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 am interested in research topics related to:

- **physical** world understanding, modeling, generation, and interaction
- **efficient** (real time, low cost) algorithms, architectures, and systems

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**
  Incoming Assistant Professor, Department of Computer Science *Starting Fall 2026*
- **Allen Institute for Artificial Intelligence (Ai2) / University of Washington**
  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*

Publications

*: equal contribution/advising, †: alphabetic ordering

[1] Tom Gunter, ..., Zhongzheng Ren. **Apple Intelligence Foundation Language Models**. arXiv:2407.21075, 2024

[2] 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

[3] 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

[4] 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

[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

[6] 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

[7] Yuefan Wu*, Zeyuan Chen*, Shaowei Liu, Zhongzheng Ren, Shenlong Wang. **CASA: Category-agnostic Skeletal Animal Reconstruction**. In *Neural Information Processing Systems (NeurIPS)*, 2022

[8] 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

[9] 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

[10] Zhongzheng Ren*, Xiaoming Zhao*, Alexander G. Schwing. **Class-agnostic Reconstruction of Dynamic Objects from Videos**. In *Neural Information Processing Systems (NeurIPS)*, 2021

[11] 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

[12] 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

[13] 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

[14] Zhongzheng Ren, Zhiding Yu, Xiaodong Yang, Ming-Yu Liu, Alexander G. Schwing, Jan Kautz. **UFO^2: A Unified Framework towards Omni-supervised Object Detection**. In *European Conference on Computer Vision (ECCV)*, 2020

[15] 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

[16] 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

[17] 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

[18] 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

[19] 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

[20] 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

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

Honors and Awards

- Yee Memorial Fund Fellowship ($5,000) — *2021*
- Yunni & Maxine Pao Memorial Fellowship ($5,000) — *2020*
- Qualcomm Innovation Fellowship (Finalist) — *2019*
- 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*
- Second Prize University Scholarship, SYSU — *2012, 2013*

Research Grants, Sponsorships, and Awards

- Amazon AWS Education Research Grant ($10,000 AWS credit) — *2019*
- Amazon AWS Education Research Grant ($15,000 AWS credit) — *2017*
- Graduate College Conference Participation Award, UIUC — *2020, 2023*
- 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 - now*

Journal Reviewer

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

Conference Reviewer

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

Workshop Reviewer

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

Misc.

- Panelist, Vision Mini Conference, UIUC — *2025*
- CS Graduate Student Ambassadors, UIUC — *2019, 2020*

TALKS

- **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)
- **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

(Last updated: August 2025)