# Zekai Zhang

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## EDUCATION

#### **Turing Class, Peking University**

Bachelor of Science in Computer Science and Technology

- GPA: 3.84/4.0, Ranking: 14/385, top 5% in EECS Department.
- Core Courses: NLP with Deep Learning (98), Multimodal Learning (96), Practice on Frontier Research I/II (96/97), Game Theory (100), Introduction to AI, Mathematics for Computer Science, Probability and Statistics, Advanced Algebra I/II

# SKILLS SUMMARY

- Language Skills: Mandarin (Native); English (TOEFL 108, CET6 644)
- LLM Skills: Agent (OpenAI API, LangChain, Prompt skills), Alignment (Pytorch, DeepSpeed, Efficient Methods)
- Experience: I gained experience in distributed training and deployment of LLMs on up to 32 A100 GPUs and 128 V100s.

## Research Experience

## **Stylized Dialogue Generation**

Advisor: Prof. Dongyan Zhao

- Explore style knowledge augmentation strategies to resolve low resource problems. Design a feature-guided selection module with response-related contrastive learning and style responsiveness KL losses. Result in a paper in EMNLP findings.
- Revisit Stylized Dialogue Generation in LLM era. Propose a training framework with recitation augmented memory and multi-task style learning strategy to activate LLM's style abilities. Result in a paper called StyleChat, which is under review.

## Evaluation for Task Completion of LLMs

Advisor: Senior Researcher Yaobo Liang

- Propose to evaluate LLM's task completion ability in real world scenarios through PPT task. Design an evaluation system that consider multiple possible solutions and benchmark existing LLMs. Result in a paper called PPTC, which is under review.
- Further explore LLM's robustness in task completions. Introduce sentence-level, semantic-level, language-level, and api-level perturbation for robustness evaluation. Result in a paper called PPTC-R, which is under review.

#### LLMs for Visual Synthesis

Advisor: Senior Researcher Chenfei Wu

• Explore LLM's compositional generation abilities for visual synthesis. Pioneer to represent graphics using SVG and leverage coding abilities of LLM. Achieve better compression rates for SVG by defining strokes through VQ-VAE. Result in a paper called StrokeNUWA, which is under review.

# PUBLICATIONS

\* indicates equal contributions

- Zekai Zhang\*, Yiduo Guo\*, Yaobo Liang, Dongyan Zhao, and Duan Nan. PPTC-R benchmark: Towards Evaluating the Robustness of Large Language Models for PowerPoint Task Completion. Under Review, 2024.
- Zekai Zhang\*, Yiduo Guo\*, Yaobo Liang, Dongyan Zhao, and Duan Nan. PPTC benchmark: Evaluating large language models for powerpoint task completion. Under Review, 2023.
- Zekai Zhang\*, Jinpeng Li\*, Quan Tu, Xin Cheng, and Dongyan Zhao, Rui Yan. StyleChat: Learning Recitation-Augmented Memory in LLMs for Stylized Dialogue Generation. Under Review, 2024.
- Zekai Zhang\*, Jinpeng Li\*, Xiuying Chen, Dongyan Zhao, and Rui Yan. Stylized Dialogue Generation with Feature-Guided Knowledge Augmentation. EMNLP Findings, 2023.
- Zecheng Tang, Chenfei Wu, Zekai Zhang, Mingheng Ni, and Shengming Yin, Yu Liu, Zhengyuan Yang, Lijuan Wang, Zicheng Liu, Juntao Li. StrokeNUWA: Tokenizing Strokes for Vector Graphic Synthesis. Under Review, 2024.

# Honors and Awards

- Awarded the John Hopcraft Scholarship (Turing Class  $\mathbf{Only})$  in Dec, 2023 •
- Awarded the John Hopcraft Scholarship (Turing Class Only) in Dec, 2022
- Awarded title of Scientific Research Excellents (Top 10% among undergraduates and graduates) in Sep. 2022
- Awarded the second prize of Dean's Scholarship for Freshman (Top 5%) in Apr, 2022
- Awarded the John Hopcraft Scholarship (Turing Class Only) in Dec, 2021
- Awarded the second prize of Freshman Scholarship (Top 5%) in Sep, 2020
- Ranked 4/50000+ in National College Entrance Examination (Top 0.01%) in Jul, 2020

NLC Group, Microsoft Asia

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WICT, Peking University

Beijing, China Sep 2020 - Jul 2024