ZHONGZHENG (JASON) REN

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Research Interests My research interests lie in Computer Vision and Machine Learning. In particular, I am interested in **(1)** visual learning with limited supervision, **(2)** 4D object recognition and reconstruction, and **(3)** visual reinforcement learning and control.

EDUCATION

2018 - 202n University of Illinois at Urbana-Champaign (UIUC)

Ph.D.
- Major: Computer Science
- Advisor: Alexander G. Schwing

2015 - 2017 University of California, Davis (UCD)

M.Sc.
- Major: Computer Science
- Thesis: Multi-task Feature Learning using Synthetic Game Imagery
- Thesis Committee: Yong Jae Lee (advisor), Kuan-liu Ma, Cho-Jui Hsieh

2011 - 2015 Sun Yat-sen University (SYSU)

B.Eng.
- Major: Software Engineering

PUBLICATIONS

[* indicates equal contribution.]

In submission [1] Class-agnostic 4D Reconstruction from Videos.
Zhongzheng Ren, Xiaoming Zhao, Alexander G. Schwing

IROS 21 [2] Semantic Tracklets: An Object-Centric Representation for Visual Multi-Agent Reinforcement Learning.
Iou-Jen Liu*, **Zhongzheng Ren***, Raymond A. Yeh*, Alexander G. Schwing
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021

CVPR 21 [3] 3D Spatial Recognition without Spatially Labeled 3D.
Zhongzheng Ren, Ishan Misra, Alexander G. Schwing, Rohit Girdhar
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021

NeurIPS 20 [4] Not All Unlabeled Data are Equal: Learning to Weight Data in Semi-supervised Learning.
Zhongzheng Ren*, Raymond A. Yeh*, Alexander G. Schwing
Neural Information Processing Systems (NeurIPS), 2020

ECCV 20 [5] UFO^2: A Unified Framework towards Omni-supervised Object Detection.
Zhongzheng Ren, Zhiding Yu, Xiaodong Yang, Ming-Yu Liu, Alexander G. Schwing, Jan Kautz
European Conference on Computer Vision (ECCV), 2020

CVPR 20 [6] Instance-aware, Context-focused, and Memory-efficient Weakly Supervised Object Detection.
Zhongzheng Ren, Zhiding Yu, Xiaodong Yang, Ming-Yu Liu, Yong Jae Lee,
Alexander G. Schwing, Jan Kautz
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020

ECCV 18 [7] Learning to Anonymize Faces for Privacy Preserving Action Detection.
Zhongzheng Ren, Yong Jae Lee, Michael S. Ryoo
European Conference on Computer Vision (ECCV), 2018

CVPR 18 [8] Cross-Domain Self-supervised Multi-task Feature Learning using Synthetic Imagery.
Zhongzheng Ren, Yong Jae Lee
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2018

WACV 17 [9] Who Moved My Cheese? Automatic Annotation of Rodent Behaviors with Convolutional Neural Networks.
Zhongzheng Ren, Adriana Noronha, Annie Vogel Ciernia, Yong Jae Lee
IEEE Winter Conference on Application of Computer Vision (WACV), 2017

PATENT

[10] Weakly-supervised object detection using one or more neural networks.
Zhiding Yu, **Jason Ren**, Xiaodong Yang, Ming-Yu Liu, Jan Kautz
US Patent 20200394458A1, 2020

RESEARCH EXPERIENCE

2018.9-ongoing Graduate Research Assistant
UIUC • Advisor: Alexander G. Schwing

2021 summer Research Intern
Adobe • Adobe Resrach
• Mentors: Bryan Russell, Oliver Wang, and Aseem Agarwala
Working on image-based rendering.

2020 summer Research Intern
Facebook • Facebook AI Resrach (FAIR)
• Mentors: Ishan Misra and Rohit Girdhar
Worked on 3D recognition from point cloud (CVPR'21).

2018, 2019 summer Research Intern
NVIDIA • Learning and Perception Research (LPR)
• Mentors: Zhiding Yu, Xiaodong Yang, Ming-Yu Liu, and Jan Kautz
2018: worked on weakly supervised object detection (CVPR'20).
2019: worked on omni-supervised object detection (ECCV'20).

2017.9-2018.5 Machine Learning Researcher
EgoVid • Mentor: Michael S. Ryoo
Worked on privacy-preserving video action recognition (ECCV'18).

2016.4-2018.5 Graduate Research Assistant & Visiting Scholar
UCD • Advisor: Yong Jae Lee
Worked on rodent behavior recognition (WACV'17) and self-supervised learning (CVPR'18).

AWARDS & HONORS

2021 · Yee Memorial Fund Fellowship
2019 · Yunni & Maxine Pao Memorial Fellowship
2019 · Qualcomm Innovation Fellowship (Finalist)
2019 · Amazon AWS Education Research Grant ($10,000)
2017 · Amazon AWS Education Research Grant ($15,000)
2021 · Outstanding Reviewer, International Conference on Computer Vision (ICCV)
2021 · Outstanding Reviewer, International Conference on Learning Representations (ICLR)
2020 · Graduate College Conference Participation Award, UIUC
2020 · Phi Kappa Phi
2018 · Travel Grant, CV-COPS
2017 · Graduate Student Travel Award, UC Davis
2016 · Graduate Group in Computer Science (GGCS) travel award, UC Davis
2012, 2013 · Second Prize University Scholarship, SYSU

TALKS

[Slides available from my website]

Dec 2020 "3D Spatial Recognition without Spatially Labeled 3D."
Embodied AI@FAIR, FAIR NYC/Montreal Vision, and Winvision groups, Facebook

June 2018 "Learning to Anonymize Faces for Privacy Preserving Action Detection."
CVPR workshop on *The Bright and Dark Sides of Computer Vision: Challenges and Opportunities for Privacy and Security (CV-COPS)*, Salt Lake City, UT

July 2018 "Cross-Domain Self-supervised Multi-task Feature Learning using Synthetic Imagery."
leiphone.com, China

LIVE DEMO

ECCV 18 Activity-Preserving Face Anonymization for Privacy Protection.
Zhongzheng Ren, Yong Jae Lee, Hyun Jong Yang, and Michael S. Ryoo
European Conference on Computer Vision (ECCV), 2018

TEACHING

Teaching Assistant

ECE 544 Pattern Recognition, Fall 2020, UIUC

CS 446/ECE 449 Machine Learning, Spring 2020, UIUC

ECS 174 Computer Vision, Spring 2017, UC Davis

SERVICES

Program Committee (Reviewer)

Journals

International Journal of Computer Vision (IJCV), 2020-

Conferences

IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019-21

International Conference on Computer Vision (ICCV), 2019-21

European Conference on Computer Vision (ECCV), 2020

Neural Information Processing Systems (NeurIPS), 2021

International Conference on Learning Representations (ICLR), 2020-22

International Conference on Machine Learning (ICML), 2020-21

AAAI Conference on Artificial Intelligence (AAAI), 2020-21

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021

Workshops

Visual Learning with Limited Labels Workshop, CVPR 2020

Workshop on Self-Supervised Learning: Theory and Practice, NeurIPS 2020

Self-Supervised Learning for Reasoning and Perception, ICML 2021

Misc. CS Graduate Student Ambassadors, UIUC, 2019-2020

SKILLS

OS Linux, Mac OS, Windows

Tools (Py-)Torch, TensorFlow, Caffe(2), OpenCV, LIBSVM

Languages Python, Lua, Matlab, C/C++, Shell, HTML, LaTeX

August 31, 2021