Ziwei ZHANG

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EDUCATION

University of Science and Technology of China **Sept 2021 – Jun 2024**
Master of Information and Communication Engineering

Xidian University **Sept 2017 – Jun 2021**
Bachelor of Electronic Information Engineering *GPA:3.8/4.0*
Core Modules: Advanced Mathematics (92/100), Linear Algebra (97/100), Fundamentals of Circuit Analysis (97/100), Signals and Systems (96/100), Microcomputer Principle and System Design (94/100)

MIT Summer Online Program **Aug 2020**
Studied machine learning lectures and designed a deep learning model (modified VGG) that detects the infection of COVID-19 patients from X-Ray Images.

PUBLICATIONS

- **Z. Zhang**, J. Liu, and G. Jiang, "Spatial and Temporal Awareness Network for Semantic Segmentation on Automotive Radar Point Cloud," *IEEE Transactions on Intelligent Vehicles* (Accepted)
- S. Sun, J. Liu, **Z. Zhang**, and W. Li, "Hyperspectral Anomaly Detection Based on Adaptive Low-Rank Transformed Tensor," *IEEE Transactions on Neural Networks and Learning Systems* 2023, 1–13, doi: 10.1109/TNNLS.2023.3236641.

RESEARCH EXPERIENCE

Semantic segmentation on radar point cloud **Sept 2022 – Present**
Advisor: Prof. Jun Liu *University of Science and Technology of China, HeFei, AnHui, China*
- Explored a deep-learning-based method to **utilize mmWave radar data** in Semantic Segmentation task, which is a promising sensor in ADAS, and its information is not as fully exploited as LiDAR.
- **Designed a network** that explores the strong correlation between multi-scan radar data, established the spatiotemporal relations between points and its neighboring points, and proposed a new method to fully leverage the radar measurements to represent the points' neighborhood.

Continual learning in image classification **June 2023 – Nov 2023**
Advisor: Prof. Yunhui Guo *University of Texas at Dallas*
- Developed a prompt-based network tailored for continual learning tasks, with a focus on mitigating the problem of catastrophic forgetting.

Hyperspectral anomaly detection based on neural networks **Sept 2021 – Present**
Advisor: Prof. Jun Liu *University of Science and Technology of China, HeFei, AnHui, China*
- **Reproduced** the deep learning network called "HAD" from the paper "Sparse Coding-Inspired GAN for Hyperspectral Anomaly Detection in Weakly Supervised Learning," **without any**

associated open-source code.

- **Tested and analyzed the performance** of HAD (the version I implemented) and a robust graph AE (RGAE) detector on four datasets captured by hyperspectral sensors including 2-d spatial information and 1-d spectral information. These results are compared with those obtained by our proposed method, which can be found in "Hyperspectral Anomaly Detection Based on Adaptive Low-Rank Transformed Tensor,".

Low-rank network design for Hyperspectral anomaly detection **Dec 2020 – May 2021**

Advisor: Prof. Weiying Xie *Xidian University Xi'an, Shaanxi, China*

- Independently **reproduce the neural network (SAFL framework)** proposed in "Spectral Adversarial Feature Learning for Anomaly Detection in Hyperspectral Imagery" to detect anomalies in hyperspectral images. **Tune the framework to achieve the best performance** in terms of AUC score of detection probability and false alarm rate, among the typical and state-of-the-art methods.
- **Modified SAFL**, which utilizes L1 normalization and forces the network to reconstruct the background and separate the anomalies out with the results of **improving the performance of the framework** in distinguishing background and anomaly. With low-rank constraint, the detection probability is further improved, and the false alarm rate is reduced by 20% on each dataset. The method also enhanced the response of anomalies which can be seen in the visualizations of detection map.

TECHNICAL SKILLS

Languages: Mandarin Chinese, English (IELTS 7)
Programming: Python (Pytorch, Numpy), MATLAB

CERTIFICATIONS AND AWARDS

- Excellent graduation thesis
- Nominated to study for graduate students without examination
- First Class School Scholarship of Xidian University
- Second Class of the Yuanwanggu Scholarship of Bi Dexian Class of 2017