Kaiwen Zhou

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Email: kzhou35@ucsc.edu **Github**: //github.com/KevinZ-01 **Webpage**: https://kevinz-01.github.io/

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

ESC: Exploration with Soft Commonsense Constraints for Zero-shot Object Navigation
Kaiwen Zhou, Kaizhi Zheng, Connor Pryor, Yilin Shen, Hongxia Jin, Lise Getoor, Xin Eric Wang.
40th International Conference on Machine Learning (ICML), 2023.

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 – Jan. 2023
We proposed a framework that combines the commonsense reasoning of pre-trained LLM and classical navigation methods via Probabilistic Soft Logic (PSL) for training-free zero-shot object navigation. We 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 2023
CSE 20: Beginning Programming in Python

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 – Apr. 2023
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. We won the third place in the second phase.

Honors and scholarships

Third Place in Amazon Alexa Prize SimBot Challenge 2023
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.