Zhiyi Lai

(+86) 131-1878-9605 | yncxlzy@gmail.com | Github @ L4zyy | Website: L4zyy.github.io

Education

UNIVERSITY OF MASSACHUSETTS AMHERST **2019.9 - 2021.2**
Master's in Computer Science GPA: 3.925/4.0

HUAZHONG UNIVERSITY OF SCIENCE & TECHNOLOGY **2014.9 - 2018.6**
Bachelor of Computer Science and Technology **Outstanding Graduates** GPA: 3.63/4.0

NATIONAL UNIVERSITY OF SINGAPORE **2017.7 - 2017.8**
Computer Graphics Summer Program Grade: A

Work Experience

XIAOMI **May 2021 - Present**
Senior Machine Learning Engineer @ XIAOMI EV Beijing, China

In the perception data team, Deeply involved in the entire process of data filtering, launched a data retrieval system based on **CLIP and LMM**, and led the development and research of **VLM and LMM**.

- Build video retrieval system with 500k captioned video data
  - Optimized LLaVA-based LMM through SFT/LoRA, empowering Auto-Triage's problem distribution.
  - Build a self-driving multi-modal dataset including 50k video data and 900k image data.
  - Build a RLHF training framework and video annotation pipeline, produce 50k human labeled video data to optimize LMM generating caption more related to important object in self-driving area.
- Enhance the image retrieval system with large detection and segmentation model
  - Developed a large detection and segmentation model based on Grounding-DINO.
  - Compared the trained model with CLIP-based retrieval system, the accuracy of detecting special obstacles has increased by 50% on average, mined over 600k false and missed detection data.
  - Supports 100+ types of special obstacle detection (municipal vehicles, small animals). The entire process of mining new categories is completed within one week.
- Developed a CLIP-based image retrieval system.
  - Maintained a vector database of 7.5 million frames and about 1 million kilometers of data with CLIP.
  - Improved the road condition and single target search results by combining the detection results.

Personal Projects

LOASIS **Independent Developer**
- A game project based on LLM, using LLM as the host to generate DnD-Like game stories.
- Adjust the generated story by Prompt Engineering to make it fulfill the game's theme and length limit.
- Use Streamlit to build the front-end, and use MongoDB to store game and user data.

Technologies/tools: GPT-4, LLaMA-2, Prompt Engineering, Streamlit, MongoDB

CAMEL-AI.org **Open Source Contributor**
- CAMEL is an open-source library designed for the study of autonomous and communicative agents.
- Implemented Azure OpenAI API support for CAMEL.

Technologies/tools: LLM Agents, OpenAI API

Awesome AI in Game **Open Source Contributor**
- An open source page that organizes game-related AI papers and projects. Including action generation, RL and LLM-related game papers as well as open source game environments, LLM games and more.

Skills

Programming Language: Python, Shell **Language**: Chinese: Native, English: Fluent(TOEFL 100)
ML/AI: PyTorch, DeepSpeed, OpenCV, Streamlit / Gradio, Milvus **Others**: Git, Vim, LaTeX, Unity