Chenchen Tao

Master Student

Ningbo University, China

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Education

Ningbo University (NBU) *Zhejiang, China*

M.S. in Computer Science *2021.9 - present*

- Advisor: Chong Wang

Dalian University (DLU) *Liaoning, China*

B.S. in Computer Science *2016.9 - 2020.6*

- Undergrad research advisor: Wanbo Yu

Publications

Published

1. **C, Tao**, S Chen, Y Chen, X Cai, C Wang, *Feature Synthesis for Few-Shot Object Detection*, International Conference on Brain-Inspired Cognitive Architectures for Artificial Intelligence (**BICA*AI'23**)
2. H Li, C Wang, S Yu, **C, Tao**, *Action Recognition with Non-Uniform Key Frame Selector*, International Conference on Image Processing and Machine Vision (**IPMV'23**)

In Review

1. **C, Tao**, C Wang, S Lin, S Cai, D Li, J Qian, *Feature Reconstruction with Disruption for Unsupervised Video Anomaly Detection*, IEEE Transactions on Multimedia (**TMM**)

In Prep

1. **C, Tao**, C Wang, X Peng, J Qian, *Learn Anomaly from Prompt for Weakly Supervised Video Anomaly Detection*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR'23**)

Experience

Masked video modeling for weakly supervised video anomaly detection *Huawei, Remotely*

Main Developer *2022.9 - present*

- Developed a private surveillance video dataset and pre-trained a masked video-transformer model through Parallel Distributed Training
- Designed a downstream network for weakly supervised video anomaly detection, leveraging the pre-trained backbone
- Introduced semantic information into the visual task to enhance model performance
- Successfully completed a manuscript and will soon submit it to the IEEE Conference on Computer Vision and Pattern Recognition

Designing a framework for fully-unsupervised video anomaly detection *Ningbo, China*

Main Developer *2022.6 - 2022.8*

- Pioneered the integration of transformer architecture into video anomaly detection, advancing the field's capabilities
- Customized the self-attention mechanism to effectively capture spatiotemporal relations between consecutive frames, improving model performance
- Successfully completed a manuscript which is under the review of IEEE Transactions on Multimedia

Industrial defect detection with super-resolution images *SenseTime, Remotely*

Developer *2022.3 - 2022.8*

- Transfer the super-resolution detection task to normal-resolution classification task using Matlab
- Annotate the vanilla data, split the dataset, and train a Resnet-based model for defect classification
- Increase the accuracy while reducing the false alarm rate

YOLOV3-tiny Model transformation and inference *Huawei, Remotely*

Main Developer *2021.9 - 2021.12*

- Successfully transformed a pre-trained PyTorch-based YOLOV3-tiny model into an ONNX and OM model, optimizing for deployment
- Conducted efficient inference on the transformed model using the COCO dataset on an NPU, ensuring quick and accurate results
- Implemented acceleration techniques to improve inference speed while preserving the original accuracy of the model
- *Recipient of the Ministry of Education of the People's Republic of China-Huawei Award*

Industrial anomaly detection *Business-intelligence of Oriental Nations Corporation, China*

Assist Developer *2021.4 - 2021.8*

- Train and infer a smoking detection model based on YOLOV3

Courses

Advanced Algorithm Design	78/100
Advanced Database Technology	89/100
Computer Architecture	84/100
Computer Graphics	90/100
Computer Network	86/100
Computer Vision and Pattern Recognition	81/100
Data Mining and Machine Learning	90/100
Operating System	82/100

Awards

First-class award of Huawei Intelligent Base	2023
Master's third-class scholorship	2023
Master's second-class scholorship	2021

Skills

Professional Skills

- Programming Language: Python, C, JAVA
- Developing Framework: Pytorch, Mindspore, NumPy, OpenCV

Language Proficiency

- Chinese (Native speaker)
- English (IELTS 6.5(6.0))