Chengxing Xie

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Education

XiDian University, **Xi'An, China**
Undergraduate in Computer Science *Sep. 2021 – June. 2025 (expected)*

- **GPA:** 3.9/4.0
- **Rank:** 1/30 (TOP Class of Computer Science), (Transcript is here),
- **Honor:** National Scholarship
- **Core Courses (score out of 100):** Linear Algebra (98), Probability and Statistics (99), Data Structure & Algorithm (95), Graph Theory (95), Matrix Theory (96), Operating System (96), Database (94), Computational Complexity Theory (96)
- **TOEFL: 110**

Research Interests

My recent research interests focus on the following areas:

- **Autonomous LLM Agents**: I am particularly interested in enhancing the problem-solving capabilities of LLM agents, with a focus on leveraging reinforcement learning methods to train them effectively. My research aims to improve their long-horizon planning abilities and self-correction mechanisms. In addition, I am actively working on an open-source framework dedicated to agent training.
- **LLM Reasoning**: I am keen to explore efficient and effective reasoning methods for LLMs in problem-solving. Existing approaches to reasoning still fall short of achieving human-level performance across diverse tasks. My goal is to investigate and develop reasoning techniques that can significantly enhance the capabilities of LLMs, both in reasoning taskssuch as mathematics and competitive programming and in real-world applications like web interaction and software engineering.

Publication

1. **Can Large Language Model Agents Simulate Human Trust Behavior?**
   - **Chengxing Xie**, Canyu Chen, Feiran Jia, Ziyu Ye, Shiyang Lai, Kai Shu, Jindong Gu, Adel Bibi, Ziniu Hu, David Jurgens, James Evans, Philip Torr, Bernard Ghanem, Guohao Li
   - Accepted in **NeurIPS 2024**, with **70+** citations. The code is Here.
2. **SWE-Fixer: Training Open-Source LLMs for Effective and Efficient GitHub Issue Resolution**
   - **Chengxing Xie**, Bowen Li, Chang Gao, He Du, Wai Lam, Difan Zou, Kai Chen
   - Accepted in **ICLR 2025 Workshop**. Submitted to ACL 2025.
   - Our method achieves the **highest Best@1 score** on SWE-Bench among all open-source model-based approaches. The code is Here.
3. **A Human-Like Reasoning Framework for Multi-Phases Planning Task with Large Language Models**
   - **Chengxing Xie**, Difan Zou
   - Accepted in **ICML 2024 Workshop on LLMs and Cognition**
4. **TFRGAN: Leveraging Text Information for Blind Face Restoration with Extreme Degradation**
   - **Chengxing Xie**, Qian Ning, Weisheng Dong, Guangming Shi
   - **CVPR 2023 Workshop** (Multimodal Learning and Applications Workshop)

Research Experience

Repo-level Code LLM **Openmmlab, Shanghai AI Lab**
Research Intern *July. 2024 – Present*

- Advisor: Bowen Li, Kai Chen
- My work is focused on improving the performance of open-source LLMs on the SWE-Bench benchmark, which evaluates the ability of LLMs to solve real-world GitHub issues. We propose **SWE-Fixer**, an open-source model-based approach that achieves competitive performance compared to proprietary model-based methods and reaches **the highest Best@1 score** among all existing open-source model-based solutions.

Human-Like Reasoning Framework for Multi-Phases Planning Task **HKU**
Research Assistant *March. 2024 – July. 2024*

- **Advisor:** Prof. Difan Zou

- LLM agents struggle with complex tasks requiring comprehensive planning, such as multi-phase travel planning, due to various constraints and uncertainties.
- We developed a human-like planning framework for LLM agents, guiding them to simulate human problem-solving steps. This includes generating coherent outlines, integrating a Strategy Block for information collection, and a Knowledge Block for detailed planning.
- Our framework, tested with GPT-4-Turbo, significantly enhances planning capabilities, achieving a 10x performance improvement over the baseline. The paper is Here

CAMEL Project **KAUST**
Visiting Student *May. 2023 – Jan. 2024*

- **Advisor:** Prof. Bernard Ghanem, Dr. Guohao Li
- Current Research Project: *Uncovering the Trust Behaviors of Large Language Model Agents* . In the realm of LLM applications, there is a hypothesis that these models are adept at simulating human behavior. My research delves into the nuances of this claim, specifically focusing on whether LLM agents can simulate human trust behaviors. This project aims to critically assess and understand the ability of LLMs to mirror such complex human behavior. The paper is **Here**, and the code is **Here**.

Photoelectric Imaging and Brain-like Perception Lab **XiDian University**
Research Assistant *Nov. 2022 – May. 2023*

- **Advisor:** Prof. Weisheng Dong, Dr. Qian Ning
- Working on "Blind face restoration with Multimodal guidance"
- Current face restoration models predominantly depend on pre-existing image priors to accomplish the task of restoration. We incorporate textual information for the face restoration task. By fusing text annotations with image features, we make restored facial images more closely resemble real-life scenarios. **The results have been accepted by a CVPR workshop., Multimodal Learning and Applications**.

SenseTime Research **SenseTime (Xi'An)**
Algorithm Intern, AI for Health Team *Feb. 2022 – Nov. 2022*

- **Mentor**: Dr. Qigong Sun, worked on "An Intelligent Care System for People with Disabilities"
- I joined three projects: (1) developed a cough detection algorithm based on SED tasks for real-time monitoring and emergency alerting, now integrated into SenseTime products; (2) designed a privacy-preserving sleep quality evaluation system using thermal imaging and motion tracking, also productized; and (3) trained an Audio-Text CLIP model on AudioSet using DistilBERT and Data2Vec encoders, linking sound to text with steadily improving performance.

Skills

Programming Language: C, C++, python

Deep Learning Framework: Pytorch, Tensorflow

Hobby: badminton, bodybuilding, animation