

# 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 Dr. [Jinjin Gu](#). More in [X-Pixel Group](#)
- Contribute a novel **perceptual image similarity dataset** called PIPAL to study the new distortion brought by Generative Adversarial Network technology. Take charge of constructing dataset, coding work, network training, and part writings of the final paper (All tables and figures) as *the second author*.
- Hold a challenge (**NTIRE2021 IQA Challenge**) in the CVPR2021 workshop as *main co-organizer*. Take charge of constructing a dataset with various algorithms, designing the rules for participants, and organizing the daily running for the server, and half writings of the final workshop paper (report).
- Propose a novel image restoration network, which could allow a user to continually **adjust the restoration effect based on his/her flavor**. Take charge of designing the network, conducting experiments, and the paper's complete writings as *the co-first author*.

## 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
- **Image Quality Assessment for Perceptual Image Restoration: A New Dataset, Benchmark and Metric** Sep 2019 - Sep 2020
  - Jinjin Gu, *Haoming Cai*, Haoyu Chen, Xiaoxing Ye, Jimmy S. Ren, Chao Dong
  - Under review in International Journal of Computer Vision (IJCV)
- **Toward Interactive Modulation for Photo-Realistic Image Restoration** Sep 2020 - Jan 2021
  - *Haoming Cai*<sup>\*</sup>, Jingwen He<sup>\*</sup>, Yu Qiao, Chao Dong
  - IEEE Conference on Computer Vision and Pattern Recognition (CVPR) NTIRE Workshop, 2021
- **NTIRE 2021 Challenge on Perceptual Image Quality Assessment** Dec 2020 - Apr 2021
  - Jinjin Gu, *Haoming Cai*, Chao Dong, Jimmy S. Ren, Yu Qiao, Shuhang Gu, Radu Timofte, et al.
  - IEEE Conference on Computer Vision and Pattern Recognition (CVPR) NTIRE Workshop, 2021

## RESEARCH SERVICE

- **Workshop co-organizer, NTIRE 2021 Perceptual IQA Challenge.** Jan 2021 - Apr 2021

We built an large perceptual image quality assessment (IQA) dataset for participants to compete by their IQA methods. The challenge had **270 registered participants**, and **13 participating teams** introduced algorithms that well-improved upon the existing state-of-the-art methods in perceptual IQA. More in [NTIRE Perceptual IQA Challenge](#).
- **Reviewer, CVPR 2021 Workshop.**

## SOFTWARE DEVELOPMENT

- **PROJECT : AI-Based Anime Image Toolbox iOS Application** Feb 2020 - May 2020
  - **Keywords:** Swift, iOS, Image Processing, Toolbox
  - We built an AI-based image toolbox providing reverse anime image search, anime image tag recognition, photo cartoonization, and a human face to anime face. Take charge of front-end designing and coding. With the powerful animation effect supported by the Swift language, I built a series of beautiful interaction effects. Find more in [ReveR](#).

## SKILLS

- **Programming Language** : Python(PyTorch, Numpy, OpenCV, Caffe), MATLAB, Swift, LaTeX, Markdown