Yulun ZHANG Jul 19, 2017

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RESEARCH INTERESTS

Machine Learning: sparse/collaborative representation, dictionary learning, deep learning. Computer Vision: image processing (image restoration/generation, style transfer) and visual recognition (face recognition/verification).

EDUCATION

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

The University of Sydney, Sydney, Australia

Jan 2016 - Jul 2016

Visiting Student, School of Electrical and Information Engineering

- Advisor: *Prof.* Dong Xu and Dr. Wen Li
- Research on metric learning with privileged information for visual recognition.

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

Research Assistant

Oct 2016 – Jun 2017

Multimedia Research Center, SIAT, Chinese Academy of Sciences, China

Supervisor: Prof. Yu Qiao

Projects: Generative adversarial networks (GAN) for image restoration/generation.

Project Officer

Nov 2015 – Jan 2016

School of Computer Engineering, Nanyang Technological University, Singapore

Supervisor: Dr. Li Niu and *Prof.* Dong Xu

Projects: Exploiting privileged information from web data for visual recognition.

Research Assistant

Mar 2014 – Jul 2017

Department of Automation, Tsinghua University, China

Supervisor: Prof. Yongbing Zhang

Projects: Image super-resolution and compression artifact removal via sparse/collaborative representation and deep learning.

Research Assistant

Jun – Aug 2012, Dec 2012 – Jun 2013

School of Electronic Engineering, Xidian University, China

Supervisor: Prof. Shuyuan Yang

Projects: 1. Learning efficient features for action recognition in video domain. 2. Depth extraction from natural images using optical flow.

Preprints

(* means corresponding author and *Prof.* Yongbing Zhang is my master supervisor.)

- 1. Yongbing Zhang, <u>Yulun Zhang</u>*, et al., "Self-enhanced Adaptive Local Nonparametric Regression for Image Super-Resolution and Compression Artifact Removal," *submitted to IEEE Trans. Image Process.* (**TIP**)
- 2. Yapeng Tian, Fei Zhou, Xuesen Shang, Wenming Yang, Yulun Zhang, et al., "Local and Nonlocal Graph Laplacian Regularization for Single Image Super-Resolution with Deep Network Enhancement," submitted to IEEE Trans. Image Process. (TIP)

JOURNAL PUBLICATIONS

(* means corresponding author and *Prof.* Yongbing Zhang is my master supervisor.)

- 1. Yongbing Zhang, <u>Yulun Zhang</u>*, Jian Zhang, and Qionghai Dai, "CCR: Clustering and Collaborative Representation for Fast Single Image Super-Resolution," *IEEE Trans. Multimedia* (**TMM**), vol. 18, no. 3, pp. 405–417, Mar. 2016.
- 2. Yongbing Zhang, Yulun Zhang*, Jian Zhang, Dong Xu, Yun Fu, Xiangyang Ji, and Qionghai Dai, "Collaborative Representation Cascade for Single Image Super-Resolution," *IEEE Trans. Syst.*, Man, Cybern., Syst. (TSMC), 2017.

Conference Publications

- 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, 1 out of over 313 submissions.)
- Yulun Zhang, Kaiyu Gu, Yongbing Zhang, Jian Zhang, and Qionghai Dai, "Image Super-Resolution Based on Dictionary Learning and Anchored Neighborhood Regression with Mutual Incoherence," *IEEE International Conference on Image Processing* (ICIP), 2015.
- 3. <u>Yulun Zhang</u>, Yongbing Zhang, Jian Zhang, Haoqian Wang, and Qionghai Dai, "Single Image Super-Resolution via Iterative Collaborative Representation," *Pacific-Rim Conference on Multimedia* (**PCM**), 2015.
- 4. Yulun Zhang, Yongbing Zhang, and Qionghai Dai, "Single Depth Image Super-Resolution via A Dual Sparsity Model," *IEEE International Conference on Multimedia and Expo* (ICME) Workshop on Hot Topics in 3D (Hot3D), 2015.
- Tao Shen, <u>Yulun Zhang</u>, Yongbing Zhang, Xingzheng Wang, Haoqian Wang, and Qionghai Dai, "Decompressed Video Enhancement via Accurate Regression Prior," *IEEE International Conference on Visual Communications and Image Processing* (VCIP), 2016.
- Yihui Feng, Yongbing Zhang, Yulun Zhang, Tao Shen, and Qionghai Dai, "Single Image Super-Resolution via Projective Dictionary Learning with Anchored Neighborhood Regression," *IEEE International Conference on Visual Communications and Image* Processing (VCIP), 2016.
- 7. 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 NTIRE), 2017. (Our team ranked 2nd place.)

Honors and Awards

• Shenzhen Universiade International Scholarship,	2017
• Excellent Graduate of Beijing,	2017
• Excellent Graduate in 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
• Advanced Individual of Social Work,	2011
• Third Prize Scholarship of Xidian University,	2010
• Advanced Individual of Civilized Dormitory Contribution,	2010
• Excellent Student in Xidian University (Top 5%),	2009

Professional Activities

Journal Reviewer

- IEEE Trans. Image Process. (TIP) (since Jul 2016)
- IEEE Trans. Circuits Syst. Video Technol. (TCSVT) (since May 2016)

Oral Presentations or Posters at Conferences

- IEEE Int. Conf. on Visual Communications and Image Processing, Singapore Dec 2015
- IEEE International Conference on Image Processing, Quebec, Canada
- Pacific-Rim Conference on Multimedia, Gwangju, Korea
- Sep 2015
- IEEE International Conference on Multimedia and Expo, Torino, Italy

Jun 2015

Sep 2015

Memberships

- Student Member, IEEE
- Student Member, CCF

TEACHING

• Teaching Assistant, Modern Signal Processing, Tsinghua University

Fall 2015

SKILLS

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