Kunyu Wang

Email: kunyuwangustc@gmail.com
Homepage: wangkunyu241.github.io
Google Scholar: Kunyu Wang

Education

University of Science and Technology of China — Hefei, China
School of Information Science and Technology
Ph.D. Student in Control Science and Technology — 2021.09 –2026.06

- Ph.D. Advisor: Prof. Zheng-Jun Zha and Prof. Xueyang Fu
- Research Focus: Domain Generalization, Test-time Adaptation, Continual Learning

Southeast University — Nanjing, China
Special Class for the Gifted Young, Chien-Shiung Wu College
B.E. in Automation — 2017.09 –2021.06

Experience

Peking University & **Beijing Academy of Artificial Intelligence** & **GALBOT** — Beijing, China
Research Intern — 2023.07 –2024.08

- Internship Mentor: Prof. He Wang
- Research Focus: Embodied Navigation, Vision-Language-Action Model, Multi-modal Large Model.

Research Interest

My research interest includes improving the generalization and robustness of perception models in open world environments, and enabling robots to perceive, understand, and act in the real world. In my future research career, I hope to pursue work that either drives influential and insightful advances in technology, or explores fundamental principles with scientific significance underlying challenging problems.

Selected Publications

1. **Kunyu Wang**, Xueyang Fu, Xin Lu, Chengjie Ge, Chengzhi Cao, Wei Zhai, Zheng-Jun Zha†, "Efficient Test-time Adaptive Object Detection via Sensitivity-Guided Pruning", **CVPR 2025 Oral (3.3% of all accepted papers)**.

2. **Kunyu Wang**, Xueyang Fu, Yunfei Bao, Chengjie Ge, Chengzhi Cao, Wei Zhai, Zheng-Jun Zha†, "PAID: Pairwise Angular-Invariant Decomposition for Continual Test-Time Adaptation", **NeurIPS 2025**.

3. **Kunyu Wang**, Xueyang Fu, Chengjie Ge, Chengzhi Cao, Zheng-Jun Zha†, "Towards Generalized UAV Object Detection: A Novel Perspective from Frequency Domain Disentanglement", **IJCV 2024**.

4. **Kunyu Wang**, Xueyang Fu, Yukun Huang, Chengzhi Cao, Gege Shi, Zheng-Jun Zha†, "Generalized UAV Object Detection via Frequency Domain Disentanglement", **CVPR 2023**.

5. Jiazhao Zhang, **Kunyu Wang (Core Contributor)**, Shaoan Wang, Minghan Li, Haoran Liu, Songlin Wei, Zhongyuan Wang, Zhizheng Zhang†, He Wang†, "Uni-NaVid: A Video-based Vision-Language-Action Model for Unifying Embodied Navigation Tasks", **RSS 2025**.

6. Jiazhao Zhang*, **Kunyu Wang***, Rongtao Xu*, Gengze Zhou, Yicong Hong, Xiaomeng Fang, Qi Wu, Zhizheng Zhang†, He Wang†, "NaVid: Video-based VLM Plans the Next Step for Vision-and-Language Navigation", **RSS 2024**.

7. **Kunyu Wang**, Guanbo Wu, Xingbo Wang, Kean Liu, Xin Lu, Chengjie Ge, Wei Zhai, Xueyang Fu, Zheng-Jun Zha†, "SkyFind: A Large-Scale Benchmark Unveiling Referring Expression Comprehension for UAV", Manuscript under major revision at **T-PAMI**.

8. **Kunyu Wang**, Xueyang Fu, Chengzhi Cao, Chengjie Ge, Wei Zhai, Zheng-Jun Zha†, "Towards Better De-raining Generalization via Rainy Characteristics Memorization and Replay", Manuscript under minor revision at **T-NNLS**.

All Publications

1. **Kunyu Wang**, Xueyang Fu, Xin Lu, Chengjie Ge, Chengzhi Cao, Wei Zhai, Zheng-Jun Zha†, "Efficient Test-time Adaptive Object Detection via Sensitivity-Guided Pruning", **CVPR 2025 Oral (3.3% of all accepted papers)**.

2. Jiazhao Zhang, **Kunyu Wang**, Shaoan Wang, Minghan Li, Haoran Liu, Songlin Wei, Zhongyuan Wang, Zhizheng Zhang†, He Wang†, "Uni-NaVid: A Video-based Vision-Language-Action Model for Unifying Embodied Navigation Tasks", **RSS 2025**.

3. **Kunyu Wang**, Xueyang Fu, Yunfei Bao, Chengjie Ge, Chengzhi Cao, Wei Zhai, Zheng-Jun Zha†, "PAID: Pairwise Angular-Invariant Decomposition for Continual Test-Time Adaptation", **NeruIPS 2025**.

4. **Kunyu Wang**, Guanbo Wu, Xingbo Wang, Kean Liu, Xin Lu, Chengjie Ge, Wei Zhai, Xueyang Fu, Zheng-Jun Zha†, "SkyFind: A Large-Scale Benchmark Unveiling Referring Expression Comprehension for UAV", Manuscript under major revision at **T-PAMI**.

5. **Kunyu Wang**, Xueyang Fu, Chengzhi Cao, Chengjie Ge, Wei Zhai, Zheng-Jun Zha†, "Towards Better De-raining Generalization via Rainy Characteristics Memorization and Replay", Manuscript under minor revision at **T-NNLS**.

6. Chengjie Ge, Xueyang Fu, **Kunyu Wang**, Zheng-Jun Zha†, "Event-Based Video Reconstruction With Deep Spatial-Frequency Unfolding Network", **T-IP 2025**.

7. Chengjie Ge, Xueyang Fu, Peng He, **Kunyu Wang**, Chengzhi Cao, Zheng-Jun Zha†, "EventMamba: Enhancing Spatio-Temporal Locality with State Space Models for Event-Based Video Reconstruction", **AAAI 2025**.

8. Jiazhao Zhang*, **Kunyu Wang***, Rongtao Xu*, Gengze Zhou, Yicong Hong, Xiaomeng Fang, Qi Wu, Zhizheng Zhang†, He Wang†, "NaVid: Video-based VLM Plans the Next Step for Vision-and-Language Navigation", **RSS 2024**.

9. **Kunyu Wang**, Xueyang Fu, Chengjie Ge, Chengzhi Cao, Zheng-Jun Zha†, "Towards Generalized UAV Object Detection: A Novel Perspective from Frequency Domain Disentanglement", **IJCV 2024**.

10. Xueyang Fu, Chengzhi Cao, Senyan Xu, Fanrui Zhang, **Kunyu Wang**, Zheng-Jun Zha†, "Event-Driven Heterogeneous Network for Video Deraining", **IJCV 2024**.

11. Chengjie Ge, Xueyang Fu, Peng He, **Kunyu Wang**, Chengzhi Cao, Zheng-Jun Zha†, "Neuromorphic Event Signal-Driven Network for Video De-raining", **AAAI 2024**.

12. **Kunyu Wang**, Xueyang Fu, Yukun Huang, Chengzhi Cao, Gege Shi, Zheng-Jun Zha†, "Generalized UAV Object Detection via Frequency Domain Disentanglement", **CVPR 2023**.

13. Chengzhi Cao, Xueyang Fu, Hongjian Liu, Yukun Huang, **Kunyu Wang**, Jiebo Luo, Zheng-Jun Zha†, "Event-guided Person Re-Identification via Sparse-Dense Complementary Learning", **CVPR 2023**.

Awards

- NTIRE 2025 Ambient Lighting Normalization Challenge @ CVPR 2025 — Winner Award
- NTIRE 2025 Shadow Removal Challenge @ CVPR 2025 — Runner-Up Award

Academic Services

- Journal Reviewer: T-PAMI, T-MM
- Conference Reviewer: NeruIPS, ICCV, AAAI, PRCV