bachelor of Engineering in Artificial Intelligence** | September 2021 – June 2025

Awards: Science and Technology Scholarship (Top 2% in school)

## PUBLICATIONS

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### First Author Publications:

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

### Co-author Publications:

9. Jiawei Mao, Xiaoke Huang, **Yunfei Xie**, Yuanqi Chang, Mude Hui, Yuyin Zhou. "Story-Adapter: A Training-free Iterative Framework for Long Story Visualization." *Under review*, 2025. (900+ GitHub stars) [\[link\]](#)

## RESEARCH EXPERIENCE

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**Rice University** | Houston, TX

**Research Assistant** | February 2025 – Present

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

**Research Assistant** | February 2024 – February 2025

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

**Research Assistant** | August 2023 – February 2024

Advisor: Prof. Alan Yuille

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

## SKILLS

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**Programming Languages:** Python, Shell, LaTeX, HTML

**ML Frameworks:** PyTorch, TensorFlow, JAX, Hugging Face Transformers, OpenRLHF

**Tools & Infrastructure:** Git, Docker, Slurm, Linux, Vim, Weights & Biases

**Research Fields:** Reinforcement Learning, LLM Pre-training, LLM Post-training, Segmentation

## ACADEMIC SERVICE

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**Reviewer:**

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