

## Jian Wang

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| CONTACT INFORMATION | 200 Greene St, Apt 5001<br>Jersey City, NJ 07302  | 412-315-8973<br>jianwang.cmu@gmail.com |
| HOME PAGE           | <a href="https://jianwang-cmu.github.io/">https://jianwang-cmu.github.io/</a>   |  |
| RESEARCH INTERESTS  | Computational Imaging, Computer Vision, Signal Processing   |  |
| EDUCATION           | <b>Carnegie Mellon University (CMU)</b> , Pittsburgh, PA 8/2013 to 8/2018<br>Ph.D., Electrical and Computer Engineering department <ul style="list-style-type: none"><li>• Thesis: High Resolution 2D Imaging and 3D Scanning with Line Sensors</li><li>• Advisors: Prof. Aswin C. Sankaranarayanan, Prof. Srinivasa Narasimhan</li></ul> <b>University of Science and Technology of China (USTC)</b> , Hefei, China<br>M.S., Pattern Recognition and Intelligent Systems 9/2009 to 7/2013 <ul style="list-style-type: none"><li>• Advisor: Prof. Zonghai Chen</li></ul> <b>Xi'an Jiao Tong University (XJTU)</b> , Xi'an, China 9/2005 to 7/2009<br>B.Eng., Automation department B.Ec., Finance department (double major)   |  |
| WORK EXPERIENCE     | <b>Computational Imaging group, Snap Research</b> 8/2018 to present<br>Manager: Shree Nayar<br>Title: Research Scientist<br>Research topics: visual communication, computational imaging in mobiles<br><br><b>Illumination and Imaging Laboratory, CMU</b> 1/2016 to 7/2018<br>Advisor: Prof. Srinivasa Narasimhan<br>Title: Research assistant<br>Research topics: 3D sensor in the wild<br><br><b>Image Science Lab, CMU</b> 8/2013 to 7/2018<br>Advisor: Prof. Aswin C. Sankaranarayanan<br>Title: Research assistant<br>Research topics: video compressive sensing, imaging architecture, camera-projector system, light transport analysis<br><br><b>Machine Perception, Google</b> 6/2017 to 12/2017<br>Advisor: Dr. Jiawen (Kevin) Chen<br>Title: Software Engineering Intern<br>Research topics: dark flash photography, image denoising<br><br><b>Media Lab, FutureWei Technologies, Inc.</b> 5/2014 to 8/2014<br>Advisor: Dr. Jinwei Gu<br>Title: Research intern<br>Research topics: spatial-temporal graph cuts, multi-camera system<br><br><b>Microsoft Research Asia</b> 2/2012 to 2/2013<br>Advisor: Dr. Yasuyuki Matsushita<br>Title: Research intern<br>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

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| TEACHING   | 18792 Advanced Digital Signal Processing, Teaching Assistant        | Fall 2016    |
| EXPERIENCE | 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 |

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| STUDENT  | Sizhuo Ma, PhD student, University of Wisconsin-Madison, Summer intern 2020       |
| ADVISEES | 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 (\* indicates equal contribution), “Seeing in Extra Darkness Using a Deep-red Flash”, in the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021 (**Oral**).
  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.

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\*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, Magnetron 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. Srinivasa G. Narasimhan, **Jian Wang**, Aswin C. Sankaranarayanan, Joseph Bartels, William Whittaker, “Programmable light curtains”, US patent, 2021.
2. Shree K. Nayar, **Jian Wang**, Wenzheng Chen, “Long Distance Barcode Decoding”, US patent, 2020.
3. **Jian Wang**, Karl Bayer, Shree K. Nayar, “Fast Data Accessing System Using Optical Beacons”, US patent, 2020.
4. Tianfan Xue, **Jian Wang**, Jiawen Chen, Jonathan T. Barron, “Dark Flash Photography with a Stereo Camera”, US patent, 2019.
5. Jinwei Gu, **Jian Wang**, Wei Jiang, “Apparatus and Methods for Video Foreground-Background Segmentation with Multi-View Spatial Temporal Graph Cuts”, US patent, 2017.
6. 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.
7. **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%)  $\times$  2, in 6th National University Freescale Cup Intelligent Car Racing (as a coach) 2011
- Second-Class Award (Top 8.2%)  $\times$  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.
- Outstanding reviewer for CVPR 2021
- 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), International Journal of Computer Vision (IJCV)
- Program Committee member for CVPR Workshop on Computational Cameras and Displays (CCD) 2018
- Volunteer for ICCP 2018, 2016