Haochen Zhang

Email: zhc12345@mail.ustc.edu.cn

Overview

I am a master student in Department of Electronic Engineering and Information Science at University of Science and Technology of China (USTC). I have been in Computer Vision research for three years with my mentor, Prof. Dong Liu, and now I mainly focus on low-level vision task, specialized in super-resolution.

Education

2017.09 - 2020.06 **University of Science and Technology of China** Hefei, China
Master of Information and Communication Engineering GPA:4.01/4.3 (3.86/4)

2013.08 - 2017.06 **University of Science and Technology of China** Hefei, China
Bachelor of Electronic Information Engineering GPA:3.73/4.3 (3.66/4)

Projects

Classification-Distortion-Perception Tradeoff 2019.03 - Now

- Analyzed the relationship among signal fidelity, perceptual naturalness and semantic quality three metrics in image restoration task. When the third metric was defined as the classification accuracy of a pre-trained classifier, we proofed that there was a tradeoff among them *theoretically* and *experimentally* and this work has been accepted by NeurIPS2019. Now, we are focusing on CDP tradeoff in a more general situation.

Video Super-Resolution Method Tailored for Action Recognition 2017.09 - 2019.03

- Investigated the VSR problem for facilitating video analytics tasks. Tailored for two-stream action recognition networks, we proposed SR methods for the spatial and temporal recognition respectively. On the one hand, we proposed an optical-flow guided weighted MSE to emphasize the reconstruction of moving objects. On the other hand, we proposed a siamese network training strategy in order to guarantee the temporal continuity between consecutive frames. This work has been accepted by ICCV2019.

Text Image Super-Resolution Method Tailored for OCR 2016.09 - 2017.06

- Developed text image SR method to help optical character recognition (OCR). Based on an assumption that OCR accuracy depended on high contrast edges, we proposed a loss function for SR training and conducted model combination to further improve the performance. Besides, we also proposed an image padding method to refine the image boundaries during SR. This work has been published in VCIP2019.

Publications

Dong Liu, **Haochen Zhang**, Zhiwei Xiong. On the classification-distortion-perception tradeoff. In *NeurIPS*. Vancouver, Canada. Dec. 8-14, 2019.

Haochen Zhang, Dong Liu, Zhiwei Xiong. Two-stream action recognition-oriented video super-resolution. In *ICCV*. Seoul, Korea. Oct. 27-Nov. 2, 2019.

Haochen Zhang, Dong Liu, Zhiwei Xiong. CNN-based text image super-resolution tailored for OCR. In *VCIP*. St. Petersburg, FL, USA. Dec. 10-13, 2017.

Skills

Language	TOEFL: R29 L25 S20 W21	GRE: V161 Q169 AW3
Computer	Coding: C, MATLAB, Python	Deep learning: Caffe, TensorFlow, PyTorch

Phone: (+86) 152-5609-1078 Address: Room 1115, West Tower of Twins Buildings, West Campus of USTC, Hefei, Anhui, China.