

EDUCATION

- **City University of Hong Kong** Hong Kong
Doctor of Philosophy (Ph.D.), Computer Science Jul. 2021 - Now
 - Supervisor: Assistant Professor Shiqi Wang and Haoliang Li
- **Shandong University** Qingdao, China
Bachelor of Engineering (B.Eng.), Computer Science Sept. 2016 - Jun. 2020
 - Supervisor: Professor Liqiang Nie
 - CGPA: 88/100 | Rank: 8/154 (5%)

RESEARCH EXPERIENCE

- **Understanding and Alleviating Dimensional Collapse in Contrastive Learning** Oct. 2022 - present
Postgraduate Research
 - Presenting a theory of concept activation coverage to shed light on the optimization of dimensional collapse problem in contrastive learning.
- **Rethinking Invariant Feature Learning in Domain Generalization** Mar. 2022 - Sep. 2022
Postgraduate Research
 - Exploring the invariant feature learning from a neuron activation view.
 - Designing a concept-level contrastive learning approach to learn invariant features, which enhances the diversity of feature representations, and consistently improves model generalization capability.
- **Rethinking Attention Model Explainability** Jul. 2021 - Feb. 2022
Postgraduate Research
 - Presenting a new view, polarity consistency, for the evaluation of explanation faithfulness. Through the broad experimental sweep, this work highlights the current explainability of attention-based models, and further provides new criteria for the design of robust explanation methods.
- **Investigating Visual Question Answering (VQA)** Jan. 2019 - Jun. 2021
Undergraduate Research
 - Investigating the VQA models through language prior analysis and attention mechanism regularization.

PUBLICATIONS

- **Yibing Liu**, Chris Xing Tian, Haoliang Li, Shiqi Wang, “Generalization Beyond Feature Alignment: Concept Activation-Guided Contrastive Learning”. arXiv preprint, 2022. (Under Review) [PDF](#)
- **Yibing Liu**, Haoliang Li, Yangyang Guo, Chenqi Kong, Jing Li, Shiqi Wang, “Rethinking Attention-Model Explainability through Faithfulness Violation Test”. International Conference on Machine Learning (ICML), 2022. [PDF](#) & [Code](#)
- **Yibing Liu**, Yangyang Guo, Jianhua Yin, Xuemeng Song, Weifeng Liu, Liqiang Nie, Min Zhang, “Answer Questions with Right Image Regions: A Visual Attention Regularization Approach”. ACM Transactions on Multimedia Computing, Communications, and Applications (ToMM), 2022. [PDF](#) & [Code](#)
- Yangyang Guo, Liqiang Nie, Yongkang Wong, **Yibing Liu**, Zhiyong Cheng, Mohan Kankanhalli, “A Unified End-to-End Retriever-Reader Framework for Knowledge-based VQA”. ACM Multimedia (ACM MM), 2022. [PDF](#) & [Code](#)
- Yangyang Guo, Zhiyong Cheng, Liqiang Nie, **Yibing Liu**, Yinglong Wang, and Mohan Kankanhalli, “Quantifying and Alleviating the Language Prior Problem in Visual Question Answering”. ACM International Conference on Research and Development in Information Retrieval (SIGIR), 2019. (Oral) [PDF](#) & [Code](#)

HONORS AND AWARDS

- Institutional Research Tuition Scholarship at CityU (2022)
- Outstanding Graduate of Shandong University (2020)
- The First Prize Scholarship at Shandong University (Top 5%) (2017-2019)
- National Scholarship for Encouragement (2018)

PROFESSIONAL SERVICES

- **Conference Reviewer:** ICML 2022, ACM Multimedia Workshop on MCFR 2022
- **Journal Reviewer:** ACM ToMM

MISCELLANEOUS

- **Skills:** Python, C++, Pytorch
- **Research Interests:** Interpretability, Machine Learning, Domain Generalization
- **Languages:** English, Chinese (Native)