Yunfei Xie

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Education

Huazhong University of Science and Technology (#6 Best in China on US News)

Undergraduate student in Artificial Intelligence 2021.9 – 2025.6 (Expected)
Cumulative Average Grade: 87.9/100 (top 15% in my department)

Papers Under Review

[1] Y. Gong, **Y. Xie**, H. Li, S. Han, H. Lib. "CDIA: A cross-dimensional interactive attention for skeleton-based graph convolutional action recognition" Submitted to *12th Symposium on Multispectral Image Processing and Pattern Recognition (**MIPPR**), 2023.*

Research Experience

Superformer: A Efficient Transformer Architecture for Dense Prediction Jul. 2023–present

Research Intern at Johns Hopkins University
Advisor: **Prof. Alan Yuille**

- Proposed a novel approach reviving efficient superpixel representation in the modern transformer to significantly reduce the spatial dimensionality.
- Proposed a lightweight transformer framework that eliminates the need for additional CNN encoders or decoders which were previously heavily used in the field of semantic segmentation.
- Outperformed state-of-the-art methods on semantic segmentation at substantially lower computation cost.

CDIA: A Cross-dimensional Interactive Attention for Skeleton-based Graph Convolutional Action Recognition Sep. 2022–present

Undergraduate Research Assistant at Huazhong Univ. of Sci. & Tech.
Advisor: **Prof. Shoudong Han**

- Devised the innovative CDIA mechanism to enhance interactive information for skeleton feature and dynamic representation.
- Designed a plug-and-play CDIA module for GCNs, enhancing node connectivity learning and boosting action recognition accuracy.
- Proved CDIA's superior performance on action recognition datasets with minimal computational overhead.

Project

Abnormal Action Recognition on Production Process and Safety Control Mar. 2023–present

- Integrated AI with traditional production methods to optimize lean manufacturing, emphasizing the detection of anomalies and elevating smart manufacturing standards.
- Provincial College Student Innovation and Entrepreneurship Training Program funded by Hubei Province

A Classroom Headcount Algorithm Based on Head Profile Image Jul. 2022

- Designed image enhancement, sobel filter and hough transform for image processing and object detection.
- Achieved full marks for this project submitted in the Scientific Paper Writing course.

Honors and Awards

Honorable Mention, Mathematical Contest In Modeling and Interdisciplinary Contest In Modeling (MCM/ICM) May 2023
Science and Technology Innovation Scholarship of HUST Sep. 2022
2^{nd} *Prize*, Award on C Programming Competition of HUST Jun. 2022

Skills

- Programming Languages: Python, C, C++
- Tools: Linux, Pytorch, OpenCV