Pengkun Jiao

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 https://pengkun-jiao.github.io

Education Background

Fudan University, Doctor Computer Science and Technology Sept 2021 – Now
- GPA: 3.2/4.0, Outstanding Doctoral Student Academic Scholarship

East China Normal University, Bachlor Computer Science and Technology Sept 2017 – Jun 2021
- GPA: 3.5/4.0, University-Level Excellence Scholarship

Selected Research

Mixture of LoRA Experts for Multimodal Large Language Models Jan 2024 – Nov 2024
- Propose a rectified expert activation strategy (Linear Rectified Routing) with a fully differentiable routing strategy to enable dynamic and sparse expert activation
- Propose decoupling the task space (specific instructions) and the skill space (low-rank adapters) by aligning LoRA experts with varying levels of granularity tailored to different task complexities
- Introduce Dual-LoRA, a task- and instruction-separated dual low-rank adaptation paradigm, replacing complex granularity and routing strategy designs to address data conflicts in instruction tuning

Efficient Long-Sequence Reasoning for Multimodal Large Language Models Nov 2024 – Now
- Explore efficient long-sequence reasoning, even beyond the attention window size

Foundational vision and language models enhanced Open-Vocabulary 3D Object Detection May 2023 – Nov 2023
- Explored the potential of foundational vision models to assist in proposing novel 3D objects
- Propose a hierarchical alignment of the 3D feature space with the visual-language feature space, accounting for object geometric correlations across modalities and integrating scene priors

Publications

Domain Expansion and Boundary Growth for Open-Set Single-Source Domain Generalization (TMM 2024) 2022
Pengkun Jiao, Na Zhao, Jingjing Chen, Yu-Gang Jiang

Unlocking Textual and Visual Wisdom: Open-Vocabulary 3D Object Detection Enhanced by Comprehensive Guidance from Text and Image (ECCV 2024) 2023
Pengkun Jiao, Na Zhao, Jingjing Chen, Yu-Gang Jiang

Continuous Adaptive Self-Supervised Learning for Universal Continual Test-Time Adaptation (Under Review) 2023
Pengkun Jiao, Na Zhao, Jingjing Chen, Yu-Gang Jiang

Rode: Linear Rectified Mixture of Diverse Experts for Food Large Multi-modal Models (Under Review) 2024
Pengkun Jiao, Xinlan Wu, Bin Zhu, Jingjing Chen, Chong-Wah Ngo, Yu-Gang Jiang

Visual Cue Enhancement and Dual Low-Rank Adaptation for Efficient Visual Instruction Fine-Tuning (Under Review) 2024
Pengkun Jiao, Bin Zhu, Jingjing Chen, Chong-Wah Ngo, Yu-Gang Jiang

Oversea Exchange Experience

Singapore University of Technology and Design (SUTD), Research Assistant Apr 2023 – Nov 2023
- Complete a research project on Open-Vocabulary 3D Object Detection under the guidance of Prof. Na Zhao