

EDUCATION

<b>Emory University</b> <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
<b>University of Michigan</b> <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
<b>Fudan University</b> <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

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

PROJECTS

<b>Multimodal Explanation-Guided Learning</b> <ul style="list-style-type: none"><li><b>MEGL Paradigm:</b> Proposed framework integrating textual and visual explanations for more comprehensive and explainable AI reasoning</li><li><b>Multimodal Explanations:</b> Enhance the models' understanding of all aspects with multimodal explanations, including saliency maps and textual explanations</li><li><b>Consistency:</b> Further improved calculation of loss to overcome challenge of missing visual explanation modalities with multimodal consistency method</li></ul>	May. 2024 - Sep. 2024
<b>Self-Learning and Teacher-Guided Paradigms in Language Model Alignment</b> <ul style="list-style-type: none"><li><b>Paradigm Exploration:</b> Explored fine-tuning frameworks to enhance performance of language models through self-learning and teacher-guiding</li><li><b>Learning Architecture:</b> 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</li><li><b>Boosted AlpacaEval Performance:</b> 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</li></ul>	Feb. 2024 - May 2024
<b>LLaVA-Recipe: Visual Instruction Tuning Enhanced Food Recipe VQA</b> <ul style="list-style-type: none"><li><b>Culinary Assistant:</b> Augmented the capabilities of Large Language and Vision Assistant (LLaVA) for generating detailed cooking recipe from visual inputs</li><li><b>End-to-end fine-tuning:</b> Constructed a million level multi-turn dialogue dataset based on Recipe1M+ and conducted end-to-end fine-tuning with visual encoder weights frozen</li><li><b>Enhanced Performance in GPT Evaluation:</b> 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</li></ul>	Feb. 2024 - May 2024

INTERNSHIP EXPERIENCE

<b>Shanghai Consumer Big Data Lab (Fudan University)</b> <i>Research Intern</i> <ul style="list-style-type: none"><li><b>Prediction Framework:</b> Designed and implemented an LSTM-based framework , which effectively forecasted retail sales trend and reduced MAPE by 15% compared to the previous model</li><li><b>Evaluation Methodology:</b> 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</li></ul>	Shanghai, China Mar. 2022 - Jul. 2022
<b>China Pacific Insurance Group</b> <i>Algorithm Engineer Intern</i> <ul style="list-style-type: none"><li><b>HRNet-Based Project:</b> Developed a project based on High-Resolution Net (HRNet) for facial analysis</li><li><b>Facial Attributes Detection:</b> 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%</li><li><b>Facial position estimation:</b> Established HRNet-based <b>facial position estimation</b> (e.g. facial tilts and frontal-profile status) from key facial coordinates, achieving an accuracy of 92.3%</li></ul>	Shanghai, China Jun. 2021 - Aug. 2021

SKILLS

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