Mr. Wang Ziyi

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EDUCATION

University of Electronic Science and Technology of China (UESTC) *Aug.2022-Jul.2026*

- B.S. in Computer Science and Mathematics
- Yingcai **Honors** College | Supervisor: Prof. Shuaicheng Liu
- **WGPA: 3.97/4.0; 92.35/100**
- Major courses: Advanced Calculus, Advanced Algebra, Probability and Statistics, Optimization Algorithms, Numerical Analysis, Operating System, Programming Methodology

PUBLICATIONS AND PATENTS

- (Under Review) **Ziyi Wang**, Haipeng Li, Lin Sui, Tianhao Zhou, Hai Jiang, Lang Nie, Shuaicheng Liu, "*StableMotion: Repurposing Diffusion-Based Image Priors for Motion Estimation*", IEEE Trans- actions on Image Processing (TIP), June 2025. *Paper* | *Code*
- (Under Review) Tianhao Zhou, Haipeng Li, **Ziyi Wang**, Minjie Chen, Bing Zeng, Shuaicheng Liu, "*SimpleFlicker: Mitigating Flicker Artifacts in Images with Parametric Baseline*", ACM Conference on Multimedia (MM), April 2025.
- (Accepted) Tianhao Zhou* Haipeng Li*, **Ziyi Wang**, Ao Luo, Chen Lin Zhang, Jiajun Li, Bing Zeng, Shuaicheng Liu, "*RecDiffusion: Rectangling for Image Stitching with Diffusion Models*", IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024. *Paper* | *Code*
- (Accepted) Shuaicheng Liu, **Ziyi Wang**, Haipeng Li, Tianhao Zhou, "*Image Re-rectification Method and System, Device, and Medium based on Prior Knowledge*", Patent Publication ID: CN 119919288 A, May 2025.
- (Accepted) Shuaicheng Liu, Haipeng Li, Tianhao Zhou, **Ziyi Wang**, Bing Zeng, "*A Method and System for Rectangularizing Spliced Images based on Diffusion Models, Devices, and Medium*", Patent Publication ID: CN 118014898 A, May 2024.

RESEARCH EXPERIENCE

StableMotion: Repurposing Diffusion-Based Image Priors for Motion Estimation *2024-2025*

- Presented StableMotion, a novel framework leverages knowledge (geometry and content priors) from pretrained large-scale image diffusion models to perform motion estimation, solving single-image-based image rectification tasks such as Stitched Image Rectangling (SIR) and Rolling Shutter Correction (RSC); Specifically, StableMotion framework takes text-to-image Stable Diffusion (SD) models as backbone and repurposes it into an image-to-motion estimator.
- Proposed Adaptive Ensemble Strategy (AES) that consolidates multiple outputs into a cohesive, high-fidelity result to mitigate inconsistent output produced by diffusion models.
- Presented the concept of Sampling Steps Disaster (SSD), the counterintuitive scenario where increasing the number of sampling steps can lead to poorer outcomes, which enables our framework to achieve one- step inference.
- Verified the StableMotion framework on two image rectification tasks and delivers state-of-the-art performance in both, as well as showing strong generalizability. Proved that StableMotion offers a speedup of 200x compared to previous diffusion model-based methods supported by SSD.

SimpleFlicker: Mitigating Flicker Artifacts in Images with Parametric Baseline *2024-2025*

- Presented SimpleFlicker, a multi-frame solution to address flickering in real-world scenarios.
- Utilized a parametric model to generate synthetic data, creating clean-flickering image pairs, and trained a U-Net architecture with a specialized attention module for flickering artifacts.

- Proposed a novel dataset, Flicker-2025, to train (using synthetic clean-flickering images) and evaluate (using synthetic and real-world images) given the absence of existing datasets.
- Proved that it achieves strong performance in both quantitative and qualitative assessments.

RecDiffusion: Rectangling for Image Stitching with Diffusion Models *2023*

- Proposed the first diffusion-based framework for stitched image rectangling, RecDiffusion.
- Presented the framework to combine Motion Diffusion Models (MDM) to generate motion fields, transitioning from the stitched image's irregular borders to a geometrically corrected intermediary, followed by Content Diffusion Models (CDM) for image detail refinement. Conducted sampling that utilizes a weighted map to identify regions needing correction during each iteration of CDM.
- Extensive experiments showed that our approach ensures geometric accuracy and overall visual appeal, achieving state-of-the-art performance on public benchmarks when compared to previous both traditional and deep methods.

HONORS AND AWARDS

- **The University of Electronic Science and Technology Cup Football League** *Jun 2025*
  University of Electronic Science and Technology of China (UESTC); Runner Up Award
- **First-Class Scholarship for Outstanding Students** *Nov 2024*
  University of Electronic Science and Technology of China (UESTC)
- **IEEEXtreme 18.0 Programming Competition** *Oct 2024*
  Institute of Electrical and Electronics Engineers (IEEE); Global Rank: Top 0.091
- **First-Class Scholarship for Outstanding Students** *Nov 2023*
  University of Electronic Science and Technology of China (UESTC)
- **Huawei Kunpeng System Development Program Black Horse Award** *Oct 2023*
  Huawei Technologies Co., Ltd. (HUAWEI)

RESEARCH ASSISTANTS

- **Noon Intelligent Co., Ltd.** *Sep 2025 – Feb 2026*
  Serving as a Student Researcher focusing on Robotics and 3D Computer Vision, as well as building the fundamental coding framework for the company. Working with Prof. Yincong Chen, Dr. Harold Haodong Chen and Mr. Haojian Huang.
- **ENVISION Lab, AI Thrust, Information Hub,**
  The Hongkong University of Science andTechnology (Guangzhou) *Aug 2025 - Feb 2026*
  Serving as a Visiting Student focusing on AIGC and Robotics, supervised by Prof. Yincong Chen.
- **Image Processing Lab, School of Information and Communication Engineering,**
  University of Electronic Science and Technology of China *Jun 2023 - Jul 2025*
  Served as a Research Assistant for Prof. Shuaicheng Liu in Low-level Computer Vision. Collaborated closely with Dr. Haipeng Li.

EXTRACURRICULAR ACTIVITIES

- **The National University of Singapore (NUS) Summer Workshop** *May 2024*
  Completed the course 'Solving Real World Problems with Computational Thinking' mentored by Prof. Hon Wai Leong. Secured the title of A-Level Performance Student by designing a meal distribution scheduling system which was successfully tested in actual restaurants.
- **Voluntary Teaching at Ningjin County No.1 Experimental Primary School** *Aug 2023*
  Taught approximately 36 online math lessons, which were of a public welfare nature.

SKILLS

- Programming: Proficient in Python and PyTorch, Linux, Shell, MATLAB, SQL, C and C++.
- Other: NetEase Cloud Music Signed and Certified Musician.