Zhou Ren

Email: renzhou200622@gmail.com Homepage: http://cs.ucla.edu/~zhou.ren

Industry Experience

09/2021 – present, **Principal Research Manager**, Wormpex AI Research, Bellevue, WA, USA

12/2018 – 09/2021, **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, AAAI 2021, AAAI 2022.

Associate Editor, The Visual Computer Journal (TVCJ), 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)

Liuhao 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

09/2021 **1st Prize** in **ICCV 2021 Low Power Computer Vision Challenge** (among 31 competing teams worldwide)

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

- Lluis 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
- Liuhao 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