

Chengxu LIU

Ph.D. Student | Computer Vision

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I am a 3rd-year Ph.D. student at Xi'an Jiaotong University (XJTU) in China, My advisor is Prof. [Xueming Qian](#). I worked as a research intern at the Multimedia Search and Mining (MSM) group of Microsoft Research Asia (MSRA) from Apr. 2021 to Apr. 2022, supervised by Dr. [Huan Yang](#) and Dr. [Jianlong Fu](#). I worked as a research intern in the Invictus Sense (IS) group of MEGVII Research from Dec. 2022, supervised by Dr. [Shuai Li](#) and Dr. [Yuzhi Wang](#). I received the B.E. degree from XJTU in 2019. I'm interested in image/video restoration, low-quality/degraded detection, and fine-grained recognition.

🎓 EDUCATION

MEGVII Research, Beijing, China <i>Research Intern in Invictus Sense Group</i>	Dec 2022 – Present <i>Advisor : Dr. Shuai Li and Dr. Yuzhi Wang</i>
Xi'an Jiaotong University, Xi'an, China <i>Master and Ph.D. Student in Information and Communication Engineering</i>	Aug 2019 – Aug 2021 – Present <i>Advisor : Prof. Xueming Qian</i>
Microsoft Research Asia, Beijing, China <i>Research Intern in Multimedia Searching and Mining Group</i>	Apr 2021 – Apr 2022 <i>Advisor : Dr. Huan Yang and Dr. Jianlong Fu</i>
Xi'an Jiaotong University, Xi'an, China <i>Bachelor of Engineering in Information Engineering</i>	Aug 2015 – Jun 2019

📄 RESEARCH EXPERIENCES

Present April 2021	Image/video restoration > Video super-resolution, video frame interpolation, image enhancement, UDC restoration
Present May 2022	Low-quality/degraded detection > Small object detection, rotated object detection, low-quality object detection
April 2021 September 2019	Fine-grained recognition > Fine-grained food recognition, product recognition

🗨 PUBLICATIONS

- > [1] [Chengxu Liu](#), Huan Yang, Jianlong Fu, Xueming Qian, "Learning Trajectory-Aware Transformer for Video Super-Resolution[C]". **IEEE/CVF Conference on Computer Vision and Pattern Recognition (Oral presentation)**, 2022 : 5687-5696, doi : 10.1109/CVPR52688.2022.00560.
- > [2] [Chengxu Liu](#), Xuan Wang, Shuai Li, Yuzhi Wang, Xueming Qian "FSI : Frequency and Spatial Interactive Learning for Image Restoration in Under-Display Cameras[C]". **International Conference on Computer Vision**, 2023.
- > [3] [Chengxu Liu](#), Huan Yang, Jianlong Fu, Xueming Qian, "4D LUT : Learnable Context-Aware 4D Lookup Table for Image Enhancement[J]". **IEEE Transactions on Image Processing**, vol. 32, pp. 4742-4756, 2023, doi : 10.1109/TIP.2023.3290849.
- > [4] [Chengxu Liu](#), Huan Yang, Jianlong Fu, Xueming Qian, "TTVFI : Learning Trajectory-Aware Transformer for Video Frame Interpolation[J]". **IEEE Transactions on Image Processing**, vol. 32, pp. 4728-4741, 2023, doi : 10.1109/TIP.2023.3302990.
- > [5] [Chengxu Liu](#), Zongyang Da, Yuanzhi Liang, Yao Xue, Guoshuai Zhao, Xueming Qian, "Product Recognition for Unmanned Vending Machines[J]". **IEEE Transactions on Neural Networks and Learning Systems**, 2022, doi : 10.1109/TNNLS.2022.3184075.
- > [6] [Chengxu Liu](#), Zongyang Da, Yuanzhi Liang, Yao Xue, Xueming Qian, "Split-Check : Boosting Product Recognition via Instance-level Retrieval[J]". **IEEE Transactions on Industrial Informatics**, 2023, doi:10.1109/TII.2023.3308771.
- > [7] [Chengxu Liu](#), Yaru Zhang, Yao Xue, Xueming Qian, "AJENet : Adaptive Joints Enhancement Network for Abnormal Behavior Detection in Office Scenario[J]". **IEEE Transactions on Circuits and Systems for Video Technology**, 2023, doi : 10.1109/TCSVT.2023.3295432.
- > [8] [Chengxu Liu](#), Yuanzhi Liang, Yao Xue, Xueming Qian, Jianlong Fu, "Food and ingredient joint learning for fine-grained recognition[J]". **IEEE Transactions on Circuits and Systems for Video Technology**, vol. 31, no. 6, pp. 2480-2493, June 2021, doi : 10.1109/TCSVT.2020.3020079.
- > [9] Changlong Gao*, [Chengxu Liu](#)*, Yujie Dun, Xueming Qian "CSDA : Learning Category-Scale Joint Feature for Domain Adaptive Object Detection[C]". **International Conference on Computer Vision**, 2023.
- > [10] Zongyang Da, Yujie Dun, [Chengxu Liu](#), Yuanzhi Liang, Yao Xue, Xueming Qian, "Anomaly detection framework for unmanned vending machines[J]". **Knowledge-Based Systems**, 2023, 262, 110251. doi : 10.1016/j.knsys.2023.110251.

- > [11] Chengxu Liu, Xuan Wang, Yuanting Fan, Shuai Li, Yuzhi Wang, Xueming Qian “Decoupling Degradations with Recurrent Network for Video Restoration in Under-Display Camera[C]”. (submitted to Association for the Advancement of Artificial Intelligence), 2024.
- > [12] Nengzhong Yin*, Chengxu Liu*, Xueming Qian, “SDPDet : Learning Scale-Separated Dynamic Proposals for End-to-End Aerial Image Detection[C]”. (submitted to IEEE Transactions on Multimedia), 2023.
- > [13] Yuanting Fan*, Chengxu Liu*, Xueming Qian, “InstanceSR : Exploring New Trends in Reconstructing Small Object with Instance-level Super-Resolution[C]”. submitted to IEEE Transactions on Multimedia, 2023.
- > [14] Yubin Ai*, Chengxu Liu*, Guoshuai Zhao, Xueming Qian, “Towards Better Product Recognition via Depth-Guided Regression Refinement[J]”. (submitted to IEEE Transactions on Circuits and Systems for Video Technology), 2023.
- > [15] Yubin Ai*, Chengxu Liu*, Guoshuai Zhao, Xueming Qian, “OAS : Orientation-Aware Assigner and Sampler for Two-Stage Rotated Object Detection[C]”. , 2023.
- > [16] Hao Zhang*, Shenqi Lai*, Chengxu Liu, Yujie Dun, Xueming Qian, “RemNet : Residual and Feature-Multiplex Network for Real-Time Vision Task[J]”. (submitted to IEEE Transactions on Multimedia), 2023.
- > [17] Hao Zhang*, Yujie Dun, Yixuan Pei, Zongyang Da, Chengxu Liu, Xueming Qian, “Mite-HRNet : Mobile-efficient Lightweight High-Resolution Network[J]”. (submitted to IEEE Transactions on Multimedia), 2023.
- > [18] Jiliang Jian, Junjie Yang, Shenqi Lai, Chengxu Liu, Xingsong Hou, Xueming Qian, “HIVGG : A Hierarchical VGG-Style Architecture[J]”. (submitted to IEEE Transactions on Multimedia), 2023.

COMPETITION

1st Prize in Northwest, Postgraduate Electronics Design Contest <i>Ministry of Education of China</i>	2023
National Most Commercially Valuable Award, Postgraduate Electronics Design Contest <i>Chinese Institute of Electronics (8/5700+, 0.14% award rate)</i>	2022
National 1st Prize, Postgraduate Electronics Design Contest <i>Chinese Institute of Electronics (32/5700+, 0.56% award rate)</i>	2022
1st Prize in Northwest, Postgraduate Electronics Design Contest <i>Ministry of Education of China</i>	2022
2nd Prize in the 34th “Tengfei Cup” Innovation and Entrepreneurship Competition Prize in Shaanxi, Postgraduate Internet+ Contest <i>Ministry of Education of Shannxi</i>	
2nd Prize in the 34th “Tengfei Cup” Innovation and Entrepreneurship Competition <i>Xi’an Jiaotong University</i>	2022
3rd Prize in the 34th “Tengfei Cup” Innovation and Entrepreneurship Competition <i>Xi’an Jiaotong University</i>	2022

AWARDS & HONORS

Pacesetter for Postgraduate Student (The highest honor in XJTU, 16 Ph.D. per year). <i>Xi’an Jiaotong University</i>	2022
National Scholarship <i>Ministry of Education of China</i>	2022
Stars of Tomorrow Internship Program <i>Microsoft Research Asia</i>	2022
Principal Scholarship of Postgraduates <i>Xi’an Jiaotong University</i>	2020
Excellent Graduate Student <i>Xi’an Jiaotong University</i>	2020