

EDUCATION

Emory University <i>Research Intern</i> <i>Advisor: Prof. Liang Zhao</i> <i>Theme: Multimodal Models, Explainable AI, Medical AI</i>	Atlanta, U.S. May 2024 - Present
University of Michigan <i>M.S. Data Science</i> <i>GPA: 4.0 / 4.0</i> <i>Courses: Large Language Models, Information Retrieval, Machine Learning</i>	Ann Arbor, U.S. Aug. 2023 - Present
Fudan University <i>B.S. Statistics</i> <i>Courses: Data Structures and Introduction to Algorithms, Data Mining, Natural Language Processing</i> <i>Honor Program: AI + X Micro-major Honor Program</i>	Shanghai, China Sep. 2019 - June 2023

PAPERS SUBMITTED

Multimodal Explanation-Guided Learning <i>Yifei Zhang, Tianxu Jiang, Xiaofeng Yang, Liang Zhao</i>	In Preparation
Unified Uncertain Dual-prompts cross-domain Segmentation framework for medical image segmentation <i>Ziyan Qin, Lihan Wang, Yuting Shao, Tianxu Jiang, Qikui Zhu</i>	Submitted

PROJECTS

Multimodal Explanation-Guided Learning ◦ MEGL Paradigm: Proposed framework integrating textual and visual explanations for more comprehensive and explainable AI reasoning ◦ Multimodal Explanations: Enhance the models' understanding of all aspects with multimodal explanations, including saliency maps and textual explanations ◦ Consistency: Further improved calculation of loss to overcome challenge of missing visual explanation modalities with multimodal consistency method	May. 2024 - Sep. 2024
Self-Learning and Teacher-Guided Paradigms in Language Model Alignment ◦ Paradigm Exploration: Explored fine-tuning frameworks to enhance performance of language models through self-learning and teacher-guiding ◦ Learning Architecture: Constructed self-reward preferences pairs to establish a self-learning architecture and utilized assessment of a larger model (Gemini 1.5 Pro) to establish a teacher-guided paradigm ◦ Boosted AlpacaEval Performance: Fine-tuned a 2.7B model (Phi-2) with proposed paradigms and achieved improvement in head-to-head evaluation and AlpacaEval 2.0 (19% progress on the pre-trained model), surpassing Falcon 13B and approaching Alpaca 7B and Davinci001	Feb. 2024 - May 2024
LLaVA-Recipe: Visual Instruction Tuning Enhanced Food Recipe VQA ◦ Culinary Assistant: Augmented the capabilities of Large Language and Vision Assistant (LLaVA) for generating detailed cooking recipe from visual inputs ◦ End-to-end fine-tuning: Constructed a million level multi-turn dialogue dataset based on Recipe1M+ and conducted end-to-end fine-tuning with visual encoder weights frozen ◦ Enhanced Performance in GPT Evaluation: Performed knowledge injection to GPT 3.5 for better evaluation at a lower cost and enhanced the performance of model by up to 27% compared to baseline model	Feb. 2024 - May 2024

INTERNSHIP EXPERIENCE

Shanghai Consumer Big Data Lab (Fudan University) <i>Research Intern</i> ◦ Prediction Framework: Designed and implemented an LSTM-based framework , which effectively forecasted retail sales trend and reduced MAPE by 15% compared to the previous model ◦ Evaluation Methodology: Utilized Difference in Differences(DID) methodology to assess and quantify the impact of the "May 5th Shopping Festival" on consumer spending patterns and sales trend in Shanghai	Shanghai, China Mar. 2022 - Jul. 2022
China Pacific Insurance Group <i>Algorithm Engineer Intern</i> ◦ HRNet-Based Project: Developed a project based on High-Resolution Net (HRNet) for facial analysis ◦ Facial Attributes Detection: Implemented HRNet-based facial expression recognition (e.g. smiles) and facial attributes detection (e.g. dark circles) from key facial coordinates, achieving an accuracy of 87.4% ◦ Facial position estimation: Established HRNet-based facial position estimation (e.g. facial tilts and frontal-profile status) from key facial coordinates, achieving an accuracy of 92.3%	Shanghai, China Jun. 2021 - Aug. 2021

SKILLS

Languages: Python, C, SQL, R
Frameworks: AWS, Google Cloud, Multiprocessing, PyTorch, Transformers, Deepspeed, XGBoost, LightGBM