

HAIWEN DIAO

Three-year Doctoral Candidate

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Research Interests

My primary research interests are *Vision-and-Language*, *Transfer Learning* and *Multimodal Large Language Model*. Specifically, my research in the vision-and-language domain strives to build an efficient and powerful system that recognizes visual-semantic perception and contextualizes fine-grained correspondence across multiple modalities:

1. **Vision-Language Retrieval:** [SGRAF \(AAAI'21\)](#), [RCAR \(TIP'23\)](#), [DBL \(TIP'24\)](#), [GSSF \(2024\)](#)
2. **Parameter-Efficient Tuning:** [UniPT \(CVPR'24\)](#), [SHERL \(ECCV'24\)](#)
3. **Large Multi-Modality Model:** [EVE \(2024\)](#), [DenseFusion \(2024\)](#), [PathWeave \(2024\)](#)
4. **AI Generated Content:** [MoTrans \(2024\)](#)

Experience

Beijing Academy of Artificial Intelligence, <i>Beijing</i> <i>Research Internship</i>	Sep.2023 — Present
• Director: Dr. Xinlong Wang (Computer Vision Center)	
Hong Kong University of Science and Technology, <i>Dalian</i> <i>Remote Cooperation</i>	Jan.2023 — Aug.2023
• Director: Dr. Long Chen (Computer Science and Engineering)	
Tencent AI Lab, <i>Shenzhen</i> <i>2020 Tencent AI Lab Rhino-Bird Focused Research Program</i>	Jun.2020 — Mar.2021
• Director: Dr. Ying Zhang , Dr. Lin Ma (Computer Vision Center)	

Education

Dalian University of Technology (DUT), <i>Dalian</i> <i>Ph.D. in Information and Communication Engineering</i>	Sep. 2021 — Present
• Thesis: Parameter-efficient Transfer Learning, Multi-modal Large Language Model	
• Advisor: Prof. Huchuan Lu	
Dalian University of Technology (DUT), <i>Dalian</i> <i>M.E. in Information and Communication Engineering</i>	Sep. 2018 — Jun. 2021
• Thesis: Person Re-Identification, Vision-and-Language Domain	
• Advisor: Prof. Huchuan Lu	
Dalian University of Technology (DUT), <i>Dalian</i> <i>B.E. in Electronic Information Engineering</i>	Sep. 2014 — Jun. 2018
• GPA: Top3% (School of Information and Communication Engineering)	

Awards & Hornors

Awards

- Silver Award of the 9th China International College Students' 'Internet+'
Innovation and Entrepreneurship Competition (Industrial Track) (Project Leader) (Top 120/421M) *Ministry of Education, 2023*
- Excellence Award of 2020 Tencent AI Lab Rhino-Bird Focused Research Program (9/27) *Tencent AI Lab, 2021*

Hornors

- Excellent Graduate of Dalian City (Bachelor's degree) *Dalian City, 2018*
- Lingshui Scholarship (First Prize) (Top 5%) *Dalian City, 2016*

- China National Scholarship (Top 1%)
- Awarded Learning Excellence Award (First Prize) (Top 5%)

Ministry of Education, 2015
DUT, 2015/16

Publications

Conference Publications

- **SHERL: Synthesizing High Accuracy and Efficient Memory for Resource-Limited Transfer Learning**
Haiwen Diao, Bo Wan, Xu Jia, Yunzhi Zhuge, Ying Zhang, Huchuan Lu ✉, Long Chen
European Conference on Computer Vision (ECCV), 2024. [\[Code\]](#)
- **UniPT: Universal Parallel Tuning for Transfer Learning with Efficient Parameter and Memory**
Haiwen Diao, Bo Wan, Ying Zhang, Xu Jia, Huchuan Lu ✉, Long Chen
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024. [\[Code\]](#)
- **Similarity Reasoning and Filtration for Image-Text Matching**
Haiwen Diao, Ying Zhang, Lin Ma, Huchuan Lu ✉
Association for the Advancement of Artificial Intelligence (AAAI), 2021. (**Google citations: 270+**) [\[Code\]](#)

Journal Publications

- **Deep Boosting Learning: A Brand-new Cooperative Approach for Image-Text Matching**
Haiwen Diao, Ying Zhang, Shang Gao, Xiang Ruan, Huchuan Lu ✉
IEEE Transactions on Image Processing (TIP), 2024. [\[Code\]](#)
- **Plug-and-Play Regulators for Image-Text Matching**
Haiwen Diao, Ying Zhang, Wei Liu, Xiang Ruan, Huchuan Lu ✉
IEEE Transactions on Image Processing (TIP), 2023. [\[Code\]](#)

Preprints (Under Review)

- **Unveiling Encoder-Free Vision-Language Models**
Haiwen Diao^{*}, Yufeng Cui^{*}, Xiaotong Li, Yueze Wang, Huchuan Lu ✉, Xinlong Wang ✉
Under Review. [\[Code\]](#)
- **GSSF: Generalized Structural Sparse Function for Deep Cross-modal Metric Learning**
Haiwen Diao, Ying Zhang, Shang Gao, Jiawen Zhu, Long Chen, Huchuan Lu ✉
Under Review.
- **DenseFusion-1M: Merging Vision Experts for Comprehensive Multimodal Perception**
Xiaotong Li^{*}, Fan Zhang^{*}, Haiwen Diao^{*}, Yueze Wang, Xinlong Wang ✉, Lingyu Duan ✉
Under Review. [\[Code\]](#)
- **LLMs Can Evolve Continually on Modality for X-Modal Reasoning**
Jiazuo Yu, Haomiao Xiong, Lu Zhang ✉, Haiwen Diao, Yunzhi Zhuge, Lanqing Hong, Dong Wang, Huchuan Lu, You He, Long Chen
Under Review.
- **MoTrans: Customized Motion Transfer with Text-driven Video Diffusion Models**
Xiaomin Li, Xu Jia ✉, Qinghe Wang, Haiwen Diao, mengmeng Ge, Pengxiang Li, You He, Huchuan Lu
Under Review.
- **Exploring Dynamic Transformer for Efficient Object Tracking**
Jiawen Zhu, Xin Chen, Haiwen Diao, Shuai Li, Jun-Yan He, Chenyang Li, Bin Luo, Dong Wang, Huchuan Lu ✉
Under Review.

Patents Declaration

- **An Image Retrieval Method and Related Device**
Huchuan Lu, Haiwen Diao, Ying Zhang, Lin Ma
CN111914113A, China, 2020.

Professional Services

Journal Reviewer:

IEEE TPAMI, IEEE TIP

Conference Reviewer:

References

- **Prof. Huchuan Lu (Ph.D. Advisor)**
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