

HELIN WANG

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RESEARCH INTEREST

My research interest majorly lies in **audio and speech signal processing**, including **detection and classification of acoustic scenes and events** and **speech enhancement**.

EDUCATION

Peking University, Beijing, China September 2019 – Present

Master student in School of Electronic and Computer Engineering (ECE), expected July 2022

Supervisor: Yuexian Zou

Tsinghua University, Beijing, China September 2015 – July 2019

B.S. in Department of Automation (DA)

EXPERIENCES

Tencent AI Lab, Speech Processing Group May 2020 – Present

Topic: Research on speech enhancement and recognition

Ubtech Robotics Inc., Speech Group July 2019 – September 2019

Topic: Research on audio event classification

University of California Berkeley, Summer Research Internship July 2018 – September 2018

Topic: Simulation of autonomous driving in California PATH

Supervisor: Masayoshi Tomizuka

PROJECTS

1. **Research on Deep Analysis Method of Acoustic Scenes for Smart Home Robot** Major Member

The project is a Shenzhen Science and Technology Fundamental Research Program, which studies the acoustic scenes and events in real home environments, including robust acoustic feature extraction, acoustic scene classification methods, abnormal sound event detection and warning.

2. **Research on Multi-modal Health Monitoring System based on Infant Voices** Leader

The project is a Shenzhen Science and Technology Fundamental Research Program, which studies the physiological characteristics of infant and conducts abnormal event detection based on audio and video signals.

SELECTED PUBLICATIONS

1. **Helin Wang**, Yuexian Zou, Wenwu Wang. A Global-local Attention Framework for Weakly Labelled Audio Tagging, ICASSP, 2021.
2. Haoran Zhang, Yuexian Zou, **Helin Wang**. Contrastive Self-supervised Learning for Text-independent Speaker Verification, ICASSP, 2021.
3. Zhiqi Huang, Fenglin Liu, Xian Wu, Shen Ge, **Helin Wang**, Wei Fan, Yuexian Zou. Audio-Oriented Multimodal Machine Comprehension via Dynamic Inter- and Intra-modality Attention, AAAI, 2021.
4. **Helin Wang**, Yuexian Zou, Dading Chong, Wenwu Wang. Environmental Sound Classification with Parallel Temporal-spectral Attention, Interspeech, 2020.
5. **Helin Wang**, Yuexian Zou, Dading Chong, Wenwu Wang. Modeling Label Dependencies for Audio Tagging with Graph Convolutional Network, IEEE Signal Processing Letters (SPL), 2020.

6. **Helin Wang**, Yuexian Zou, Dading Chong. Acoustic Scene Classification With Spectrogram Processing Strategies, DCASE Workshop, 2020.
7. **Helin Wang**, Bang Yang, Yuexian Zou, Dading Chong. Automated Audio Captioning with Temporal Attention, DCASE Challenge, 2020.
8. **Helin Wang**, Dading Chong, Dongyan Huang, Yuexian Zou. What Affects the Performance of Convolutional Neural Networks for Audio Event Classification, ACIIW, 2019.

Preprints

1. **Helin Wang**, Yuexian Zou, Wenwu Wang. SpecAugment++: A Hidden Space Data Augmentation Method for Acoustic Scene Classification, submitted to Interspeech 2021.
2. **Helin Wang**, Bo Wu, Lianwu Chen, Meng Yu, Jianwei Yu, Yong Xu, Shi-Xiong Zhang, Chao Weng, Dan Su, Dong Yu. TeCANet: Temporal-Contextual Attention Network for Environment-aware Speech Dereverberation, submitted to Interspeech 2021.
3. Dongchao Yang, **Helin Wang**, Yuexian Zou. Unsupervised Multi-Target Domain Adaptation for Acoustic Scene Classification, submitted to Interspeech 2021.
4. Jinchuan Tian, Rongzhi Gu, **Helin Wang**, Yuexian Zou. Layer Reduction: Accelerating Conformer-Based Self-Supervised Model via Layer Consistency, submitted to Interspeech 2021.
5. Li Wang, Rongzhi Gu, **Helin Wang**, Yuexian Zou. Decoupling Feature Learning for Keyword Spotting and Speaker Verification via Orthogonal Convolution, submitted to Interspeech 2021.

HONORS AND AWARDS

- IEEE AASP Challenge on Detection and Classification of Acoustic Scenes and Events Challenge 2020
Task 1: team ranking **6th** among 74 submissions, Task 6: team ranking **3th** among 11 submissions.
- **3rd** Prize of Peking University 2019 – 2020

SKILLS

- Programming Languages: Python, C++, Matlab
- Platform: Linux
- Others: Pytorch, Tensorflow