

WEIKANG (ZACHARY) MENG

Fourth-year Ph.D. Student · Harbin Institute of Technology, Shenzhen · Linear Attention & Efficient Foundation Models

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EDUCATION

Harbin Institute of Technology, Shenzhen

Sep. 2023 – Dec. 2027 (exp.)

Ph.D. in Computer Science and Technology, School of Computer Science and Technology

Advisor: Prof. Zheng Zhang · Research: Linear Attention, Efficient Foundation Models

Harbin Institute of Technology

Sep. 2019 – Jul. 2023

B.S. in Information and Computational Science, School of Mathematics

GPA: 85.98/100 · Admission: Recommended for Direct Ph.D. Admission

PUBLICATIONS & RESEARCH EXPERIENCE

PolaFormer++: Polarity-aware Channel-Spiky Linear Attention for Vision Transformers

TPAMI

Authors: **Weikang Meng**, Liangyu Huo, Yadan Luo, Yaowei Wang, Yingjian Li, Zheng Zhang, Heng Tao Shen

- Extended PolaFormer with channel-wise spikiness modeling to improve attention sharpness and feature discrimination, demonstrating strong transferability across multiple vision tasks.

Norm×Direction: Restoring the Missing Query Norm in Vision Linear Attention

ICML 2026

Authors: **Weikang Meng**, Yadan Luo, Liangyu Huo, Yaowei Wang, Xin Li, Zheng Zhang

- Revealed the missing query norm in linear attention and derived Positive Sequence Entropy theory.
- Proposed norm-aware kernel and geometric similarity functions for a new linear attention formulation.

PolaFormer: Polarity-aware Linear Attention for Vision Transformers

ICLR 2025 · 100+ citations

Authors: **Weikang Meng**, Yadan Luo, Xin Li, Dongmei Jiang, Zheng Zhang

- Proposed polarity decomposition to explicitly model positive and negative Query-Key interactions.
- Established theoretical conditions for sharper attention distributions, achieving SOTA performance.

STILL: Selecting Tokens for Intra-Layer Hybrid Attention to Linearize LLMs

NeurIPS · Under Review

Authors: **Weikang Meng**, Liangyu Huo, Yadan Luo, Jiawen Guan, Jingyi Zhang, Yingjian Li, Zheng Zhang

- Proposed intra-layer hybrid attention that combines softmax and linear attention for LLM linearization.
- Developed Self-Saliency Score and Norm-Preserved Feature Map to improve long-context efficiency and restore model capability.

MirrorLA: Reflecting Feature Map for Vision Linear Attention

NeurIPS · Under Review

Authors: **Weikang Meng**, Liangyu Huo, Yadan Luo, Yaowei Wang, Yingjian Li, Zheng Zhang

- Introduced a learnable Householder-based feature map for non-negative kernels.
- Dynamically preserved sign-aligned information discarded by conventional non-negative kernels.

PROFESSIONAL SERVICE

Peer Reviewer — NeurIPS, ICML, ICLR, ECCV, CVPR, TIP, TCSVT, PR.

HONORS & AWARDS

2022

Honorable Mention, Mathematical Contest in Modeling (MCM/ICM)

2020

Provincial Second Prize, Chinese Mathematics Competition for College Students

2018

Provincial First Prize, National High School Mathematics Competition