

Chengxing Xie |

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Education

XiDian University,

Undergraduate in Computer Science

Xi'An, China

Sep. 2021 – June. 2025 (expected)

- **GPA:** 3.9/4.0, **Rank:** 1/29, (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)

KAUST

Visiting student (VSRP Program)

Saudi Arabia

Aug. 2023 – Jan. 2024

- **Advisor:** Prof. Bernard Ghanem, Dr. Guohao Li
- **Project:** LLM Agent Alignment with Human regarding Trust Behavior

Research Interests

My recent research interests focus on the following areas:

- **Autonomous LLM Agents:** My research interests are centered on the advanced capabilities of LLM agents, with a focus on enhancing their problem-solving abilities. I'm also interested in developing more effective human-agent and agent-agent communicative systems.
- **Multimodal Generative Model:** I am interested in the synergistic integration of language and multimodal (image, video, audio) generation techniques. Particularly, I plan to utilize LLM Agent with image-generation models as tool for more complicated tasks (like movie generation).

Publication

1. **Uncovering the Trust Behaviors of Large Language Model Agents**
 - **Chengxing Xie**, Canyu Chen, Feiran Jia, Ziyu Ye, Ziniu Hu, Kai Shu, Bernard Ghanem, Guohao Li
 - Submitted to **ICML 2024**
2. **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

CAMEL - Communicative LLM Agent

Visiting Student

KAUST

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 will **be published soon**, and the code will **commit to the Camel Project**.
- In parallel with my primary research, I have also replicated studies related to the Prisoner's Dilemma. Additionally, our work includes a function of structured output through function calls in the OpenAI API, and commits a new PR.

Photoelectric Imaging and Brain-like Perception Lab

Research Assistant

XiDian University

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.**
- I am currently exploring employing **diffusion models** into Blind Face Restoration tasks.

SenseTime Research

Algorithm Intern, AI for Health Team

SenseTime (Xi'An)

Feb. 2022 – Nov. 2022

- Mentor: Dr. Qigong Sun, worked on "An Intelligent Care System for People with Disabilities"
- **Project 1: Cough Detection**
 - Persistent coughing issues are prevalent and potentially life-threatening in severe cases. We developed a specialized cough detection algorithm (Based on SED Task) tailored for continuous cough monitoring. The algorithm is designed to automatically trigger an alarm when persistent coughing is detected in the monitored individual.
 - **This innovative feature has been successfully integrated into SenseTime products and is actively being utilized in real-world scenarios, notably in the battle against the COVID-19 virus.**
- **Project 2: Sleep Quality Evaluation Depending on Thermal Images**
 - To mitigate privacy concerns and adapt to dark conditions, our approach employs thermal imaging technology instead of conventional RGB imagery for evaluating individuals' sleep states. This method enables the generation of detailed sleep reports while maintaining privacy.
 - The system monitors real-time variations in body pixel points to infer the sleep state of an individual based on their movement patterns. This creates comprehensive sleep state graphs, offering valuable insights into sleep quality.
 - **This advanced feature has been integrated into the corresponding SenseTime product line, demonstrating its practical applicability and effectiveness.**
- **Project 3: Audio-Text CLIP Model**
 - The task is to establish an effective link between sound and its corresponding textual representation. I train Audio-Text CLIP model on the AudioSet dataset and integrates the capabilities of DistilBert and Data2Vec encoders. The complete methodology and codebase can be accessed in our GitHub repository: audio-text-clip.
 - Throughout various training iterations, I have observed a consistent reduction in loss metrics and a corresponding increase in model accuracy.

Self-Instructed Online AI Courses

Stanford CS231n: Convolutional Neural Networks for Visual Recognition

Taught by Prof. Fei-Fei Li, Justin Johnson and Serena Yeung

Sep. 2021-Oct. 2021

- In this course I learn fundamentals of neural networks, and various architectures such as MLP, CNN, and Transformers, with core concepts of Forward Propagation, BP, SGD, and regularization. Additionally, I explore classic CV tasks, including image classification, object detection, and segmentation, along with SOTA algorithms for them.

Stanford CS236: Deep Generative Models

Taught by Prof. Stefano Ermon and Dr. Yang Song

Sep. 2021-Oct. 2021

- In this course I delve into the probabilistic foundations of deep generative models, including VAE, GAN, autoregressive models, normalizing flow models, energy-based models, and score-based (diffusion) models.

UCSB Game 101: Introduction to Modern Computer Graphics

Taught by Prof. Lingqi Yan

Sep. 2021-Oct. 2021

- I learn basic Computer Graphics from the course. I also read the book: 'Ray Tracing In One Week', and can create a photo containing a 3D ball only use Visual studio c++ from scratch, not based on OpenGL

Skills

Programming Language: C, C++, python

Deep Learning Framework: Pytorch, Tensorflow

Computer Graphics Tools: Vulkan

Others: PS, LATEX

Hobby: badminton, bodybuilding, animation

Extra-Curriculum Activities

- the member of Xidian MSC club (Artificial Intelligence Department and ACM Group). Help organize the technology salons hosted by the MSC Club