HAOTIAN XU

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Education

University of Science and Technology of China   **Sep 2019 – Jul 2023**
Bachelor of Engineering in Computer Science and Technology

University of Science and Technology of China   **Sep 2023 – Jul 2026(expected)**
Master of Engineering in Computer Science and Technology

Publications

Online Federated Learning on Distributed Unknown Data Using UAVs
IEEE International Conference on Data Engineering (**ICDE**), 2024
Xichong Zhang, **Haotian Xu**, Yin Xu, Mingjun Xiao, Jie Wu, and Jinrui Zhou

Enhancing Decentralized Federated Learning with Model Pruning and Adaptive Communication
IEEE Transactions on Industrial Informatics (**TII**), June 2024
Yin Xu, Mingjun Xiao, Jie Wu, Guoju Gao, Datian Li, **Haotian Xu**, Tongxiao Zhang

Research Interests

My research interests lie at the intersection of large language models (LLM), natural language processing (NLP), computer vision (CV), and distributed machine learning. I am particularly fascinated by the advancements in deep learning techniques and their applications in understanding and generating natural language, analyzing visual data, and scaling machine learning algorithms across distributed systems.

- Distributed Machine Learning: Optimization algorithms for distributed model training and federated learning.

- LLM: Few-shot learning and Self-supervised learning.

- LLM+NLP: In-Context Learning with large language model.

- LLM+CV: Representation Learning for 3D understanding.

- Efficient LLM: Model selection and compression.

My goal is to explore innovative approaches that leverage these technologies to solve complex problems and enhance computational capabilities in diverse domains.

Research Experiences

Assistant Research Algorithm Engineer-IFlytek   **Apr 2024– Jun 2024**
Multimodel chemical large model(AI for Science)   *Hefei, China*

- Analyzing chemical molecular formula structures based on representation learning
- Learning chemistry domain knowledge using fine-tuned LLM

Chinese Academy of Sciences Basic and cross Frontier Research-USTC **Apr 2024– Apr 2028(expected)**
Precise Recognition of Custom Scientific Charts and Symbols(Computer Vision)   *Hefei, China*

- Precise Analysis of the Diverse Layouts in Document Formats
- Accurate Hierarchical Edge Detection of Chart Symbols
- Intelligent Parsing of Structured Content in Chart Symbols

Honors and Awards

National Encouragement Scholarship	*November, 2020/21/22*
Outstanding Student Scholarship, USTC	*November, 2022*
First Prize in Anhui Province, National College Student Mathematics Competition	*November, 2021*

Skills

Languages: Mandarin (native), English (intermediate)
Programming Languages: Python, C/C++, Bash, Latex
Deep Learning Frameworks: PyTorch, HuggingFace Transformers