CHENGZHI CAO

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EDUCATION

University of Science and Technology of China — **Project 985 & 211, Anhui, China**
School of Information Science and Technology — 2021.9 - Present
South China University of Technology — **Project 985 & 211, Guangdong, China**
Bachelor of Technology in Electrical Engineering and Automation — 2017.9 - 2021.6
• Overall GPA: 3.85/4.0 Rank: 6th/261

HONORS

- **National Scholarship (top1%, highest scholarship from Ministry of Education of China)** **2018**
- **National Scholarship (top1%, highest scholarship from Ministry of Education of China)** **2019**
- **National Scholarship (top1%, highest scholarship from Ministry of Education of China)** **2020**
- First Prize in RoboMaster University League 2020

RESEARCH INTERESTS

Video Restoration (deblurring; deraining and super-resolution), bio-inspired Intelligence (event camera)

PUBLICATIONS

[1] Event-driven Video Deblurring via Spatio-Temporal Relation-Aware Network
Chenzhi Cao, Xueyang Fu*, Yurui Zhu, Gege Shi, Zheng-jun Zha
IJCAI (Long Oral paper, Acceptance Rate<3.75%). Apr. 2022 [Paper] [Code]

[2] Single Image Shadow Detection via Complementary Mechanism
Yurui Zhu, Xueyang Fu*, **Chengzhi Cao**, Xi Wang, Qibin Sun, Zheng-jun Zha
Proceedings of the 30th ACM International Conference on Multimedia (ACM MM). Jun. 2022 [Paper][Code]

[3] Event-guided Video Restoration with Spiking-Convolutional Architecture
Chenzhi Cao, Xueyang Fu*, Yurui Zhu, Zhijing Sun, Zheng-jun Zha
Submit to IEEE Transactions on Neural Networks and Learning Systems (Under Review), Sep. 2022

[4] Event-guided Video Super-resolution via Stereo Graph Modeling
Xueyang Fu, **Chengzhi Cao**, Zheng-jun Zha
Submit to IEEE Transactions on Image Processing (Under Review), Jun. 2022

RESEARCH EXPERIENCE

Bio-inspired Video Restoration With Guidance of Events — University of Science and Technology of China
Sep. 2021 - Present
Advisors: **Prof.Xueyang Fu and Zhengjun Zha**

- Propose a spatio-temporal relation-aware network for event-driven video deblurring, and achieve better performance through fusing features of frames and events properly.
- Propose a spiking neural temporal memory module by capturing long-term relations of event sequences.
- Extracts the spatial correlation between frames and events to exploit the complementary information from them.
- Extensive experiments show that our method achieves the SOTA performance on banchmark of GoPro and HQF.

Low-quality Video Detection and Filtering — Tencent, Shenzhen
March. 2021 - July. 2021
Advisors: **Prof.Kwok Wai Hung and Simon Lui**

- Design a multi-scale structure to take advantage of inter-scale correlation for video super-resolution in QQ Music, optimize it by removing unnecessary modules to simplify the network architecture.
- Smoke Detection. Identify the key points of multiple faces, and use them to locate the user's mouth; calculate the matching parameters between the cigarette and mouth. This project is now under implementation.
- **Patent Application Number:** 2021111598150, 2021109153727, 2021107976749

SKILLS

Programming: Python (Pytorch, Opencv), LATEX, Matlab, Microsoft Office

English: GRE (V158+Q170+AW3.5)