

Zhou Ren

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INDUSTRY EXPERIENCE

- 12/2018 – present, **Senior Research Lead**, Wormpex AI Research, Bellevue, WA, USA
- 05/2018 – 12/2018, **Senior Research Scientist**, Snap Inc., Santa Monica, CA, USA
- 10/2017 – 05/2018, **Research Scientist (III)**, Snap Inc., Venice, CA, USA
- 04/2017 – 10/2017, **Research Scientist (II)**, Snap Inc., Venice, CA, USA
- 07/2016 – 04/2017, **Research Scientist (I)**, Snap Inc., Venice, CA, USA
- 03/2016 – 06/2016, **Research Intern**, Snap Inc., Venice, CA, USA
- 06/2015 – 09/2015, **Deep Learning Research Intern**, Adobe Research, San Jose, CA, USA
- 06/2013 – 09/2013, **Research Intern**, Toyota Technological Institute, Chicago, IL, USA
- 07/2010 – 07/2012, **Project Officer**, Media Technology Lab, Nanyang Technological University, Singapore

PROFESSIONAL SERVICES

- Area Chair**, CVPR 2021, CVPR 2022, WACV 2022.
- Senior Program Committee**, AAI 2021.
- Associate Editor**, The Visual Computer Journal (TVCI), 2018 – present.
- Director** of Industrial Governance Board, Asia-Pacific Signal and Information Processing Association (APSIPA).

EDUCATION

Doctor of Philosophy

09/2012 – 09/2016, *University of California, Los Angeles (UCLA)*
Major: Vision and Graphics, Computer Science Department
Advisor: Prof. Alan Yuille

Master of Science

09/2012 – 06/2014, *University of California, Los Angeles (UCLA)*
Major: Vision and Graphics, Computer Science Department
Advisor: Prof. Alan Yuille

Master of Engineering

08/2010 – 01/2012, *Nanyang Technological University (NTU)*, Singapore
Major: Information Engineering, School of Electrical and Electronic Engineering
Advisor: Prof. Junsong Yuan

Bachelor of Engineering

09/2006 – 06/2010, *Huazhong University of Science and Technology (HUST)*, China
Major: Communication Engineering, Department of Electronic and Information Engineering
Overall GPA: 91.41/100 (Rank: 1/223) **Mathematical GPA: 96.51/100**

RESEARCH INTERESTS

Computer Vision, Multimedia, Machine Learning, and Natural Language Processing

PUBLICATIONS

(Note: "^" indicates the co-author is the student I mentored during whose internship or during an university collaboration)

JOURNAL

Sheng Liu[^], **Zhou Ren**, and Junsong Yuan, “SibNet: Sibling Convolutional Encoder for Video Captioning”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2020. (cited by 36)

Hongyu Xu[^], Xutao Lv, Xiaoyu Wang, **Zhou Ren**, and Rama Chellappa, “Deep Regionlets: Blended Representation and Deep Learning for Generic Object Detection”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2019.

Alexey Kurankin, *et. al*, “Adversarial Attacks and Defences Competition”, NIPS 2017 Competition Book, Springer. (cited by 156)

Xiaowei Ding, Jianing Pang, **Zhou Ren**, Mariana Diaz-Zamudio, Chenfangfu Jiang, Zhaoyang Fan, Daniel Berman, Debiao Li, Demetri Terzopoulos, Piotr Slomka, and Damini Dey, “Automated Pericardial Fat Quantification from Coronary Magnetic Resonance Angiography”, *Journal of Medical Imaging (JMI)*, 2016.

Zhou Ren, Junsong Yuan, and Wenyu Liu, “Minimum Near-Convex Shape Decomposition”. *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, vol.35, pp.2546-2552, 2013. (cited by 44)

Zhou Ren, Junsong Yuan, and Zhengyou Zhang, “Robust Part-based Hand Gesture Recognition using Kinect Sensor”. *IEEE Trans. on Multimedia (TMM)*, vol.15, pp.1110-1120, 2013. (**IEEE TMM 2016 Prize Paper Award (Best Paper)**) (cited by 731)

CONFERENCE

Yiding Yang[^], **Zhou Ren**, Haoxiang Li, Chunluan Zhou, and Gang Hua, “Learning Dynamics via Graph Neural Networks for Human Pose Estimation and Tracking”. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.

Chunluan Zhou, **Zhou Ren**, Gang Hua, “Temporal Keypoint Matching and Refinement Network for Pose Estimation and Tracking”. In *IEEE European Conference on Computer Vision (ECCV)*, 2020.

Shiyi Lan[^], **Zhou Ren**, Yi Wu, Larry Davis, Gang Hua, “SaccadeNet: A Fast and Accurate Object Detector”. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.

Tan Yu[^], **Zhou Ren**, Yuncheng Li, Enxu Yan, Ning Xu, Junsong Yuan, “Temporal Structure Mining for Weakly Supervised Action Detection”. In *International Conference on Computer Vision (ICCV)*, 2019. (cited by 33)

Tianlong Chen[^], Shaojin Ding, Jingyi Xie, Ye Yuan, Wuyang Chen, Yang Yang, **Zhou Ren**, Zhangyang Wang, “ABD-Net: Attentive but Diverse Person Re-Identification”. In *International Conference on Computer Vision (ICCV)*, 2019. (cited by 141)

Liuhao Ge[^], **Zhou Ren**, Yuncheng Li, Zehao Xue, Yingying Wang, Jianfei Cai, Junsong Yuan, “3D Hand Shape and Pose Estimation from a Single RGB Image”. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. (**Oral**) (cited by 156)

Jonghwan Mun[^], Linjie Yang, **Zhou Ren**, Ning Xu, and Bohyung Han, “Streamlined Dense Video

Captioning”. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. **(Oral)** (cited by 41)

Cihang Xie[^], Yuyin Zhou, Song Bai, Zhishuai Zhang, Jianyu Wang, **Zhou Ren**, and Alan Yuille, “Improving Transferability of Adversarial Examples with Input Diversity”. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. (cited by 202)

Liuhaog Ge[^], **Zhou Ren**, Junsong Yuan, “Point-to-Point Regression PointNet for 3D Hand Pose Estimation”. In *European Conference on Computer Vision (ECCV)*, 2018. (cited by 78)

Hongyu Xu[^], Xutao Lv, Xiaoyu Wang, **Zhou Ren**, and Rama Chellappa, “Deep Regionlets for Object Detection”. In *European Conference on Computer Vision (ECCV)*, 2018. (cited by 58)

Sheng Liu[^], **Zhou Ren**, Junsong Yuan, “SibNet: Sibling Convolutional Encoder for Video Captioning”. In *ACM Multimedia Conference (ACM MM)*, 2018. **(Oral)** (cited by 36)

Cihang Xie[^], Jianyu Wang, Zhishuai Zhang, **Zhou Ren**, Alan Yuille, “Mitigating Adversarial Effects Through Randomization”. In *International Conf. on Learning Representations (ICLR)*, 2018. (cited by 495)

Zhou Ren, Hailin Jin, Zhe Lin, Chen Fang, and Alan Yuille, “Multiple Instance Visual-Semantic Embedding”. In *British Machine Vision Conference (BMVC)*, 2017. **(Oral)** (cited by 57)

Zhou Ren, Xiaoyu Wang, Ning Zhang, and Li-Jia Li, “Deep Reinforcement Learning-based Image Captioning with Embedding Reward”. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017. **(Oral)** **(Nominated to the Best Student Paper Award)** (cited by 245)

Zhou Ren, Hailin Jin, Zhe Lin, Chen Fang, and Alan Yuille, “Joint Image-Text Representation by Gaussian Visual-Semantic Embedding”. In *ACM Multimedia Conference (ACM MM)*, 2016. (cited by 46)

Zhou Ren, Chaohui Wang and Alan Yuille, “Scene-Domain Active Part Models for Object Representation”. In *IEEE International Conference on Computer Vision (ICCV)*, 2015.

Xiaowei Ding, Jianing Pang, **Zhou Ren**, Mariana Zamudio, Daniel Berman, Debiao Li, Demetri Terzopoulos, Piotr Slomka, and Damini Dey, “Automated Pericardial Fat Quantification from Coronary Magnetic Resonance Angiography”. In *Medical Image Understanding and Analysis (MIUA)*, 80-85, 2015. **(Oral)**

Zhou Ren, Junsong Yuan, Chunyuan Li and Wenyu Liu, “Minimum Near-Convex Decomposition for Robust Shape Representation”. In *IEEE International Conference on Computer Vision (ICCV)*, 2011. (cited by 94)

Zhou Ren, Junsong Yuan, and Zhengyou Zhang, “Robust Hand Gesture Recognition Based on Finger-Earth Mover’s Distance with a Commodity Depth Camera”. In *ACM Multimedia Conference (ACM MM)*, Nov. 2011. (cited by 530)

Zhou Ren, Jingjing Meng, Junsong Yuan, and Zhengyou Zhang, “Robust Hand Gesture Recognition with Kinect Sensor”. In *ACM Multimedia Conference (ACM MM)*, Nov. 2011. (cited by 364)

Zhou Ren, Jingjing Meng, and Junsong Yuan, “Depth Camera based Hand Gesture Recognition and its Applications in Human-Computer-Interaction”. In *IEEE International Conference on Information, Communication, and Signal Processing (ICICS)*, Dec. 2011. **(Oral)** (cited by 228)

Zhongyuan Lai, Junhuan Zhu, **Zhou Ren**, Wenyu Liu, and Baolan yan, “Arbitrary Directional Edge Encoding Schemes for the Operational Rate Distortion Optimal Shape Coding Framework”. In *2010 IEEE Data Compression Conference (DCC)*, pp. 20-29, Nov. 2010. **(Oral)**

SELECTED PATENTS

Co-inventor with Jingjing Meng and Junsong Yuan, “System and method for robust hand gesture recognition using commodity depth sensor”. Singapore provisional patent application, filed in 10/2011.

Co-inventor with Hailin Jin, Zhe Lin and Chen Fang, “Embedding space for images with multiple text labels”. US patent application, filed in 01/2016.

Co-inventor with Hailin Jin, Zhe Lin and Chen Fang, “Modeling semantic concepts in an embedding space as distributions”. US patent application, filed in 01/2016.

Co-inventor with Xiaoyu Wang, Ning Zhang, and Jia Li, “Embedding-driven image captioning using deep reinforcement learning and lookahead beam search”. US patent application, filed in 11/2016.

Co-inventor with Zehao Xue, “Generating Data in a Messaging System for a Machine Learning Model”. US patent application, filed in 12/2017.

Co-inventor with Roger Luo, Sushobhan Nayak, Xinran He, and Christophe Van Gysel, “Query Matching to Media Collections in a Messaging System”. US patent application, filed in 01/2018.

Co-inventor with Ebony Charlton, Sumant Hanumante, and Dhritiman Sagar, “Device Location based on Machine Learning Classifications”. US patent (US9980100B1), granted in 05/2018.

SELECTED HONORS & AWARDS

ACADEMIC

12/2017 **2nd Place** in **NIPS 2017 Adversarial Defense Challenge** (among 107 competing teams worldwide)

07/2017 **IEEE Conf. on Computer Vision and Pattern Recognition Best Student Paper Award Nomination**

07/2016 **IEEE Trans. on Multimedia 2016 Prize Paper Award (Best Paper Award)**

09/2012 **UCLA University Fellowship**

08/2011 **EEE Spotlight Promotion Project Award**, School of EEE, NTU (6 out of ~200 research projects in EEE)

06/2010 **First-class Outstanding Undergraduate Dissertation**, in Hubei Province (top 1%)

10/2009 **National First Class Scholarship**, Education Ministry of China (top 0.5%)

10/2007 **Merit Student Award**, and selected to “**Special Eugenics Program**” in HUST (top 1%)

SPORTS

06/2010 **Bronze Medal**, in “**HUST Basketball Graduation Cup**”, a member of School’s Basketball Team

10/2007 Selected to **All-Star Basketball Team**, School of Electronic Information and Communication, HUST

10/2006 **First place, Men’s 1500m running**, School of Electronic Information and Communication, HUST

MENTORED STUDENT COLLABORATORS

- Lluís Castrejon (*2017 Summer*), PhD student at MILA, University of Montreal
- Zhe Li (*2017 Summer*), PhD student at University of Iowa
- Hongyu Xu (*2017 Summer*), PhD student at University of Maryland, College Park

- Cihang Xie (2017 Fall – 2018 Spring), PhD student at Johns Hopkins University
- Sheng Liu (2017 Fall – 2019 Fall), PhD student at The State University of New York at Buffalo
- Lihao Ge (2018 Spring – 2019 Spring), PhD student at Nanyang Technological University
- Tan Yu (2018 Summer), PhD student at Nanyang Technological University
- Shibi He (2018 Summer), PhD student at University of Illinois Urbana-Champaign
- Jonghwan Mun (2018 Summer), PhD student at Pohang University of Science and Technology
- Tianlong Chen (2019 Spring), PhD student at Texas A&M University
- Ye Yuan (2019 Spring), PhD student at Texas A&M University
- Wuyang Chen (2019 Spring), PhD student at Texas A&M University
- Shiyi Lan (2019 Summer), PhD student at University of Maryland, College Park
- Zhenyu Wu (2020 Summer), PhD student at Texas A&M University
- Yiding Yang (2020 Summer), PhD student at Stevens Institute of Technology
- Tongzhou Mu (2020 Summer), PhD student at University of California San Diego
- Hanwen Jiang (2021 Summer), PhD student at The University of Texas at Austin
- Kumara Kahatapitiya (2021 Summer), PhD student at Stony Brook University
- Hongji Guo (2021 Summer), PhD student at Rensselaer Polytechnic Institute

TEACHING EXPERIENCE

09/2013 – 06/2014, **Teaching Assistant/Associate**, CS31, CS32, UCLA

PROFESSIONAL SKILLS

Proficient with PyTorch, Torch, Caffe, Tensorflow. Experienced with Microsoft Kinect Sensor, Theano.
Programming languages: C/C++, Python, Lua, Matlab, CPLEX, Lingo.
Fluent in English, native in Mandarin.

PERSONAL QUALIFICATIONS & INTERESTS

Highly self-motivated, cooperative, passionate and efficient
Interested in script writing, designing, basketball, and gym workout

REFEREES

Available upon request