Yuhang (Andy) Zeng

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Education

The Hong Kong University of Science and Technology (HKUST) Clear Water Bay, Hong Kong
Bachelor of Science in Data Science and Technology, additional major in Computer Science (Rank: 6 / 45) *Sep 2021 – May 2025*

- Honors: HKSAR Government Scholarship Fund - Reaching Out Award (2024), HKUST Alumni Endowment Fund High Flyers Program Scholarship(2024), Dean's List, Chern Class Talent Scholarship(2022/23/24)
- Relevant Coursework: Advanced Deep Learning Architectures, Natural Language Processing, Statistical Inference

Northwestern University Evanston, IL
Exchange program in McCormick School of Engineering (GPA: 3.940 / 4.0) *Sep 2023 – Dec 2023*

- Relevant Coursework: Machine Learning, Database Management System, Regression Analysis, Human-Computer Interaction

Publications

- J Hu, J Li, **Y Zeng**, D Yang, D Liang, H Meng, and X Ma, Designing Scaffolding Strategies for Conversational Agents in Dialog Tasks of Neurocognitive Disorder Screening, Proceedings of the CHI Conference on Human Factors in Computing Systems(2024), 1-21.

Research & Work Experience

Cloud & Smart Industries Group, Tencent Holdings Ltd. Shenzhen, China
Solution Architect Intern *Jun – Sep 2024*

- Cooperated with the **facial recognition** team, identifying modeling bias by analyzing **accuracy disparities** in minority populations, leading to improved metrics and initiatives for **model fine-tuning** focused on underrepresented groups.
- Build a demonstration with the **LLM Knowledge Engine** product, familiarized with **Retrieval Augmented Generation**, knowledge base, and flow control. Utilized **data crawling tools** to conduct business opportunity analytics.

Undergraduate Research Opportunities Program, HKUST Clear Water Bay, Hong Kong
Designing Conversational Agents for Neurocognitive Disorders Screening *Feb – Sep 2023*

- Developed a scaffolding framework for **conversational agents** for NCD screening, integrated **GPT-3.5 API** calls to help with decision-making, and designed the tester-end in the exploratory wizard-of-Oz study.
- Developed the subject-end user interface and designed the **game UI** with **Django** and **React JS**.
- Proposed **HCI** design implications for improving conversational agents to enable scalable and effective NCD screening.

Final Year Project of The Department of Computer Science & Engineering, HKUST Clear Water Bay, Hong Kong
Generating Songs Based on Theme Using Large-Language Models (e.g., ChatGPT) *Jun 2024 – May 2025*

- Developed a framework for whole song generation with **Large-Language Model Programming.**
- Conducted **prompt engineering** experiments to optimize the performance of LLMs in generating high-quality lyrics.
- Used **data crawling** techniques to collect song data for fine-tuning models and designed a **reinforcement learning-based** reward mechanism to optimize lyrics-melody alignment.

Conference & Project Experience

A Variation of Graph Neural Network to Continuous Node Space for Session-based Recommendation *Feb – May 2024*

- Developed a novel session-based recommendation approach utilizing a variation of **Graph Neural Networks** to address **data sparsity** and enhance item relationship modeling.Proposed a **continuous node space** model that employs an edge density function based on **Gaussian distributions**, improving the ability to capture complex interactions among items. Implemented a generative model to simulate **embedding functions**, achieving better performance in predicting unseen items.

UROP Mini Conference Supervised by Prof. Xiaojuan Ma *Feb – May 2024*

- Engineered a multimodal architecture integrating speech and movement signals to enhance the agent's interaction capabilities. Implemented boundary detection mechanisms in **Three JS**, integrated the Web Speech API for **asynchronous speech recognition**, and designed the l**ogical algorithm** to achieve system automation. Designed the poster, demonstrated the project at a mini-conference, and was selected as the **Best UROP Mini-conference Paper Award Finalist.**

Technical Skills

Programming: Python (Scikit-Learn, PyTorch, Pandas, Numpy, Matplotlib), R, C++, Java, HTML, CSS, Javascript
Machine Learning: Supervised (tree-based, SVM, Bayesian), Unsupervised (K-means, GMM), Neural Networks, GAN
Stats & Database: Statistical Inference, Regression Analysis, SQL, A/B Testing & Experimental Design