

# Yao DU

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## Education

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<b>PhD, The Hong Kong University of Science and Technology</b> Major: Electronic and Computer Engineering Advisor: <a href="#">Prof. Xiaomeng Li</a>	2022.09 – Present
<b>MPhil, The Hong Kong Polytechnic University</b> Major: Structural Health Monitoring Advisor: <a href="#">Prof. Yong Xia</a>	2019.09 – 2022.06
<b>BEng, Northwestern Polytechnical University</b> GPA: 91.88/100 Rank: 1/53	2015.09 – 2019.06

## Research Directions

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**Precise Quantitative Perception in Physical & Biological Systems**  
*Deep Regression · Medical Image Analysis · AI for Physical Systems*

## Publications

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### *Deep Regression: From CNNs to VLMs and MLLMs*

*Regression and number understanding are fundamental for precise physical perception.*

*We aim to develop rigorous evaluation frameworks for measuring the quantitative reasoning and numerical understanding capabilities of MLLMs.*

- Teach CLIP to Develop a Number Sense for Ordinal Regression.  
[Yao Du](#), Qiang Zhai, Weihang Dai, Xiaomeng Li. **ECCV 2024**
- Semi-Supervised Contrastive Learning for Deep Regression with Ordinal Rankings from Spectral Seriation.  
Weihang Dai, [Yao Du](#), Hanru Bai, Kwang-Ting Cheng, Xiaomeng Li. **NeurIPS 2023**
- Injecting Distributional Awareness into MLLMs via Reinforcement Learning for Deep Imbalanced Regression.  
[Yao Du](#), Shanshan Song, Xiaomeng Li. **Under Review 2026**

### *Medical Image Analysis: Echocardiography and Computational Pathology*

*Parameter-efficient fine-tuning and multimodal representation learning for medical imaging.*

*We aim to develop data-efficient and clinically reliable AI systems for analyzing complex medical imaging data.*

- CardiacCLIP: Video-based CLIP Adaptation for LVEF Prediction in a Few-shot Manner.  
[Yao Du](#), Jiarong Guo, Xiaomeng Li. **MICCAI 2025** (Top Medical Imaging Conference)
- Beyond H&E: Unlocking Pathological Insights with Polarization Imaging.  
[Yao Du](#), ..., Chao He, Lin Luo, Xiaomeng Li. **BIBM 2025** (Top Bioinformatics Conference)
- MUST: Multi-Style virtual STaining with incomplete pairs.  
Jiaxin Zhuang, [Yao Du](#), ..., Hao Chen. **Under Review 2026**
- CardioInfuser: Multi-scale Semantic Infusion for Few-shot Echocardiogram Video Assessment.  
[Yao Du](#), Marawan Elbatel, Jiewen Yang, Xiaomeng Li. **Under Review 2026**

- CardiacPULSE: Frequency-Aware Self-Supervised Cardiac Phase Detection in Echocardiography. Jiarong Guo, Jiewen Yang, **Yao Du**, Yi Qin, Xiaomeng Li. **Under Review 2026**
- SAMotion: A Generalizable Anatomical Structure-aware Unsupervised Framework for Cardiac Motion Tracking. Jiewen Yang, Jiarong Guo, **Yao Du**, Xiaomeng Li. **Under Review 2026**

### *Artificial Intelligence of Things (AIoT) / Structural Health Monitoring (SHM)*

*Infrastructure Sensor Anomaly Detection, Edge Computing, and AIoT Systems.*

*We aim to integrate AI with large-scale infrastructure sensing systems to enable intelligent monitoring and smart city applications.*

- Convolutional Neural Network-based Data Anomaly Detection Considering Class Imbalance with Limited Data. **Yao Du**, Lingfang Li, ..., Yong Xia. **Smart Structures and Systems, 2022** (Top SHM Journal)
- Data Anomaly Detection through Semisupervised Learning Aided by Customized Data Augmentation Techniques. Xiaoyou Wang\*, **Yao Du\***, Xiaoqing Zhou, Yong Xia. **Structural Control and Health Monitoring, 2023** (Top SHM Journal)
- Wireless IoT Monitoring System in Hong Kong-Zhuhai-Macao Bridge and Edge Computing for Anomaly Detection. Xiaoyou Wang, Wanglin Wu, **Yao Du**, Jiannong Cao, Qianyi Chen, Yong Xia. **IEEE Internet of Things Journal, 2023** (Top AIoT Journal)

### Professional Service

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**Conference Reviewer:** CVPR2025, ICCV2025, NeurIPS2025, ICML2026, BMVC2026, MICCAI2026

**Journal Reviewer:** TNNLS

### Awards

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**National Scholarship,** 2016, 2017, 2018

**Outstanding Reviewer,** CVPR 2025