

# Haochen Zhang

Email: zhc12345@mail.ustc.edu.cn

Phone: (+86) 152-5609-1078

## Target

A Ph.D. position in CS / EE department, specifically in Computer Vision and Machine Learning.

## Education

- |                   |   |                              |
|-------------------|---|------------------------------|
| 2017.09 - 2020.06 | <b>University of Science and Technology of China</b>              | Hefei, China                 |
|                   | <i>Master in Electronic Engineering, Image / video processing</i> | GPA:4.01/4.3 (3.86/4)        |
| 2013.08 - 2017.06 | <b>University of Science and Technology of China</b>              | Hefei, China                 |
|                   | <i>Bachelor in Electronic Engineering</i>                         | GPA:3.73/4.3 (3.66/4)-Top15% |

## Experience

### 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

- |                           |                        |                            |
|---------------------------|------------------------|----------------------------|
| <b>Standardized Tests</b> | TOEFL: R30 L25 S20 W22 | GRE: V161 Q169 AW3         |
| <b>Computer Skills</b>    | C, MATLAB, Python      | Caffe, TensorFlow, PyTorch |

Address: Room 1115, West Tower of Twins Buildings, West Campus of USTC, Hefei, Anhui, China.