Xiaohan Zou

✉ xfz5266@psu.edu | ⌨ Renovamen (5k+ stars) | ⌂ zxh.me | in xiaohan-zou

Education

Pennsylvania State University — State College, PA
Ph.D. in Computer Science and Engineering — 08/2023 - 05/2027 (Expected)
Advisors: Prof. George Kesidis & Prof. Lu Lin

Boston University — Boston, MA
M.S. in Computer Science — 09/2021 - 01/2023

Tongji University — Shanghai, China
B.Eng. in Software Engineering — 09/2016 - 07/2020

Publications & Preprints (also see Google Scholar)

P1 **Learning Conditional Space-Time Prompt Distributions for Video Class-Incremental Learning**
Xiaohan Zou, Wenchao Ma, Shu Zhao, Huijuan Xu
In Submission, 2024

P2 **Reconstruct before Query: Continual Missing Modality Learning with Decomposed Prompt Collaboration**
Shu Zhao, Xiaohan Zou, Tan Yu, Huijuan Xu
In Submission, 2024

P3 **Leveraging an LLM-Enhanced Bilingual Conversational Agent for EFL Children's Dialogic Reading: Insights from Children, Parents, and Educators**
Feiwen Xiao, Zhaohui Li, Jiaju Lin, Xiaohan Zou, Dandan Yang, Wenting Zou, Jinjun Xiong
In Submission, 2024

P4 **TokenFlow: Rethinking Fine-grained Cross-modal Alignment in Vision-Language Retrieval**
Xiaohan Zou, Changqiao Wu, Lele Cheng, Zhongyuan Wang
Preprint, 2022

P5 **Efficient Meta-Learning for Continual Learning with Taylor Expansion Approximation**
Xiaohan Zou, Tong Lin
*International Joint Conference on Neural Networks (IJCNN), 2022, **Oral***

P6 **To be an Artist: Automatic Generation on Food Image Aesthetic Captioning**
Xiaohan Zou, Cheng Lin, Yinjia Zhang, Qinpei Zhao
*International Conference on Tools with Artificial Intelligence (ICTAI), 2020, **Oral***

P5 **A Survey on Application of Knowledge Graph**
Xiaohan Zou
International Conference on Control Engineering and Artificial Intelligence (CCEAI), 2020

Experience

Pennsylvania State University — State College, PA
Research Assistant (Advisor: Prof. Lu Lin & Prof. George Kesidis) — 2024 - Present
Topic: Safety of Multimodal Large Language Models
Showed that adding image inputs to MLLMs degrades safety alignment due to shifts in LLM's hidden states, and proposed interventions to mitigate this while preserving the utility.

Research Assistant   2023 - 2024

Topic: Video Continual Learning & Continual Missing Modality Learning

- Modeled the prompt space of the pre-trained image model as a conditional distribution for video continual learning, enhancing generalization and performance to achieve SoTA results (P1).
- Handled non-static data with missing modalities by designing modality-specific prompt components and using knowledge from multimodal models to reconstruct inputs for absent modalities (P2).

Boston University   Boston, MA

Graduate Research Intern (Advisor: Prof. Bryan Plummer)   2022 - 2023

Topic: Parameter-Efficient Continual Learning

Achieved zero forgetting with a fixed, arbitrary parameter budget, surpassing most methods by using task-specific networks defined through shared weight templates, with less than one-fifth of the parameters.

Kuaishou Technology · Intelligent Creation Team   Beijing, China

Machine Learning Engineer Intern (Mentor: Changqiao Wu)   2021 - 2022

Topic: Video-Text Retrieval

Developed fine-grained cross-modal semantic alignment for video/image-text retrieval (see P4). Created a PyTorch codebase to streamline video-text retrieval for both research and production use.

China Electronics Technology Group Corporation   Chongqing, China

Software Engineer Intern   2020 - 2021

Participated in developing a security visualization system for an archaeological site, utilizing Vue and Cesium.

Banana Interactive   Shanghai, China

Game Engineer Intern   2019 - 2020

Developed and maintained three HTML5 games using JavaScript and Affinity Designer.

Awards & Honors

Bronze, China Collegiate Programming Contest (CCPC)	2018
Second Prize, China Mathematical Contest in Modeling (CUMCM)	2017, 2018
Second Prize, Tongji University Programming Contest	2017, 2018
Second Prize, East China Normal University Programming Contest	2017

Professional Services

Conference Reviewer for NeurIPS 2023	
Vice Chief Technology Officer & Chief Experience Officer at Tongji Microsoft Student Club	2018 - 2019

Teaching Assistant

CMPSC 465 Data Structures and Algorithms (PSU)	Fall 2024

Skills

Programming Languages: Python, JavaScript / TypeScript, HTML / CSS, Java, C++, MATLAB

Tools and Frameworks: ⭕ PyTorch, ◥ Vue, ⚛ React, ◖ Flask, **dj** Django, 🐧 Linux, ◈ Git, LaTeX

Languages: Chinese (native), English (proficient)