

# Chenchen Tao

MASTER STUDENT

Ningbo University, China

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## Education

### Ningbo University (NBU)

M.S. IN COMPUTER SCIENCE

- Advisor: Chong Wang

Zhejiang, China

2021.9 - present

### Dalian University (DLU)

B.S. IN COMPUTER SCIENCE

- Undergrad research advisor: Wanbo Yu

Liaoning, China

2016.9 - 2020.6

## 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**

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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**

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

## **Skills**

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### **PROFESSIONAL SKILLS**

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

### **LANGUAGE PROFICIENCY**

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