ZIYAO CHEN

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EDUCATION

Northwestern Polytechnical University — Xi'an, China *(985 Project)*
Master of Science in Computer Science — Sep. 2024 - Jun. 2027
Recommended for Admission (Entrance Exam Waived) — Advisor: Prof. Lingyun Song
Key Laboratory of Big Data Storage and Management, Ministry of Industry and Information Technology
GPA: 85.93/100
Honors: First-Class Entrance Scholarship (2024); Outstanding Master's Student (2025); Second-Class Scholarship (2025).

Hefei University of Technology — Hefei, China *(211 Project)*
Bachelor of Engineering in Computer Science — Sep. 2020 - Jun. 2024
GPA: 85.76/100 — Rank: Top 10%
Honors: First-Class Scholarship (2021); Second-Class Scholarship (2022-2024).

RESEARCH INTERESTS

Continual Learning, MLLMs, Knowledge Editing, Mixture-of-Experts, Reinforcement Learning.

PUBLICATIONS

1. Lingyun Song, **Ziyao Chen**, Kang Pan, et al. KSS-MoE: Knowledge Space Synergy framework in Mixture of Experts for Continual Visual Instruction Tuning. **AAAI 2026**. ***(Advisor as first author)***
2. **Ziyao Chen**, Xuequn Shang, Lingyun Song. Iteratively-Enhanced Dynamic Expansion Model for Continual Learning. The 21st International Conference on Web Information Systems and Applications, 2024.

RESEARCH EXPERIENCE

Multi-step Reasoning for Complex Visual Problems under Data Constraints — NSFC General Program
Core Researcher — Jan. 2026 - Dec. 2029

- Designing a multimodal knowledge subspace adaptive optimization method based on gradient decoupling to mitigate the catastrophic forgetting of MLLMs in complex multimodal scenarios.
- Employing orthogonal constraints on cross-domain subspaces to decouple the learning of domain-specific and general knowledge, improving the reasoning capability of MLLMs in complex cross-domain tasks.

Step-level DPO for MoE LLMs in Multi-domain Continual Learning — Xiaomi Research Fund
Lead Student Researcher — May 2025 - Jul. 2026

- Designed a Step-level Direct Preference Optimization method for self-training, utilizing the LLM's intrinsic capabilities to evaluate and generate step-level preference data.
- Constructed an adaptive expert collaboration mechanism that dynamically fuses knowledge subspaces, improving MAA by 14.99% and BWT by 10.58% on CoIN.
- The proposed KSS-MoE framework was **accepted by AAAI 2026** [1].

Multimodal Intelligent Continuous QA via Dynamic Knowledge Graph-based RAG — CCF-Zhipu AI Fund
Lead Student Researcher — Nov. 2024 - Nov. 2025

- Proposed a MoE-based framework tailored for multi-domain continual learning, leveraging shared knowledge representations to facilitate positive cross-task knowledge transfer.
- Mitigated the router collapse issue prevalent in vanilla routing networks, ensuring effective expert collaboration.

PATENTS

1. Lingyun Song, **Ziyao Chen**, Xuequn Shang. An Iteratively-Enhanced Dynamic Expansion Continual Learning Model. CN120123765A, Feb. 2025 (Published)
2. **Ziyao Chen**, Hai Min, Yemao Zhang, Kai Shu, Han Chen. A Facial Landmark Detection Method Based on Mixed-Domain Attention Mechanism. CN115223228B, Aug. 2022 (Granted)
3. Xuequn Shang, Binze Shi, Lingyun Song, **Ziyao Chen**, et al. Information Diffusion Prediction Method for Hybrid Graph Transformer Based on 2D Positional Encoding Enhancement. CN120541410A, May 2025 (Published)

HONORS & AWARDS

- Silver Award, China International College Students' Innovation Competition (2025) — Shaanxi Div.
- National First Prize, National College Student Computer Ability Challenge (2022) — National Level
- Provincial First Prize, Chinese Collegiate Computing Competition (2022) — Anhui Div.
- Provincial First Prize, The 16th iCAN International Contest of Innovation (2022) — Anhui Div.
- Provincial College Students' Innovation and Entrepreneurship Training Program (2022) — Provincial Level
- *Received 10+ awards at National/Provincial levels and served as Team Leader in 8 of them.*