Xuhai **Chen**

Shandong Province, China

Email | Homepage | Github | Google Scholar

"Our greatest glory is not in never falling, but in rising every time we fall."

Education

Zhejiang University — *Hangzhou, China*

M.S. in Control Science and Engineering — *Sep. 2022 - PRESENT*

- 2022-2023 **National Scholarship**
- 2022-2023 Outstanding Student Honor
- 2023-2024 Outstanding Student Honor

TongJi University — *Shanghai, China*

B.S. in Electronic and Information Engineering — *Sep. 2018 - Jun. 2022*

- 2022 **Outstanding Graduate**
- 2019-2020 Outstanding Student Honor

Research Projects

Contact-Aware Follower Motion Generation for Two-Person Dance — *Preparing for submission*

Xuhai Chen, Zhi Cen, Huaijin Pi, Sida Peng, Yong Liu, Xiaowei Zhou — *Apr. 2024 - May 2025*

- **Problem:** Existing methods struggle to precisely model human body motion and often overlook fine-grained physical interactions in multi-person scenarios. This leads to inaccurate motion encoding and poor coordination between individuals.
- **Contribution:** Proposed a part-aware VQ-VAE that separately encodes body segments before decoding them jointly to reconstruct coherent full-body motion. Additionally, introduced a contact-aware diffusion process that jointly generates follower motion and contact matrices to enhance interaction alignment with the leader.

Anomaly Classification and Segmentation under Zero- and Few-Shot Settings — *CVPRW Challenge 2023*

Xuhai Chen, Yue Han, Jiangning Zhang — *Jan. 2023 - Jun. 2023*

- **Problem:** Defects in anomaly detection are rare and highly diverse, while collecting sufficient data for every category is often impractical. These challenges make zero- and few-shot learning essential for real-world applications.
- **Contribution:** For zero-shot detection, proposed a simple yet effective method that extends CLIP by fine-tuning a linear projection on unrelated categories to enable anomaly segmentation. For few-shot detection, introduced a multi-level memory bank to fully exploit features from limited reference images.
- **Achievement:** Achieved **1st Place** in the zero-shot track and received an **Honorable Mention** in the few-shot track.

Space-Variant Blur Estimation for Blind Image Super-Resolution — *CVPR 2023*

Xuhai Chen, Jiangning Zhang, Chao Xu, Yabiao Wang, Chengjie Wang, Yong Liu — *Oct. 2021 - Nov. 2022*

- **Problem:** Most existing methods assume a space-invariant blur model, which fails to reflect real-world degradations caused by factors like out-of-focus and object motion. This results in inaccurate blur estimation and poor super-resolution quality.
- **Contribution:** Introduced two new datasets with simulated out-of-focus blur. Proposed a cross-modal fusion network that jointly estimates space-variant blur and semantic segmentation maps to enhance restoration accuracy. Designed a feature interaction module that enables effective alignment of semantic and blur features across both spatial and channel dimensions.

Experiences

State Key Laboratory of CAD&CG, Zhejiang University — *Advisor: Prof. Xiaowei Zhou, Prof. Sida Peng*

Research Intern — *Apr. 2024 - Apr. 2025*

APRIL Lab, Zhejiang University — *Advisor: Prof. Yong Liu*

M.S. Student — *Nov. 2022 - Jun. 2025*

Publications

2023	Better" CMOS" Produces Clearer Images: Learning Space-Variant Blur Estimation for Blind Image Super-Resolution	*CVPR*
2023	A Zero-/Few-Shot Anomaly Classification and Segmentation Method for CVPR 2023 VAND Workshop Challenge Tracks 1&2: 1st Place on Zero-shot AD and 4th Place on Few-shot AD	*CVPRW*
2024	Clip-ad: A language-guided staged dual-path model for zero-shot anomaly detection	*IJCAIW*