Haoming Cai

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EDUCATION

The Chinese University of Hong Kong, Shenzhen. Sep 2017 - May 2022

Computer Science and Engineering, Bachelor School of Data Science Shenzhen

RESEARCH INTERESTS

Image Restoration, Deep Learning, Image Quality Assessment, Network Interpretation

INTERNSHIP EXPERIENCE

Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences May 2020 - May 2021

- Supervised by *Prof. Chao Dong* and work closely with *Ph.D. Jinjin Gu*. More in *X-Pixel Group*
- Interactive Multi-Dimension Modulation with Dynamic Control for Image Restoration
- Interpretability of Deep Learning in Image Processing field

PAPER

■ **PIPAL : a Large-Scale Image Quality Assessment Dataset for Perceptual Image Restoration.** Sep 2019 - Sep 2020

- Jinjin Gu, **Haoming Cai**, Haoyu Chen, Xiaoxing Ye, Jimmy S. Ren, Chao Dong

- European Conference on Computer Vision (**ECCV**), 2020

RESEARCH PROJECT

■ **PROJECT : Perceptual Image Restoration:** Sep 2019 - Present

- **Keywords**: IQA dataset, distortion of GAN type, ELO and Swiss rating system

- We contributed a novel perceptual similarity dataset called PIPAL to study the new distortions brought by GAN technology. With reliable and probability-based human rating of image quality scores, our research indicates the inconsistency between high numerical performance and perceptual performance, especially on the GAN type distortion. By training on PIPAL, improved IQA has great potential to guide existing SR algorithms to reconstruct the more visual-friendly high-quality images.

RESEARCH ACTIVITIES

NTIRE 2021 Perceptual IQA Challenge Jan 2021 - Apr 2021

Workshop co-organizer

- We built an large perceptual IQA dataset for participants to compete by their IQA methods. I took part in organizing track, building validation server and workshop paper writings. More in NTIRE Perceptual IQA Challenge.

MANUSCRIPTS on ArXiv

■ **Image Quality Assessment for Perceptual Image Restoration: A New Dataset, Benchmark and Metric**

- Jinjin Gu, ***Haoming Cai***, Haoyu Chen, Xiaoxing Ye, Jimmy S. Ren, Chao Dong

SKILLS

- **Programming Language** : Python, MATLAB, C/C++, LaTex, Markdown

- **Deep Learning Package** : PyTorch, Numpy, OpenCV, Caffe