Jian Wang

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Research Interests	Computational Imaging, Computer Vision, Signal Processing

Education

Carnegie Mellon University (CMU), Pittsburgh, PA — 8/2013 to 8/2018

Ph.D., Electrical and Computer Engineering department

- Thesis: High Resolution 2D Imaging and 3D Scanning with Line Sensors
- Advisors: Prof. Aswin C. Sankaranarayanan, Prof. Srinivasa Narasimhan

University of Science and Technology of China (USTC), Hefei, China

M.S., Pattern Recognition and Intelligent Systems — 9/2009 to 7/2013

- Advisor: Prof. Zonghai Chen

Xi'an Jiao Tong University (XJTU), Xi'an, China — 9/2005 to 7/2009

B.Eng., Automation department B.Ec., Finance department (double major)

Work Experience

Computational Imaging group, Snap Research — 8/2018 to present
Manager: Shree Nayar
Title: Research Scientist
Research topics: visual communication, computational imaging in mobiles

Illumination and Imaging Laboratory, CMU — 1/2016 to 7/2018
Advisor: Prof. Srinivasa Narasimhan
Title: Research assistant
Research topics: 3D sensor in the wild

Image Science Lab, CMU — 8/2013 to 7/2018
Advisor: Prof. Aswin C. Sankaranarayanan
Title: Research assistant
Research topics: video compressive sensing, imaging architecture, camera-projector system, light transport analysis

Machine Perception, Google — 6/2017 to 12/2017
Advisor: Dr. Jiawen (Kevin) Chen
Title: Software Engineering Intern
Research topics: dark flash photography, image denoising

Media Lab, FutureWei Technologies, Inc. — 5/2014 to 8/2014
Advisor: Dr. Jinwei Gu
Title: Research intern
Research topics: spatial-temporal graph cuts, multi-camera system

Microsoft Research Asia — 2/2012 to 2/2013
Advisor: Dr. Yasuyuki Matsushita
Title: Research intern
Research topics: gigapixel 3D camera, photometric stereo

Simulation and Intelligent Control Lab, USTC 9/2009 to 7/2013
Advisor: Prof. Zonghai Chen
Title: Research assistant
Research topics: human action recognition, biometrics, control of intelligent car based on visual sensor, photoelectric sensor, or electromagnetic sensor

Teaching Experience

18792 Advanced Digital Signal Processing, Teaching Assistant	Fall 2016
16823 Physics-based methods in Computer vision, Teaching Assistant	Spring 2016
18660 Optimization, Teaching Assistant	Spring 2018
The National University Freescale Cup Intelligent Car Racing, Coach	2010 to 2011

Student Advisees

Sizhuo Ma, PhD student, University of Wisconsin-Madison, Summer intern 2020
Akash Kumar Maity, PhD student, Rice University, Summer intern 2020
Byeongjoo Ahn, PhD student, Carnegie Mellon University, Summer intern 2020
Yingsi Qin, Columbia University, Summer intern 2020
Wenzhen Chen, Phd Student, University of Toronto, Summer intern 2019
Jinhui Xiong, PhD student, KAUST, Summer intern 2019
Vishwanath Saragadam, PhD student, Carnegie Mellon University, Summer intern 2018

Publications*

1. Jinhui Xiong*, **Jian Wang**, Wolfgang Heidrich, Shree Nayar, "Seeing in Extra Darkness Using a Deep-red Flash", in the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021 (under review).
2. Xu Liu, Chengtao Li, **Jian Wang**, Jingbo Wang, Boxin Shi, Xiaodong He, "Group Contextual Encoding for 3D Point Clouds", in the Thirty-fourth Conference on Neural Information Processing Systems (**NeurIPS**), Dec. 2020.
3. Xu Liu, Jiayan Cao, Qianqian Bi, **Jian Wang**, Boxin Shi, Yicheng Wei, "Dense Point Diffusion for 3D Object Detection", in International Conference on 3D Vision (**3DV**), Nov. 2020.
4. Vishwanath Saragadam*, **Jian Wang**, Mohit Gupta, Shree Nayar, "Micro-baseline Structured Light", in International Conference on Computer Vision (**ICCV**), Seoul, South Korea, Oct. 2019.
5. Joseph Bartels, **Jian Wang**, William Whittaker, Srinivasa G. Narasimhan, "Agile Triangulation Light Curtains", in International Conference on Computer Vision (**ICCV**), Seoul, South Korea, Oct. 2019. (**Oral**)
6. **Jian Wang**, Tianfan Xue, Jonathan T. Barron, Jiawen Chen, "Stereoscopic Dark Flash for Low-light Photography", in IEEE Conference on Computational Photography (**ICCP**), Tokyo, Japan, May 2019. (**Oral**)
7. **Jian Wang**, "High Resolution 2D Imaging and 3D Scanning with Line Sensors", PhD thesis, Carnegie Mellon University. 2018.
8. **Jian Wang**, Joseph Bartels, William Whittaker, Aswin C. Sankaranarayanan, Srinivasa G. Narasimhan, "Programmable Triangulation Light Curtains", in European Conference on Computer Vision (**ECCV**), Munich, Germany, Oct. 2018. (**Oral**)
9. Zhuo Hui, Kalyan Sunkavalli, Joon-Young Lee, Sunil Hadap, **Jian Wang** and Aswin C. Sankaranarayanan, "Reflectance Capture Using Univariate Sampling of BRDFs", in International Conference on Computer Vision (**ICCV**), Oct. 2017.

*Co-authors are my student advisees (Summer interns)

10. Vishwanath Saragadam, **Jian Wang**, Xin Li, Aswin C. Sankaranarayanan, "Compressive Spectral Anomaly Detection", in IEEE Conference on Computational Photography (**ICCP**), Stanford, CA, May 2017. (**Oral**)

11. **Jian Wang**, Aswin C. Sankaranarayanan, Mohit Gupta, and Srinivasa G. Narasimhan, "Dual structured Light 3D Using A 1D Sensor", in European Conference on Computer Vision (**ECCV**), Amsterdam, The Netherlands, Oct. 2016. (**Oral**)

12. Aswin C. Sankaranarayanan, **Jian Wang**, and Mohit Gupta, "Radon Transform Imaging: Low Cost Video Compressive Sensing at Extreme Resolutions", in SPIE Sensing and Analysis Technologies for Biomedical and Cognitive Applications, Baltimore, MD, Apr. 2016.

13. **Jian Wang**, Yasuyuki Matsushita, Boxin Shi, and Aswin C. Sankaranarayanan, "Photometric Stereo with Small Angular Variations", in International Conference on Computer Vision (**ICCV**), Santiago, Chile, Dec. 2015.

14. Suhas Lohit, Kuldeep Kulkarni, Pavan Turaga, **Jian Wang**, and Aswin C. Sankaranarayanan, "Reconstruction-free Inference on Compressive Measurements", in 4th IEEE International Workshop on Computational Cameras and Displays (**CCD**), Boston, MA, Jun. 2015. (**Oral, Best paper award**)

15. **Jian Wang**, Mohit Gupta, and Aswin C. Sankaranarayanan, "LiSens — A Scalable Architecture for Video Compressive Sensing", in IEEE Conference on Computational Photography (**ICCP**), Houston, Texas, Apr. 2015. (**Oral**)

16. **Jian Wang**, Xiao Liang, Yasuyuki Matsushita, Magnetro Chen, and Bojun Huang, "Gigapixel 3D Camera", Tech-report, https://goo.gl/zVf4x2, 2015.

17. **Jian Wang**, Zhiling Wang, and Zonghai Chen, "Gender Recognition Based on Hand Waving Action", Journal of University of Science and Technology of China, vol. 42 (2), pp. 92-98, 2012.

18. **Jian Wang**, Xiaowei Zhang, Jin Yang, Xin Zan, and Xiaoyong Liu, "Design of Control Algorithms for Smart Car Based on Vision", Microcomputer & Its Applications, vol. 29, pp. 74-77, 2010.

Patents

1. Shree K. Nayr, **Jian Wang**, Wenzheng Chen, "Long Distance Barcode Decoding", US patent, 2020.

2. **Jian Wang**, Karl Bayer, Shree K. Nayar, "Fast Data Accessing System Using Optical Beacons", US patent, 2020.

3. Tianfan Xue, **Jian Wang**, Jiawen Chen, Jonathan T. Barron, "Dark Flash Photography with a Stereo Camera", US patent, 2019.

4. Zonghai Chen, Zhiling Wang, Yuzhou Zhao, Mingwei Guo, and **Jian Wang**, "Ground Target Positioning Method Applied into Video Monitoring System", China patent CN102359780 B, 2014.

5. **Jian Wang**, Zhiling Wang, Yuzhou Zhao, Mingwei Guo, and Zonghai Chen, "Real-time Identity Recognition and Authentication Method for Self-service Equipment System of Bank", China patent CN102364527 A, 2012.

Honors and Awards

- Liang Ji-Dian Fellowship 2016
- Best paper award, in 4th IEEE International Workshop on Computational Cameras and Displays (**CCD**) 2015
- Best of the best summer intern good performance award, FutureWei Tech., Inc. 2014
- Award of Excellance, Stars of Tomorrow Internship Program, Microsoft Research Asia 2013
- Huawei Scholarship (Top 1%) 2010
- Second-Class Award (Top 6.5%) × 2, in 6th National University Freescale Cup Intelligent Car Racing (as a coach) 2011
- Second-Class Award (Top 8.2%) × 2 and Excellent Paper Award (Top 3.7%), in 5th National University Freescale Cup Intelligent Car Racing (as a coach) 2010
- First-Class Award (Top 5.6%) and Excellent Paper Award (Top 4.2%), in 4th National University Freescale Cup Intelligent Car Racing 2009

Professional Service

- Reviewer for conferences CVPR 2021, ICCP 2021, WACV 2021, ECCV 2020, CVPR 2020, ICCP 2020, ICCV 2019, CVPR 2019, ICCP 2019, PRCV 2019, CCD 2018, ICIP, ICASSP
- Reviewer for journals IPSJ Transactions on Computer Vision and Applications, IEEE Computer Graphics and Applications, IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT), IEEE Transactions on Image Processing (T-IP)
- Program Committee member for CVPR Workshop on Computational Cameras and Displays (CCD) 2018
- Volunteer for ICCP 2018, 2016