

Jie Zhu

2nd Year CS PhD Student advised by Prof. Xiaoming Liu, Michigan State University, United State
(EMAIL) zhujie4@msu.edu — (TEL) +1 (202) 758-8919 — LinkedIn — Github — Personal page

RESEARCH INTERESTS

Representation Learning, Multi-modal, VLMs, Image Understanding, Biometric Recognition

EDUCATION

Michigan State University, United States

Computer Science Doctoral Program

Research Areas: Representation Learning, Multi-modal, and Biometric Recognition

Aug 2023 – Apr 2028

Cumulative GPA: 4.0/4.0

George Washington University, Washington, DC, United States

Master of Science in Computer Science

Sep 2021 – May 2023

Cumulative GPA: 3.9/4.0

Northeastern University, Shenyang, China

Bachelor of Science in Computer Science

Aug 2016 – Jun 2020

Rank: Top 30

PUBLICATIONS

Conference Papers

- Junwen Chen, **Jie Zhu**, and Yu Kong. 2023. ATM: Action Temporality Modeling for Video Question Answering. *Proceedings of the 31st ACM International Conference on Multimedia (MM)*, 2023.
- **Jie Zhu**, Mengsha Hu, Amy Zhang and Rui Liu. Fairness-Sensitive Policy-Gradient Reinforcement Learning for Reducing Bias in Robotic Assistance. *33rd IEEE International Conference on Robot and Human Interactive Communication (ROMAN)*, 2024.

Under Review

- **Jie Zhu**, Minchul Kim, Zhizhong Huang, and Xiaoming Liu. Subtoken Image Transformer (SiT) for Generalized Category Discovery. *submit to ICCV2025*.
- **Jie Zhu**, Yiyang Su, Minchul Kim, Anil Kumar Jain, and Xiaoming Liu. A Quality-Guided Mixture of Score-fusion Experts Framework for Human Recognition. *submit to ICCV2025*.

ACADEMIC EXPERIENCE

ACTION Lab, Michigan State University

Research Intern - (VQA, Action Understanding)

United States

Feb 2022 – Nov 2022

- We propose the **ATM** to address VideoQA featuring temporal dynamic reasoning by faithful action modeling. Our action-centric contrastive learning learns action-aware representations from both vision and text modalities.
- We present an **Action-centric Contrastive Learning (AcCL)** for action-plentiful cross-modal representation.
- We fine-tune the model with a newly developed **temporal sensitivity-aware confusion loss (TSC)** that mitigates static bias in temporality reasoning.
- Comprehensive experimental results demonstrate the effectiveness of ATM, especially for temporal reasoning and action understanding with +2.1% improvement on *NExT-QA* and +5.8% on *TGIF-QA*.

Cognitive Robotics and AI Lab, Kent State University

Research Intern - (Fairness, Reinforcement Learning)

United States

Mar 2022 – Dec 2022

- We identify four types of **fairness issues** that appear in Human-Robot Interaction in restaurant scenarios to evaluate robots fairness performance.
- We propose a method called Fairness-Sensitive Policy-Gradient Reinforcement Learning for Reducing Bias in Robotic Assistance (FSPGRL) to mitigate robot bias. We demonstrate the effectiveness of our method using *PPO* and *REINFORCE* RL algorithms.
- We developed a logistic regression model for timely robot bias detection during service. We set up a questionnaire to survey attitudes toward robot behavior to collect data for model training.

WORK EXPERIENCE

Inter-American Development Bank

AI Analytics Consultant - (LLM, Web Design)

United States
Jun 2023 – Aug 2023

- Engineered web scraping pipelines using BeautifulSoup and Scrapy to process multilingual news content from 50+ media sources.
- Developed ChatGPT-powered dashboard for automated summarization and trend analysis of text/video news.
- Developed a framework for multimedia content extraction using Automated Speech Recognition (ASR) and ChatGPT.

Research of Institute of Tsinghua, Pearl River Delta

Software Engineer

Guangzhou, China
Sep 2020 – Aug 2021

- Developed phoneme-based text normalization pipeline for TTS systems using Tacotron 2.
- Implemented Speech Quality Assessment system with ASR and feature similarity.
- Built proprietary Mandarin speech dataset containing 100,000+ clean/noisy audio samples with text transcriptions.

Seeking AI Co. Ltd.

R&D Intern

Guangzhou, China
Dec 2019 – Apr 2020

- Developed automated dimensional analysis tool using OpenCV contour detection.
- Contributed to CI/CD pipelines using GitLab for model deployment on edge devices.

PROJECTS

Intellectual Property Management System Based on Blockchain

Graduation Project

Shenyang, China
Mar 2020 – Jun 2020

- Design the system structure by analyzing the demand of the market.
- Use Flask to build the website, which includes IP register, IP trade, and electrical evidence generation functions.

Intellectual Property Management System Based on Blockchain

Graduation Project

Shenyang, China
Mar 2020 – Jun 2020

- Design the system structure by analyzing the demand of the market.
- Use Flask to build the website, which includes IP register, IP trade, and electrical evidence generation functions.

Fake News Information Analysis and Visualization Platform

Developer

Shenyang, China
Jun 2018 – Jan 2019

- Checked and cleansed data, calculated similarities, and extracted keywords for 10k+ copies of texts using ELMO model.
- Detected duplicates between new data and the database, with an accuracy rate of 92% in the screening test.

HONORS & AWARDS

Graduate Tuition Fellowship

Faculty Awards of Computer Animation

Third Prize Scholarship

Aug 2022
Dec 2021
Sep 2018 – Jul 2020

Academic Services & Activities

- **Reviewer**
FG 2024-2025
IJCBLLR 2024
- **Teaching Experience**
Computer Animation Fall 2022
Computer Graphic II Spring 2023

SKILLS

- **Programming:** Python, HTML, CSS, JavaScript, Golang, Java, C++.
- **Deep Learning Frameworks:** PyTorch, Hugging Face, TensorFlow.
- **Languages:** Chinese (Native), Cantonese (Native), TOEFL 102 (Speaking: 24).
- **Others:** Linux, LaTeX, GitHub, MuJoCo, Unity (AR/VR development).