YULUN ZHANG

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CONTACT INFORMATION

427 Richard Hall, 360 Huntington Ave.,
Northeastern University, Boston, MA 02115, USA
Homepage: http://yulunzhang.com

yulun100@gmail.com
Tel: +1-(617)849-0935
Google Scholar

RESEARCH INTERESTS

Machine Learning: deep learning.
Computer Vision: image/video restoration, style transfer

EDUCATION

Northeastern University, Boston, USA — Sep 2017 – Now

Ph.D., Department of ECE, College of Engineering

- Major in Computer Engineering
- Advisor: *Prof.* Yun Raymond Fu
- Overall GPA: 3.92/4.0

Tsinghua University, Beijing, China — Sep 2014 – Jul 2017

M.E., Department of Automation

- Major in Control Engineering
- Advisor: *Prof.* Yongbing Zhang
- Overall GPA: 3.73/4.0, Major GPA: 3.75/4.0

Xidian University, Xi'an, China — Sep 2009 – Jul 2013

B.S., School of Electronic Engineering

- Major in Intelligence Science and Technology
- Overall GPA: 3.36/4.0, Major GPA: 3.63/4.0

RESEARCH EXPERIENCE

SMILE lab, Northeastern University, Boston, USA — Sep 2017 – Now
Research Assistant — Supervisor: *Prof.* Yun Raymond Fu
Projects: Deep learning for image restoration and generation.

VCG, SEAS, Harvard University, Cambridge, USA — May 2020 – Now
Research Fellow — Supervisor: *Prof.* Hanspeter Pfister
Projects: Microscopy image restoration.

Adobe Research, San Jose, USA — Jun 2019 – Aug 2019
Research Intern Mentors: Zhifei Zhang, Stephen DiVerdi, Zhaowen Wang, Jose Echevarria
Projects: Painting super-resolution.

Adobe Research, San Jose, USA — May 2018 – Aug 2018
Research Intern Mentors: Chen Fang, Zhaowen Wang, Yilin Wang, Jimei Yang, Zhe Lin
Projects: Style transfer.

Tsinghua University, China — Mar 2014 – Jul 2017
Research Assistant — Supervisor: *Prof.* Yongbing Zhang
Projects: Image super-resolution and compression artifact removal via sparse/collaborative representation and deep learning.

SIAT, Chinese Academy of Sciences, China — Oct 2016 – Jun 2017
Research Assistant — Supervisor: *Prof.* Yu Qiao
Projects: Generative adversarial networks (GAN) for image restoration/generation.

The University of Sydney, Sydney, Australia — Jan 2016 – Jun 2016
Visiting Student — Supervisor: *Prof.* Dong Xu and Prof. Wen Li
Projects: Research on metric learning with privileged information for visual recognition.

Nanyang Technological University, Singapore — Nov 2015 – Jan 2016
Project Officer — Supervisor: *Prof.* Dong Xu and *Prof.* Li Niu
Projects: Exploiting privileged information from web data for visual recognition.

Xidian University, China — Jun – Aug 2012, Dec 2012 – Jun 2013

Position: Research Assistant Supervisor: *Prof.* Shuyuan Yang
Projects: 1. Learning efficient features for action recognition in video domain. 2. Depth extraction from natural images using optical flow.

PUBLICATIONS *Citations:* ***2040****, h-index:* ***13****, i10-index:* ***13*** *(Google Scholar, Jul 15, 2020)*

- **Preprints**

1. Yiqun Mei, Yuchen Fan, **Yulun Zhang**, Jiahui Yu, Yuqian Zhou, Ding Liu, Yun Fu, Thomas S. Huang, Humphrey Shi, "Pyramid Attention Networks for Image Restoration", *arXiv preprint arXiv:2004.13824*, 2020

- **Journal Papers**

1 TPAMI, 1 TNNLS, 3 TIP, 2 TMM, 1 TSMC

1. **Yulun Zhang**, Yapeng Tian, Yu Kong, Bineng Zhong, and Yun Fu, "Residual Dense Network for Image Restoration", *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**TPAMI**), 2020

2. Qinqin Zhou, Bineng Zhong, Xiangyuan Lan, Gan Sun, **Yulun Zhang**, Baochang Zhang, and Rongrong Ji, "Fine-Grained Spatial Alignment Model for Person Re-Identication with Focal Triplet Loss", *IEEE Transactions on Image Processing* (**TIP**), 2020.

3. Gan Sun, Yang Cong, **Yulun Zhang**, Guoshuai Zhao, and Yun Fu, "Continual Multi-view Task Learning via Deep Matrix Factorization", *IEEE Transactions on Neural Networks and Learning Systems* (**TNNLS**), 2020

4. Xiaole Zhao, **Yulun Zhang**, Tao Zhang, and Xueming Zou, "Channel Splitting Network for Single MR Image Super-Resolution", *IEEE Transactions on Image Processing* (**TIP**), 2019

5. Bineng Zhong, Bing Bai, Jun Li, **Yulun Zhang**, and Yun Fu, "Hierarchical Tracking by Reinforcement Learning based Searching and Coarse-to-fine Verifying", *IEEE Transactions on Image Processing* (**TIP**), 2019.

6. Qinqin Zhou, Bineng Zhong, **Yulun Zhang**, Jun Li, and Yun Fu, "Deep Alignment Network Based Multi-person Tracking with Occlusion and Motion Reasoning", *IEEE Transactions Multimedia* (**TMM**), 2018.

7. Yongbing Zhang, **Yulun Zhang***, Jian Zhang, Dong Xu, Yun Fu, Xiangyang Ji, and Qionghai Dai, "Collaborative Representation Cascade for Single Image Super-Resolution", *IEEE Transactions on Systems, Man, and Cybernetics: Systems* (**TSMC**), 2017.

8. Yongbing Zhang, **Yulun Zhang***, Jian Zhang, and Qionghai Dai, "CCR: Clustering and Collaborative Representation for Fast Single Image Super-Resolution", *IEEE Transactions Multimedia* (**TMM**), vol. 18, no. 3, pp. 405–417, Mar. 2016.

- **Conference Papers**

4 CVPR, 3 ICCV, 3 ECCV, 1 ICLR, 1 AAAI, 1 IJCAI, 1 ACM MM, 1 VCIP

1. **Yulun Zhang**, Zhifei Zhang, Stephen DiVerdi, Zhaowen Wang, Jose Echevarria, and Yun Fu, "Texture Hallucination for Large-Factor Painting Super-Resolution", *European Conference on Computer Vision* (**ECCV**), 2020. (Poster, 27%)

2. Xiaotong Luo, Yuan Xie, **Yulun Zhang**, Yanyun Qu, Cuihua Li, and Yun Fu, "LatticeNet: Towards Lightweight Image Super-resolution with Lattice Block", *European Conference on Computer Vision* (**ECCV**), 2020. (Poster, 27%)

3. Kai Li, **Yulun Zhang**, Kunpeng Li, and Yun Fu, "Adversarial Feature Hallucination Networks for Few-Shot Learning", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2020. (Poster, 22%)

4. Yapeng Tian, **Yulun Zhang**, Yun Fu, and Chenliang Xu, "TDAN: Temporally Deformable Alignment Network for Video Super-Resolution", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2020. (Poster, 22%)

5. Xiaoyu Xiang, Yapeng Tian, **Yulun Zhang**, Yun Fu, Jan Allebach, and Chenliang Xu, "Zooming Slow-Mo: Fast and Accurate One-Stage Space-Time Video Super-Resolution", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2020. (Poster, 22%)

6. Yu Yin, Joseph Robinson, **Yulun Zhang**, and Yun Fu, "Joint Super-Resolution and Alignment of Tiny Faces", *The AAAI Conference on Artificial Intelligence* (**AAAI**), 2020. (Poster, 20.6%)

7. **Yulun Zhang**, Chen Fang, Yilin Wang, Zhaowen Wang, Zhe Lin, Yun Fu, and Jimei Yang, "Multimodal Style Transfer via Graph Cuts", *IEEE International Conference on Computer Vision* (**ICCV**), 2019. (Poster, 25%)

8. Kunpeng Li, **Yulun Zhang**, Kai Li, Yuanyuan Li, and Yun Fu, "Visual Semantic Reasoning for Image-Text Matching", *IEEE International Conference on Computer Vision* (**ICCV**), 2019. (**Oral, 4.3%**)

9. Kunpeng Li, **Yulun Zhang**, Kai Li, Yuanyuan Li, and Yun Fu, "Attention Bridging Network for Knowledge Transfer", *IEEE International Conference on Computer Vision* (**ICCV**), 2019. (Poster, 25%)

10. Qinqin Zhou, Bineng Zhong, Xiangyuan Lan, Gan Sun, **Yulun Zhang**, Mengran Gou, "LRDNN: Local-refining based Deep Neural Network for Person Re-Identification with Attribute Discerning", *International Joint Conference on Artificial Intelligence* (**IJCAI**), 2019. (**Oral, 13.7%**)

11. **Yulun Zhang**, Kunpeng Li, Kai Li, Bineng Zhong, and Yun Fu, "Residual Non-local Attention Networks for Image Restoration", *International Conference on Learning Representations* (**ICLR**), 2019. (Poster, 31%)

12. **Yulun Zhang**, Kunpeng Li, Kai Li, Lichen Wang, Bineng Zhong, and Yun Fu,, "Image Super-Resolution Using Very Deep Residual Channel Attention Networks", *European Conference on Computer Vision* (**ECCV**), 2018. (Poster, 29.4%)

13. **Yulun Zhang**, Yapeng Tian, Yu Kong, Bineng Zhong, and Yun Fu, "Residual Dense Network for Image Super-Resolution", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2018. (**Spotlight, 6.6%**)

14. Kai Li, Zhengming Ding, Kunpeng Li, **Yulun Zhang**, and Yun Fu, "Support Neighbor Loss for Person Re-Identification", *ACM International Conference on Multimedia* (**ACM MM**), 2018. (Poster, 27 %)

15. **Yulun Zhang**, Yongbing Zhang, Jian Zhang, Haoqian Wang, and Qionghai Dai, "Adaptive Local Nonparametric Regression for Fast Single Image Super-Resolution", *IEEE International Conference on Visual Communications and Image Processing* (**VCIP**), 2015. (**Best Student Paper Award**)

- **Workshop Papers**

1 CVPR Workshop, 1 ICCV Workshop

1. Can Qin, Lichen Wang, **Yulun Zhang**, and Yun Fu, "Generatively Inferential Co-Training for Unsupervised Domain Adaptation", *IEEE ICCV Real-World Recognition from Low-Quality Images and Videos (RLQ) workshop* (**ICCV Workshop**), 2019. (**Best Paper Award**)

2. Radu Timofte, ..., **Yulun Zhang**, ..., et al., "NTIRE 2017 Challenge on Single Image Super-Resolution: Methods and Results", *IEEE CVPR New Trends in Image Restoration and Enhancement workshop and challenge on image super-resolution* (**CVPR Workshop**), 2017. (Our team ranked 2^{nd} place.)

Honors and Awards

- **Best Paper Award**, RLQ workshop, IEEE ICCV, 2019
- ICCV Travel Award, 2019
- ICLR Travel Award, 2019
- PhD Network Travel Grant, Northeastern University, USA, 2018, 2019
- Dean's Fellowship in Northeastern University, USA, 2017
- Shenzhen Universiade International Scholarship, China, 2017
- Excellent Graduate of Beijing, China, 2017
- Excellent Graduate of Department of Automation, Tsinghua University, 2017
- Excellent Master Thesis of Tsinghua University, 2017
- National Scholarship (Ministry of Education, China, Top 2%), 2016
- **Best Student Paper Award** at IEEE **VCIP**, 2015
- Jingzhi Research Award in Tsinghua University (Top 5%), 2015
- Second Prize Scholarship of Xidian University, 2011, 2012
- Third Prize Scholarship of Xidian University, 2010

Academic Service

Conference Reviewer

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- Neural Information Processing Systems (NeurIPS)
- AAAI Conference on Artificial Intelligence (AAAI)
- International Joint Conferences on Artificial Intelligence (IJCAI)
- International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)

Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Computational Imaging (TCI)
- IEEE Transactions on Medical Imaging (TMI)
- Computer Vision and Image Understanding (CVIU)

Teaching

- Part-Time Instructor, Data Visualization, Northeastern University Spring 2020
- Teaching Assistant, Computer Vision, Northeastern University Fall 2018
- Teaching Assistant, Modern Signal Processing, Tsinghua University Fall 2015

Skills

- Programming: Matlab, Python, Lua, C/C++, LaTeX, Visual Studio, OpenCV, Linux.
- Deep learning tools: PyTorch, TensorFlow, Caffe, Torch, Keras, MatConvNet.