

Zhongzheng (Jason) Ren

✉ jasonren@cs.unc.edu | 📞 (+1) 530-574-0028 | 🏠 jason718.github.io

🎓 Google Scholar | 🐙 GitHub | 🔗 LinkedIn | 🐦 Twitter/X

RESEARCH INTERESTS

My research is centered around computer vision, machine learning, and artificial intelligence. In particular, I'm interested in topics related to **physical world** understanding, generation, and interaction.

EDUCATION

- **University of Illinois at Urbana-Champaign** 2018 - 2023
PhD in Computer Science
 - Advisor: Alexander Schwing
 - Thesis: Towards Democratizing Generation of 3D Experiences
- **University of California, Davis** 2015 - 2017
MSc in Computer Science
 - Advisor: Yong Jae Lee
 - Thesis: Multi-task Feature Learning using Synthetic Game Imagery
- **Sun Yat-sen University** 2011 - 2015
BEng in Software Engineering

EMPLOYMENT

- **University of North Carolina at Chapel Hill**
Research Assistant Professor, Department of Computer Science Summer 2025 - now
Assistant Professor, Department of Computer Science Starting Summer 2026
- **Allen Institute for Artificial Intelligence (AI2)**
Research Scientist Summer 2025 - now
- **University of Washington**
Postdoctoral Researcher (hosts: Ranjay Krishna, Ali Farhadi) Summer 2025 - now
- **Apple**
Research Scientist Fall 2023 - Summer 2025
Research Intern (hosts: Edward Zhang, Fangchang Ma) Summer 2023
- **Adobe Research**
Research Intern (hosts: Aseem Agarwala, Bryan Russell, Oliver Wang) Summer 2021/2022
- **Facebook/Meta AI Research**
Research Intern (hosts: Ishan Misra, Rohit Girdhar) Summer 2020
- **Nvidia Research**
Research Intern (hosts: Zhiding Yu, Xiaodong Yang, Ming-Yu Liu, Jan Kautz) Summer 2018/2019
- **EgoVid (startup)**
Machine Learning Researcher (mentor: Michael Ryoo) 2017 - 2018

PREPRINTS

*: EQUAL CONTRIBUTION / ADVISING, †: ALPHABETIC ORDERING, ◊: CORE CONTRIBUTORS

- [1] Tanmay Gupta^{*◊}, Piper Wolters^{*◊}, Zixian Ma^{*◊}, Peter Sushko^{*◊}, Rock Yuren Pang[◊], Yue Yang[◊], Diego Llanes[◊], [Zhongzheng Ren](#), Boyuan Zheng, Harsh Trivedi, Taira Anderson, Winson Han, Taylor Blanton, Caleb Ouellette, Ali Farhadi, Ranjay Krishna[◊]. **MolmoWeb: Open Visual Web Agent and Open Data for the Open Web**. 2026
- [2] Qijia He^{*}, Xunmei Liu^{*}, Hammaad Memon^{*}, Ziang Li^{*}, Zixian Ma^{*}, Jaemin Cho, [Zhongzheng Ren](#), Daniel S Weld, Ranjay Krishna. **VFIG: Vectorizing Complex Figures in SVG with Vision-Language Models**. arXiv:2603.24575, 2026
- [3] Shirui Chen, Cole Harrison, Ying-Chun Lee, Angela Jin Yang, [Zhongzheng Ren](#), Lillian J. Ratliff, Jiafei Duan^{*}, Dieter Fox^{*}, Ranjay Krishna^{*}. **TOPReward: Token Probabilities as Hidden Zero-Shot Rewards for Robotics**. arXiv:2602.19313, 2026

- [4] Tom Gunter, ..., Zhongzheng Ren. **Apple Intelligence Foundation Language Models**. arXiv:2407.21075, 2024
- [5] Pengsheng Guo, Hans Hao, Adam Caccavale, Zhongzheng Ren, Edward Zhang, Qi Shan, Aditya Sankar, Alexander G. Schwing, Alex Colburn, Fangchang Ma. **StableDreamer: Taming Noisy Score Distillation Sampling for Text-to-3D**. arXiv:2312.02189, 2023

PUBLICATIONS

*: EQUAL CONTRIBUTION/ADVISING, †: ALPHABETIC ORDERING, ◊: CORE CONTRIBUTORS

- [6] Christopher Clark^{*◊}, Jieyu Zhang^{*◊}, Zixian Ma^{*◊}, Jae Sung Park[◊], Mohammadreza Salehi[◊], Rohun Tripathi[◊], Sangho Lee[◊], Zhongzheng Ren, Chris Dongjoo Kim, YINUO Yang, Vincent Shao, Yue Yang, Weikai Huang, Ziqi Gao, Taira Anderson, Jianrui Zhang, Jitesh Jain, George Stoica, Winston Han, Ali Farhadi, Ranjay Krishna[◊]. **Molmo2: Open Weights and Data for Vision-Language Models with Video Understanding and Grounding**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2026
- [7] Shaowei Liu, Zhongzheng Ren, Saurabh Gupta^{*}, Shenlong Wang^{*}. **PhysGen: Rigid-Body Physics-Grounded Image-to-Video Generation**. In *European Conference on Computer Vision (ECCV)*, 2024
- [8] Jing Wen, Xiaoming Zhao, Zhongzheng Ren, Alexander G. Schwing, Shenlong Wang. **GoMAvatar: Efficient Animatable Human Modeling from Monocular Video Using Gaussians-on-Mesh**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024
- [9] Zhenggang Tang, Zhongzheng Ren, Xiaoming Zhao, Bowen Wen, Jonathan Tremblay, Stan Birchfield, Alexander G. Schwing. **NeRFDeformer: NeRF Transformation from a Single View via 3D Scene Flows**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024
- [10] Xiaoming Zhao, Yuan-Ting Hu, Zhongzheng Ren, Alexander G. Schwing. **Occupancy Planes for Single-view RGB-D Human Reconstruction**. In *AAAI Conference on Artificial Intelligence (AAAI)*, 2023
- [11] Yuefan Wu^{*}, Zeyuan Chen^{*}, Shaowei Liu, Zhongzheng Ren, Shenlong Wang. **CASA: Category-agnostic Skeletal Animal Reconstruction**. In *Neural Information Processing Systems (NeurIPS)*, 2022
- [12] Zhongzheng Ren, Aseem Agarwala[†], Bryan Russell[†], Alexander G. Schwing[†], Oliver Wang[†]. **Neural Volumetric Object Selection**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022
- [13] Raymond A. Yeh, Yuan-Ting Hu, Zhongzheng Ren, Alexander G. Schwing. **Total Variation Optimization Layers for Computer Vision**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022
- [14] Zhongzheng Ren^{*}, Xiaoming Zhao^{*}, Alexander G. Schwing. **Class-agnostic Reconstruction of Dynamic Objects from Videos**. In *Neural Information Processing Systems (NeurIPS)*, 2021
- [15] Iou-Jen Liu^{*}, Zhongzheng Ren^{*}, Raymond A. Yeh^{*}, Alexander G. Schwing. **Semantic Tracklets: An Object-Centric Representation for Visual Multi-Agent Reinforcement Learning**. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021
- [16] Zhongzheng Ren, Ishan Misra, Alexander G. Schwing, Rohit Girdhar. **3D Spatial Recognition without Spatially Labeled 3D**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021
- [17] Zhongzheng Ren^{*}, Raymond A. Yeh^{*}, Alexander G. Schwing. **Not All Unlabeled Data are Equal: Learning to Weight Data in Semi-supervised Learning**. In *Neural Information Processing Systems (NeurIPS)*, 2020
- [18] Zhongzheng Ren, Zhiding Yu, Xiaodong Yang, Ming-Yu Liu, Alexander G. Schwing, Jan Kautz. **UFO²: A Unified Framework towards Omni-supervised Object Detection**. In *European Conference on Computer Vision (ECCV)*, 2020

- [19] Zhongzheng Ren, Zhiding Yu, Xiaodong Yang, Ming-Yu Liu, Yong Jae Lee, Alexander G. Schwing, Jan Kautz. **Instance-aware, Context-focused, and Memory-efficient Weakly Supervised Object Detection**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020
- [20] Zhongzheng Ren, Yong Jae Lee, Michael S. Ryoo. **Learning to Anonymize Faces for Privacy Preserving Action Detection**. In *European Conference on Computer Vision (ECCV)*, 2018
- [21] Zhongzheng Ren, Yong Jae Lee. **Cross-Domain Self-supervised Multi-task Feature Learning using Synthetic Imagery**. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018
- [22] Zhongzheng Ren, Adriana Noronha, Annie Vogel Ciernia, Yong Jae Lee. **Who Moved My Cheese? Automatic Annotation of Rodent Behaviors with Convolutional Neural Networks**. In *IEEE Winter Conference on Application of Computer Vision (WACV)*, 2017

PATENT

- [23] Zhiding Yu, Jason Ren, Xiaodong Yang, Ming-Yu Liu, Jan Kautz. **Weakly-supervised Object Detection using One or More Neural Networks**. *US Patent 20200394458A1*, 2020

LIVE DEMO

- [24] Zhongzheng Ren, Yong Jae Lee, Hyun Jong Yang, and Michael S. Ryoo. **Activity-Preserving Face Anonymization for Privacy Protection**. *European Conference on Computer Vision (ECCV)*, 2018

TEACHING

Teaching Assistant

- CS 446/ECE 449 Machine Learning, UIUC *Spring 2020, 2022, 2023*
- ECE 544 Pattern Recognition, UIUC *Fall 2020*
- ECS 174 Computer Vision, UC Davis *Spring 2017*

SELECTED HONORS AND AWARDS

- Yee Memorial Fund Fellowship (\$5,000) *2021*
- Institute nomination (1 of 2) for IBM PhD Fellowship, UIUC *2021*
- Outstanding Reviewer, International Conference on Computer Vision (ICCV) *2021*
- Outstanding Reviewer, International Conference on Learning Representations (ICLR) *2021*
- Yunni & Maxine Pao Memorial Fellowship (\$5,000) *2020*
- Qualcomm Innovation Fellowship (Finalist) *2019*

RESEARCH GRANTS, SPONSORSHIPS, AND AWARDS

- Graduate College Conference Participation Award, UIUC *2020, 2023*
- Amazon AWS Education Research Grant (\$10,000 AWS credit) *2019*
- Amazon AWS Education Research Grant (\$15,000 AWS credit) *2017*
- Travel Grant, CV-COPS workshop *2018*
- Graduate Student Travel Award, UC Davis *2017*

SERVICES

Area Chair

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2026

Workshop Organizer

- Embodied Reasoning in Action (ERA): Workshop and Challenge on Embodied Reasoning for Robotic Manipulation ([webpage](#)) CVPR 2026

Journal Reviewer

- International Journal of Computer Vision (IJCV) 2020 - now
- Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2019 - now

Conference Reviewer

- ACM SIGGRAPH 2026
- ACM SIGGRAPH Asia 2025
- International Conference on 3D Vision (3DV) 2022
- AAAI Conference on Artificial Intelligence (AAAI) 2021
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2021
- Neural Information Processing Systems (NeurIPS) 2021 - now
- European Conference on Computer Vision (ECCV) 2020 - now
- International Conference on Learning Representations (ICLR) 2020 - now
- International Conference on Machine Learning (ICML) 2020 - 2022, 2026-now
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2019 - now
- International Conference on Computer Vision (ICCV) 2019 - now

Workshop Reviewer

- AI for Content Creation Workshop (AI4CC), CVPR 2022
- Self-Supervised Learning for Reasoning and Perception, ICML 2021
- Self-Supervised Learning: Theory and Practice, NeurIPS 2020, 2021
- Visual Learning with Limited Labels Workshop, CVPR 2020

Misc.

- Member, Graduate Student Admission Committee, UNC 2026
- Panelist, Vision Mini Conference, UIUC 2025
- CS Graduate Student Ambassadors, UIUC 2019, 2020

TALKS

Some recordings and slides are available at: <https://jason718.github.io/talk>

- **Visual Foundation Model Flywheel** *Spring 2025*
 - University of Wisconsin–Madison, Purdue University, University of Illinois Urbana-Champaign, University of Arizona, University of North Carolina at Chapel Hill, Allen Institute for Artificial Intelligence (Ai2), University of Washington
- **Towards Democratizing Generation of 3D Experiences** *Winter 2023 - Spring 2024*
 - Apple VCV, Adobe Research, Google Research, VMware Research, NVIDIA Research, Meta Reality Lab Research, Massachusetts Institute of Technology (MIT)
- **3D Spatial Recognition without Spatially Labeled 3D** *Winter 2020*
 - Embodied AI, NYC/Montreal Vision, Winvision, Facebook/Meta AI Research
- **Learning to Anonymize Faces for Privacy Preserving Action Detection** *Summer 2018*
 - The Bright and Dark Sides of Computer Vision: Challenges and Opportunities for Privacy and Security (CV-COPS), CVPR workshop, Salt Lake City, UT
- **Cross-Domain Self-supervised Multi-task Feature Learning using Synthetic Imagery** *Summer 2018*
 - leiphone.com, China