

Kaiwen Zhou

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Github: //github.com/KevinZ-01

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Research interests

Deep Learning, Natural Language Processing, Multi-modal Learning, Computer Vision, Embodied AI

Education

University of California, Santa Cruz

Ph.D. in Computer Science and Engineering

Sep. 2021 – Present

Advisor: Prof. Xin Eric Wang. *GPA: 3.64.*

Zhejiang University

B.S. in Statistics

Sep. 2017 – June 2021

Advisor: Prof. Kewei Liang. *GPA: 3.89.*

Work experience

Samsung Research America

Research intern

June 2022 – Sep. 2022

Mentor: Yilin Shen

Publications

FedVLN: Privacy-preserving Federated Vision-and-Language Navigation

Kaiwen Zhou, Xin Eric Wang.

17th European Conference on Computer Vision (ECCV), 2022.

JARVIS: A Neuro-Symbolic Commonsense Reasoning Framework for Conversational Embodied Agents

Kaizhi Zheng*, Kaiwen Zhou*, Jing Gu*, Yue Fan*, Jialu Wang*, Zonglin Di, Xuehai He, Xin Eric Wang.

In arxiv 2022

Winner Model of the Alexa Prize SimBot Public Benchmark Challenge

Navigation as the Attacker Wishes? Towards Building Byzantine-Robust Embodied Agents under Federated Learning

Yunchao Zhang, Zonglin Di, Kaiwen Zhou, Cihang Xie, Xin Eric Wang.

In arxiv 2022

Research experience

Commonsense Reasoning for Zero-shot Object Navigation

Advisor: Prof. Xin Eric Wang, Dr. Yilin Shen

June. 2022 – Now

We proposed a framework that combines the semantic understanding and commonsense reasoning abilities of pre-trained VLM and LLM and classical navigation methods for zero-shot object navigation, which requires neither navigation experience, nor any data from the navigation environments for training and achieves SOTA zero-shot object navigation performance.

Neuro-Symbolic Commonsense Reasoning Framework for Conversational Embodied Agents

Advisor: Prof. Xin Eric Wang

Mar. 2022 – May 2022

We proposed a neuro-symbolic methods which uses neural methods to acquire symbolic representation about the task and environment, then uses symbolic reasoning module to reason on the symbolic representation for action generation. *Our method won the simbot public challenge.*

Privacy-preserving Federated Vision-and-Language Navigation

Advisor: Prof. Xin Eric Wang

Sep. 2021 – Mar. 2022

We study the data privacy problem of VLN and propose a federated learning framework for vision and language navigation. Under this framework we not only preserve the training and inference data privacy with comparable results with centralized training, but also outperforms other pre-exploration methods.

Teaching experience

Teaching assistant, UC Santa Cruz

Winter 2022

CSE 20: Beginning Programming in Python

Other experience

Amazon Alexa Prize SimBot Challenge

Advisor: Prof. Xin Eric Wang

Jan. 2022 – Present

We investigate the problem of dialog-based embodied instruction following on TEACH benchmark and win the public challenge in the first phase. In the second phase, we are building an interactive embodied agent that can finish diverse tasks cooperating with human players.

Honors and scholarships

Outstanding undergraduate graduate (Zhejiang University)

2021

Second-class scholarship (Zhejiang University)

2020

First-class scholarship (Hailiang Group)

2020

Second-class scholarship (Zhejiang University)

2019

Provincial Government Scholarship (Zhejiang Province)

2019

Skills

Programming

Python, C++, Matlab, R, Pytorch, Tensorflow.

Languages

English, Chinese, Cantonese

Other interests

Singing, Working out, Traveling, Photographing.