# Longguang Wang

wanglongguang15@nudt.edu.cn • https://longguangwang.github.io/

My research interest includes low-level vision and 3D vision. In particular, my research focuses on image/video/point cloud restoration, image/video/point cloud compression, stereo matching, and 3D scene understanding.

## Education

- **National University of Defense Technology** — **Changsha, China**
  *Ph.D. in Information and Communication Engineering* — *2018.03 – 2022.06*
  **Advisor:** Prof. Wei An and Assoc. Prof. Yulan Guo
- **National University of Defense Technology** — **Changsha, China**
  *M.E. in Information and Communication Engineering* — *2015.09 – 2017.12*
  **Advisor:** Assoc. Prof. Xinpu Deng
- **Shandong University** — **Jinan, China**
  *B.E. in Electrical Engineering and Automation* — *2011.09 – 2015.06*

## Publications

### Journal Papers:

- **Longguang Wang**, Yulan Guo, Yingqian Wang, Zhengfa Liang, Zaiping Lin, Jungang Yang, Wei An. Parallax Attention for Unsupervised Stereo Correspondence Learning, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*. 44: 2108-2125, 2022.
- Yingqian Wang, **Longguang Wang**, Gaochang Wu, Jungang Yang, Wei An, Jingyi Yu, Yulan Guo. Disentangling Light Fields for Super-Resolution and Disparity Estimation, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*. 2022.
- **Longguang Wang**, Yulan Guo, Li Liu, Zaiping Lin, Xinpu Deng, Wei An. Deep Video Super-Resolution using HR Optical Flow Estimation, *IEEE Transactions on Image Processing (TIP)*. 29: 4323-4336, 2020.
- Yingqian Wang, Jungang Yang, **Longguang Wang**, Xinyi Ying, Tianhao Wu, Wei An, Yulan Guo. Light Field Image Super-Resolution using Deformable Convolution, *IEEE Transactions on Image Processing (TIP)*, 30: 1057-1071, 2020.
- Xiaoyu Dong, **Longguang Wang**, Xu Sun, Xiuping Jia, Lianru Gao, Bing Zhang. Remote Sensing Image Super-Resolution Using Second-Order Multi-Scale Networks, *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 59(4): 3473-3485, 2020.
- Boyang Li, Yulan Guo, Jungang Yang, **Longguang Wang**, Yingqian Wang, Wei An. Gated Recurrent Multiattention Network for VHR Remote Sensing Image Classifi-cation, *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*. 60, 2021.

### Conference Papers:

- Xiaoyu Dong, Naoto Yokoya, **Longguang Wang**, Tatsumi Uezato. Learning Mutual Modulation for Unsupervised Cross-Modal Super-Resolution, *European Conference on Computer Vision (ECCV)*, 2022.
- **Longguang Wang**, Xiaoyu Dong, Yingqian Wang, Li Liu, Wei An, Yulan Guo. Learnable Lookup Table

for Neural Network Quantization, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*: 2022.

- Kunhong Li, **Longguang Wang**, Li Liu, Qing Ran, Kai Xu, Yulan Guo. Decoupling Makes Weakly Supervised Local Feature Better, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*: 2022.
- Yingqian Wang, **Longguang Wang**, Zhengyu Liang, Jungang Yang, Wei An, Yulan Guo. Occlusion-Aware Cost Constructor for Light Field Depth Estimation, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*: 2022.
- Ye Zhang, **Longguang Wang**, Huiling Chen, Yi Hou, Aosheng Tian, Shilin Zhou, Yulan Guo. IF-ConvTransformer: A General Framework for Human Activity Recognition Using IMU Fusion and ConvTransformer, *ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2022.
- **Longguang Wang**, Xiaoyu Dong, Yingqian Wang, Xinyi Ying, Zaiping Lin, Wei An, Yulan Guo. Exploring Sparsity in Image Super-Resolution for Efficient Inference, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*: 4917-4926, 2021.
- **Longguang Wang**, Yingqian Wang, Xiaoyu Dong, Qingyu Xu, Jungang Yang, Wei An, Yulan Guo. Unsupervised Degradation Representation Learning for Blind Super-Resolution, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*: 10581-10590, 2021.
- **Longguang Wang**, Yingqian Wang, Zaiping Lin, Jungang Yang, Wei An, Yulan Guo. Learning A Single Network for Scale-Arbitrary Super-Resolution, *IEEE Inter-national Conference on Computer Vision (ICCV)*: 4801-4810, 2021.
- **Longguang Wang**, Yingqian Wang, Zhengfa Liang, Zaiping Lin, Jungang Yang, Wei An, Yulan Guo. Learning Parallax Attention for Stereo Image Super-Resolution, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*: 12250-12259, 2019.
- Hanlong Liao, Guoming Tang, Teng Liang, **Longguang Wang**, Deke Guo. Personalized QoE Optimization With Edge-Aided Video Enhancement Services, *International Conference on High Performance Computing and Communications (HPCC)*, 2021.
- Yingqian Wang, **Longguang Wang**, Jungang Yang, Wei An, Jingyi Yu, Yulan Guo. Spatial-Angular Interaction for Light Field Image Super-Resolution, *European Con-ference on Computer Vision (ECCV)*:290-318, 2020.
- Yingqian Wang, Tianhao Wu, Jungang Yang, **Longguang Wang**, Wei An, Yulan Guo. DeOccNet: Learning to See Through Foreground Occlusions in Light Fields, *The IEEE Winter Conference on Applications of Computer Vision (WACV)*: 118-127, 2020.
- **Longguang Wang**, Yulan Guo, Zaiping Lin, Xinpu Deng, Wei An. Learning for Video Super-Resolution through HR Optical Flow Estimation, *Asian Conference on Computer Vision (ACCV)*: 514-529, Perth, Australia, 2018.

### Workshop Papers:

- **Longguang Wang**, Yingqian Wang, Juncheng Li, Shuhang Gu, Radu Timofte, Yulan Guo. NTIRE 2022 Challenge on Stereo Image Super-Resolution: Methods and Results, *IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*: 2022.
- Yingqian Wang, **Longguang Wang**, Jungang Yang, Wei An, Yulan Guo. Flickr1024: A Large-Scale Dataset for Stereo Image Super-Resolution, *IEEE International Conference on Computer Vision Workshops (ICCVW)*, 2019.
- Yingqian Wang, Xinyi Ying, **Longguang Wang**, Jungang Yang, Wei An, Yulan Guo. Symmetric Parallax Attention for Stereo Image Super-Resolution, *IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2021.

## Invited Talks

- **Parallax Attention for Unsupervised Stereo Correspondence Learning**
  - Shenlan College 2020.09
- **Deep Super-Resolution for Single Image and Stereo Image**
  - Techbeat 2021.06
- **Deep Learning for Image Super-Resolution**
  - CAAI Forum 2022.04
  - Sun Yat-sen University 2022.05

## Professional Service

- **Conference Reviewer**: CVPR, ICCV, ECCV, ACM MM, ICPR, ICME
- **Journal Reviewer**: IEEE TPAMI, IEEE TIP, IEEE TMM, IEEE TCSVT, IEEE JSTARS
- **Workshop Organization:**
  - New Trends in Image Restoration and Enhancement workshop and challenges on image and video processing (NTIRE 2022) @ IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2022): Stereo Image Super-Resolution Challenge.

## Honors and Awards

Outstanding Student Award of National University of Defense Technology (Top 0.3%) 2020
Guanghua Scholarship 2020
Outstanding Master Thesis Award of Hunan Province 2019
Guanghua Scholarship 2017