

# Hanxiu Zhang

Email: hanxiu\_zhang@stu.ecnu.edu.cn

Tel: (+86)18332247567

Homepage: hanxiuzhang.github.io

## Education

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### East China Normal University (ECNU, 985 Project)

Sep. 2021 - Present

*Master's degree student | Software Engineering | GPA: 3.86/4 (WES: 3.88/4)*

*Shanghai, China*

### Northeastern University (NEU, 985 Project)

Sep. 2017 - Jun. 2021

*Bachelor's degree | Software Engineering | GPA: 4.03/5 (WES: 3.86/4)*

*Shenyang, China*

## Research Experience

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### Adversarial frequency domain watermarking algorithm for image security (Pytorch/OpenCV)

*Jun. 2022 - Dec. 2022*

- Computer Vision | Adversarial Example | Image Frequency
- Propose a novel adversarial frequency watermark framework
- Combine frequency watermark and gradient-based adversarial perturbation to protect images
- Optimize perturbation to improve attack imperceptibility

### Radar signal classification model adversarial robustness analysis (Pytorch)

*Oct. 2021 - Dec. 2021*

- Computer Vision | Adversarial Example
- Evaluate radar signal spectrogram classification model robustness with adversarial attacks

### Zero-shot learning algorithm for radar signal (Matlab/Pytorch/Sklearn)

*Nov. 2020 - Jun. 2021*

- Computer Vision | Zero-shot Learning | Signal Frequency
- Convert radar signals into frequency spectral maps and extract their fractal dimensional features
- Train ResNet to extract frequency spectral maps' representations
- Classify the signals with SVM/Random Forest/Bayesian classifiers
- Construct signal zero-shot classification model based on DAP algorithm

### Real-time strip defect monitoring system (OpenCV)

*Sep. 2018 - Jun. 2020*

- Computer Vision | Defect Detection
- Denoise and identify edge defect for surveillance video of strip rolling
- Locate edge defect using convex hull detection algorithm

## Publications

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1. **Hanxiu Zhang**, Guitao Cao\*, Xinyue Zhang, Jing Xiang, Chunwei Wu. Making Adversarial Attack Imperceptible in Frequency Domain: A Watermark-based Framework. ICME2023 (CCF-B)

2. Jing Xiang, Xinyue Zhang, Chunwei Wu, **Hanxiu Zhang**, Guitao Cao\*, Hong Wang. Discriminative Feature Mining and Alignment for Unsupervised Domain Adaptation. IJCNN2023 (CCF-C)

### *Awards & Honors*

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- Nezha Technology Outstanding Student Scholarship 2023
- Northeastern University Outstanding Graduates 2021
- Northeastern University Outstanding Student Scholarship 2018/2019/2020/2021
- National Inspirational Scholarship of China 2018/2019/2020/2021
- National Outstanding University Student Innovation Training Program 2020
- Honorable Mention of Mathematical Contest In Modeling 2020
- Second Prize of National University Mathematics Competition in China 2018

### *Specialized Skills*

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**Programming language:** Python, Matlab, Java, JavaScript, HTML, SQL  
**English proficiency:** TOEFL iBT 95 (Reading 29/ Listening 23/ Speaking 22/ Writing 21)