Haochen Zhang

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Overview

I am a master student in MOE-Microsoft Key Lab of Multimedia Computing and Communicating and my advisor is Dr. Dong Liu. My current interest is image/video restoration, especially serving for classification. I am looking for a Ph.D. position in CS or EE department to pursue further study in CV or ML field.

Education

2017.09 - 2020.06 **University of Science and Technology of China** Hefei, China
Master in 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 in Electronic Information Engineering GPA:3.73/4.3 (3.66/4)-Top15%

Projects

Classification-Distortion-Perception Tradeoff 2019.03 - Now

- Analyzed the relationship among signal fidelity, perceptual naturalness and semantic quality in the image restoration task. Demonstrated a tradeoff among the three metrics *theoretically* and *experimentally* with the semantic quality defined as the classification accuracy of a pre-trained classifier. This work has been accepted by NeurIPS2019. Now, we are extending it to 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 developed 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 developed an image padding method to refine the image boundaries during SR. This work has been published in VCIP2019.

Publications

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

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. CNN-based text image super-resolution tailored for OCR. In *VCIP*. St. Petersburg, FL, USA. Dec. 10-13, 2017. (* denotes my advisor.)

Skills

Standardized Tests	TOEFL: R30 L25 S20 W22	GRE: V161 Q169 AW3
Computer Skills	C, MATLAB, Python	Caffe, TensorFlow, PyTorch

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