HAOHAO ZHU

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EDUCATION

School of Artificial Intelligence, Tianjin Normal University

B.S., Intelligence Science & Technology   Sep. 2020 - Present

- **GPA:** 93.22 (**Ranking** the 1st out of 88 in the school of Artificial Intelligence).

ACADEMIC EXPERIENCE

Weakly Supervised Multitask for Object and Anomaly Detection   May. 2022 - Oct. 2022

Proposed a multitask weakly supervised learning network for video anomaly detection, which improves accuracy by simultaneously detecting people and objects together with anomalies.

- **Data Processing**: Pretrained videos with I3D-Net and labeled videos containing anomalous objects.
- **Network Construction***:* Constructed a multitask convolutional network with multi-head structure.
- **Experimental Design**: Performed a weakly supervised multitask training on the ShanghaiTech dataset for object detection and anomaly detection.

Privacy Preserving Anomaly Detection   Oct. 2022 - Mar 2023

Developed a novel approach for anomaly detection that uses optical flow and human skeletal features to protect privacy. Our method achieved high AUCs of 98.37%, 99.87%, and 91.38% on the ShanghaiTech, UCSD Ped2, and CUHK datasets.

- **Data Processing:** Extracted skeletal and optical flow features using the Open Pose algorithm, STGCN, Dense Flow algorithm, and I3D-Net.
- **Network Construction:** Constructed a multitask learning network that simultaneously performs classification and regression tasks using skeletal and optical flow features as input.
- **Experimental Design:** Conducted weakly supervised and fully supervised learning on the network and designed all performance analysis experiments.
- **Paper Draft:** Completed experimental data curation and visualization; drafted technical details of the proposed method.

JOURNAL PUBLICATION

Yong Su, **Haohao Zhu**[*], Yuyu Tan, Simin An, Meng Xing. Prime: Privacy-Preserving Video Anomaly Detection via Motion Exemplar Guidance. *Knowledge-Based Systems,* Volume 278, 25 October 2023, ([*]The first student author of this paper).

SKILLS & INTERESTS

- **Core Courses:** Machine Learning(99), Deep Learning(90), Pattern Recognition(100), Robotics(96), Statistics(100) Data Structures(96), Discrete Mathematics(94), Probability and Mathematics(96), Python(95), Java(96).
- **Programming**: Python, Java, C, Matlab. Experienced in Machine Learning toolkits including Pytorch, Tensorflow, and Keras.
- **Interests**: Exploring AI applications in computer vision, robotics; developing principled machine learning algorithms to solve real-world problems.

AWARDS & ACTIVITIES

- Top-grade School Scholarship of academic years 2020-2021, 2021-2022 and 2022-2023.
- Outstanding Student of academic years 2020-2021 and 2021-2022 and 2022-2023.
- Volunteered as a teacher at Tianyi Elementary School in year of 2022.