

# Xiaohan Zou

✉ xfz5266@psu.edu | 🌟 Renovamen (5k+ stars) | 🏠 zxh.me | 🌐 xiaohan-zou

## Research Interests

My current research focuses on trustworthiness and safety in multimodal foundation models. My research vision is to enhance multimodal AI systems to be robust, adaptable, and efficient in practical environments, addressing ethical concerns and handling biased, noisy, and out-of-distribution inputs effectively.

## Education

<b>Pennsylvania State University</b>	State College, PA
Ph.D. in Computer Science and Engineering	08/2023 - Present
<b>Boston University</b>	Boston, MA
M.S. in Computer Science	09/2021 - 01/2023
<b>Tongji University</b>	Shanghai, China
B.Eng. in Software Engineering	09/2016 - 07/2020

## Publications & Preprints (also see [Google Scholar](#))

- P1 **Reconstruct before Query: Continual Missing Modality Learning with Decomposed Prompt Collaboration**  
Shu Zhao, [Xiaohan Zou](#), Tan Yu, Huijuan Xu  
*In Submission, 2024*
- P2 **TokenFlow: Rethinking Fine-grained Cross-modal Alignment in Vision-Language Retrieval**  
[Xiaohan Zou](#), Changqiao Wu, Lele Cheng, Zhongyuan Wang  
*Preprint, 2022*
- P3 **Efficient Meta-Learning for Continual Learning with Taylor Expansion Approximation**  
[Xiaohan Zou](#), Tong Lin  
*International Joint Conference on Neural Networks (IJCNN), 2022, Oral*
- P4 **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*

## Internships

<b>Boston University</b>	Boston, MA
Graduate Research Intern (Advisor: Prof. <a href="#">Bryan Plummer</a> )	2022 - 2023
<i>Topic: Parameter-Efficient Continual Learning</i> 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.	
<b>Kuaishou Technology · Intelligent Creation Team</b>	Beijing, China
Machine Learning Engineer Intern (Mentor: <a href="#">Changqiao Wu</a> )	2021 - 2022
<i>Topic: Video-Text Retrieval</i> Developed fine-grained cross-modal semantic alignment for video/image-text retrieval (see <a href="#">P2</a> ). Created a PyTorch codebase to streamline video-text retrieval for both research and production use.	

## China Electronics Technology Group Corporation

Software Engineer Intern

Chongqing, China

2020 - 2021

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

## Banana Interactive

Game Engineer Intern

Shanghai, China

2019 - 2020

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

## Peking University

Undergraduate Research Intern (Advisor: Prof. [Tong Lin](#))

Beijing, China

2018

*Topic: Semi-Supervised Machine Translation*

Designed two denoising auto-encoders with shared hidden space to enhance dual task learning and utilize unpaired data, significantly outperforming strong baselines in scenarios with limited labeled data.

## Awards & Honors

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**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

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Conference Reviewer for NeurIPS 2023

**Vice Chief Technology Officer & Chief Experience Officer** at Tongji Microsoft Student Club 2018 - 2019

## Teaching Assistant

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CMPSC 465 Data Structures and Algorithms (PSU)

Fall 2024

## Skills

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

**Tools and Frameworks:**  PyTorch,  Vue,  React,  Flask,  Django,  Linux,  Git,  $\text{\LaTeX}$

**Languages:** Chinese (native), English (proficient)