YULUN ZHANG

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CONTACT INFORMATION

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RESEARCH INTERESTS

Machine Learning: deep learning.
Computer Vision: image/video restoration (e.g., super-resolution, denoising, deblurring), synthesis (e.g., style transfer, texture transfer), biomedical image analysis.

EDUCATION

Northeastern University, Boston, USA — Sep 2017 – Now

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

- Major in Computer Engineering
- Advisor: *Prof.* Yun Fu
- Committee: *Prof.* Yun Fu, *Prof.* Octavia Camps, *Prof.* Hanspeter Pfister
- 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 Fu
Projects: Deep learning for image restoration and generation.

VCG, SEAS, Harvard University, Cambridge, USA — May 2020 – Aug 2020
Research Fellow — Supervisor: *Prof.* Hanspeter Pfister
Projects: Biomedical image restoration and analysis.

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: Image 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.

Teaching

Instructor

- EECE5642 Data Visualization, Northeastern University, USA — Spring 2020
  Work as an independent instructor throughout the whole semester

Teaching Assistant

- DS5500 Information Visualization: Applications in Data Science, Northeastern University, USA — Spring 2021
  Instructor: *Prof.* David Brady
- EECE5639 Computer Vision, Northeastern University, USA — Fall 2018
  Instructor: *Prof.* Octavia Camps
- Modern Signal Processing, Tsinghua University, China — Fall 2015
  Instructor: *Prof.* Yongbing Zhang

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
- **Second Place Award**, NTIRE workshop, IEEE CVPR, 2017
- National Scholarship (Ministry of Education, China, Top 2%), 2016
- **Best Student Paper Award**, 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

Publications

*Citations: **2858**, h-index: **13**, i10-index: **15** (Google Scholar, Dec 6, 2020)*

- **Journal Papers**
  1 TPAMI, 2 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. (IF: 17.861, citations: 82+)

2. Kai Li, Zhengming Ding, Kunpeng Li, **Yulun Zhang**, and Yun Fu, "Vehicle and Person Re-Identification with Support Neighbor Loss", *IEEE Transactions on Neural Networks and Learning Systems* (**TNNLS**), 2020. (IF: 8.793)

3. 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. (IF: 9.340)

4. 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. (IF: 8.793)

5. 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. (IF: 9.340)

6. 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. (IF: 9.340)

7. 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. (IF: 6.051)

8. 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. (IF: 9.309)

9. Yongbing Zhang, **Yulun Zhang***, Jian Zhang, and Qionghai Dai, "CCR: Clustering and Collaborative Representation for Fast Single Image Super-Resolution", *IEEE Transactions Multimedia* (**TMM**), 2016. (IF: 6.051, citations: 52+)

- **Conference Papers**
  4 CVPR, 3 ICCV, 3 ECCV, 1 ICLR, 1 NeurIPS, 1 AAAI, 1 IJCAI, 1 ACM MM, 1 VCIP

1. Yuchen Fan, Jiahui Yu, Yiqun Mei, **Yulun Zhang**, Yun Fu, Ding Liu, Thomas S Huang, "Neural Sparse Representation for Image Restoration", *Conference on Neural Information Processing Systems* (**NeurIPS**), 2020.

2. **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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. **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.

9. 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%**)

10. 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.

11. 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%**)

12. **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. (Citations: 102+)

13. **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. (Citations: 775+)

14. **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%**, citations: 907+)

15. 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.

16. **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 ICME 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. (**Second Place Award**)

- **Patents**

1. Zhifei Zhang, **Yulun Zhang**, Stephen DiVerdi, Zhaowen Wang, and Jose Echevarria, "Texture Hallucination for Large-Scale Painting Super-Resolution", Filed by Adobe Systems Incorporated, 2020

2. Chen Fang, Zhe Lin, Zhaowen Wang, **Yulun Zhang**, Yilin Wang, and Jimei Yang, "Transferring Image Style to Content of a Digital Image", Filed by Adobe Systems Incorporated, 2019

3. Chen Fang, Zhe Lin, Zhaowen Wang, **Yulun Zhang**, Yilin Wang, and Jimei Yang, "Hierarchical Scale Matching and Patch Estimation for Image Style Transfer with Arbitrary Resolution", Filed by Adobe Systems Incorporated, 2019

Academic Service

Senior Program Committee
- International Joint Conferences on Artificial Intelligence (IJCAI), 2021

Program Committee or Reviewer
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- International Conference on Learning Representations (ICLR)
- 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)
- Winter Conference on Applications of Computer Vision (WACV)

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)
- Neurocomputing (NEUCOM)
- Signal Processing (SIGPRO)
- Journal of Electronic Imaging (JEI)
- IEEE/CAA Journal of Automatica Sinica (JAS)
- The Visual Computer (TVCJ)
- IEEE Signal Processing Letters (SPL)
- Multimedia Systems (MMSJ)

Invited Talks

- "Learning for image restoration and synthesis",
  Tsinghua University, Sep 2020
  Xidian University, Jul 2020
  Rochester Institute of Technology, May 2020
- "Residual dense network for image super-resolution",
  IEEE Conference on Computer Vision and Pattern Recognition, Salt Lake City, Utah, Jun 2018
- "Adaptive local nonparametric regression for fast single image super-resolution",
  IEEE International Conference on Visual Communications and Image Processing, Singapore, Dec 2015
- "Single image super-resolution via iterative collaborative representation",
  Pacific-Rim Conference on Multimedia, Gwangju, Korea, Sep 2015
- "Single depth image super resolution via a dual sparsity model",
  IEEE International Conference on Multimedia and Expo, Torino, Italy, Jun 2015

Skills

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