Zhihong Zhang

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Education

Tsinghua University, Department of Automation — *Beijing, China*
PhD student in Control Science and Engineering — *2019 - 2024*

Xidian University, School of Electronics Engineering — *Xi'an, China*
Bachelor of Electronics and Information Engineering — *2015 - 2019*

Research Interests

Computational Imaging: Combine optical imaging systems and computer vision algorithms (optimization, deep learning, etc.) to bridge the gap between image acquisition, image processing, and image understanding, and realize a performance boost compared with optics-only or algorithm-only methods. Specifically, I focus on snapshot compressive imaging, coded exposure imaging, low-light imaging, and relevant low-level vision tasks including deblurring, denoising, etc.

Publications

Research Articles (†Equal contributions)

[1] **Zhihong Zhang**, Runzhao Yang, Yuxiao Cheng, Jinli Suo, and Qionghai Dai. Lightweight High-Speed Photography Built on Coded Exposure and Implicit Neural Representation of Videos. ***International Journal of Computer Vision*** (2024).

[2] **Zhihong Zhang†**, Siming Zheng†, Jinli Suo, Xin Yuan, Min Qiu, Guohai Situ, David J. Brady and Qionghai Dai. A Decade Review of Video Compressive Sensing: Roadmap to Practical Applications. ***Engineering*** (2024).

[3] **Zhihong Zhang**, Yuxiao Cheng, Liheng Bian, Jinli Suo, and Qionghai Dai. INFWIDE: Image and Feature Space Wiener Deconvolution Network for Non-blind Image Deblurring in Low-Light Conditions. ***IEEE Transactions on Image Processing*** (2023).

[4] **Zhihong Zhang†**, Bo Zhang†, Xin Yuan†, Siming Zheng, Xiongfei Su, Jinli Suo, David Brady, and Qionghai Dai. From Compressive Sampling to Compressive Tasking: Retrieving Semantics in Compressed Domain with Low Bandwidth. ***PhotoniX*** (2022).

[5] **Zhihong Zhang**, Kaiming Dong, Jinli Suo, and Qionghai Dai. Deep coded exposure: End-to-end co-optimization of flutter shutter and deblurring processing for general motion blur removal. ***Photonics Research*** (2023).

[6] **Zhihong Zhang†**, Chao Deng†, Yang Liu, Xin Yuan, Jinli Suo, and Qionghai Dai. Ten-Mega-Pixel Snapshot Compressive Imaging with A Hybrid Coded Aperture. ***Photonics Research*** (2021).

[7] **Zhihong Zhang**, Jinli Suo, and Qionghai Dai. Denoising of event-based sensors with deep neural networks. ***Photonics Asia*** (2021).

[8] Weihang Zhang, **Zhihong Zhang**, Liheng Bian, Haoqian Wang, Jinli Suo, and Qionghai Dai. High axial resolution single molecule localization under dense excitation with a multi-channel deep U-Net. ***Optics Letters*** (2021).

[9] Yuxiao Cheng, Runzhao Yang, **Zhihong Zhang**, Jinli Suo, and Qionghai Dai. A Mutually Boosting Dual Sensor Computational Camera for High Quality Dark Videography. ***Information Fusion*** (2023).

[10] Bo Zhang†, Xin Yuan†, Chao Deng, **Zhihong Zhang**, Jinli Suo, and Qionghai Dai. End-to-end snapshot compressed super-resolution imaging with deep optics. ***Optica*** (2022).

[11] Runzhao Yang, Yinda Chen, **Zhihong Zhang**, Che Liu, Zongren Li, Kunlun He, Zhiwei Xiong, Jinli Suo, and Qionghai Dai. UniCompress: Enhancing Multi-Data Medical Image Compression with Knowledge Distillation. (Under review) (2021).

[12] Runzhao Yang, Xiaolong Wu, **Zhihong Zhang**, Fabian Zhang, Tingxiong Xiao, Zongren Li, Kunlun He, and Jinli Suo. DVI: A Derivative-based Vision Network for INR. (Under review) (2024).

[13] Bo Zhang, Yuchen Guo, Runzhao Yang, **Zhihong Zhang**, Jiayi Xie, Jinli Suo, and Qionghai Dai. DarkVision: A Benchmark for Low-light Image/Video Perception. (Under review) (2023).

Honors and Awards

Honors: Outstanding Bachelor's Thesis of Xidian University (2019), Outstanding Graduate of Xidian University (2019), Outstanding Student of Xidian University (2016, 2017 & 2018)

Scholarships: Second-class Scholarship of Tsinghua University(2021, 2022 & 2023), National Scholarship (2017), National Endeavor Scholarship (2016 & 2018), First-class Scholarship for Freshmen (2015).

Competitions: Second Prize in the 15-th "Challenge Cup" Technological Innovation Competition (2017), Gold Award and Best Popularity Award in the 3-rd China College Students' "Internet +" Innovation and Entrepreneurship Competition (top 5, 2017), First Prize in Shaanxi Province "FLTRP Cup" English Reading Contest (top 10, 2017)

Academic Service

Reviewer: IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), Photonics Research (PR), Optics Express (OE), Optics Letters (OL), The Journal of the Optical Society of America A (JOSA A).