

Han Wang

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EDUCATION

Zhejiang University, Hang Zhou, China
Undergraduate in Electronic Information Engineering

Sept. 2020 – Jun. 2024
GPA: 3.94/4.00

RESEARCH INTERESTS

Reliable ML, Computer Vision, Multi-Modality, LLM-based Agents

RESEARCH EXPERIENCE

Graph-Theoretic Understanding for OOD Generalization and Detection May 2023 – Oct. 2023
Advisor: Asst. Prof. Sharon Yixuan Li, University of Wisconsin-Madison *Under Review*

- Propose a novel graph-theoretical framework for understanding both OOD generalization and detection
- Present theoretical insight by analyzing closed-form solutions for the OOD generalization and detection error
- Evaluate the performance through a set of experiments and provide empirical evidence of robustness and alignment with our theoretical analysis

Disentangling MAE for Unsupervised Domain Generalization Oct. 2022 – May 2023
Advisor: Prof. Tat-Seng Chua, National University of Singapore, NExT++ Lab *Under Review*

- Devise a disentangling MAE framework to discover the disentangled representations that faithfully reveal the intrinsic features and superficial variations in an unsupervised manner
- Demonstrate the effectiveness beyond state-of-the-art unsupervised domain generalization methods and domain generalization methods

Test-time Training for Text-video Retrieval Jan. 2023 – May 2023
Advisor: Prof. Fei Wu, Zhejiang University, DCD Lab

- Pioneer the exploration for the test-time training in the context of text-video retrieval and present a large-scale cross-domain dataset tailored for this task
- Propose the Counterfactual Hierarchical Re-balancing module and the Causal Bias Correction module

Weakly-supervised Spatio-temporal Video Grounding Jun. 2022 – Dec. 2022
Advisor: Prof. Fei Wu, Zhejiang University, DCD Lab *CVPR 2023*

- Present a novel perspective of hierarchical video language decomposition and alignment to alleviate spurious correlations brought by limited annotations
- Introduce a framework that encapsulates the structural attention and top-down backtracking for hierarchical understanding, using multi-hierarchy contrastive learning
- Outperform state-of-the-art weakly supervised methods, even surpass some supervised methods

PUBLICATIONS & MANUSCRIPTS

- **Han Wang**, Yixuan Li. Harmonizing OOD Generalization and Detection: A Graph Spectral Approach. *Submitted to International Conference on Machine Learning (ICML), 2024. Under review.*
- An Zhang*, **Han Wang***, Xiang Wang, Tat-Seng Chua. Disentangling Masked Autoencoders for Unsupervised Domain Generalization. *Submitted to the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024. Under review. Initial Score: 4443.*
- Mengze Li*, **Han Wang***, Wenqiao Zhang, Jiaxu Miao, Wei Ji, Zhou Zhao, Shengyu Zhang, Fei Wu. Winner: weakly-supervised hierarchical decomposition and alignment for spatio-temporal video grounding. *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023.*

PROJECTS

Automatic Detection System for Illegal Riding Apr. 2021 – Nov. 2021
Regulating illegal cycling on non-motorized lanes at Zhejiang University *Zhejiang University*

- Use OpenPoses library to locate the position of joints and gradient boosting decision tree to classify whether the person cycles illegally

HONORS

School of Electrical Engineering NR Scholarship, Zhejiang University	Oct. 2023
Zhejiang University Scholarship - Second Prize (Top 8%)	Oct. 2023
Zhejiang Province Government Scholarship	Nov. 2022
Zhejiang University Scholarship - Second Prize (Top 8%)	Oct. 2022
Zhejiang University Scholarship - First Prize (Top 3%)	Oct. 2021

SKILLS

Programming Skills: Python, C/C++, Matlab, CUDA, VHDL/Verilog
Language Skills: Chinese (Native), English (Fluent, TOEFL iBT 100/120)