

Hao Zhang

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RESEARCH INTERESTS

Speech enhancement and separation, deep learning based acoustic echo cancellation, deep learning based active noise control, microphone array signal processing

EDUCATION

- 2016 - now **Ph.D.**, Computer Science and Engineering
The Ohio State University (OSU), Columbus, OH, USA
Major: Artificial Intelligence
Advisor: Prof. DeLiang Wang
- 2009 - 2016 **B.E. and M.S.**, Information and Signal Processing
Northwestern Polytechnical University (NWPU), Xi'an, Shaanxi, China
Bachelor's thesis: *Study and Design of Small-Scale Broadband Microphone Arrays*
Master's thesis: *Study of Differential Microphone Arrays and Beamforming Algorithms*
Advisor: Prof. Jingdong Chen

PUBLICATIONS

- [1] **Hao Zhang** and DeLiang Wang, "Deep ANC: A deep learning approach to active noise control[J]", *Neural Networks*, 2021.
- [2] **Hao Zhang** and DeLiang Wang, "Multi-Channel and Multi-Microphone Acoustic Echo Cancellation Using A Deep Learning Based Approach", *arXiv preprint arXiv:2103.02552*, 2021.
- [3] **Hao Zhang** and DeLiang Wang, "A deep learning approach to active noise control", *INTERSPEECH*, 2020.
- [4] **Hao Zhang**, Ke Tan, and DeLiang Wang, "Deep Learning for Joint Acoustic Echo and Noise Cancellation with Nonlinear Distortions", *INTERSPEECH*, 2019.
- [5] **Hao Zhang** and DeLiang Wang, "Deep Learning for Acoustic Echo Cancellation in Noisy and Double-talk Scenarios", *INTERSPEECH*, 2018.
- [6] **Hao Zhang**, Jingdong Chen, and Jacob Benesty, "Study of Nonuniform Linear Differential Microphone Arrays with the Minimum-Norm Filter [J]", *Applied Acoustics*, vol. 98, pp. 62-69, Nov. 2015.

SKILLS

Programming

- *Proficient*: Java, Python, MATLAB, LATEX, R
- *Familiar*: C/C++, HTML, AutoCAD

Artificial Intelligence Related

- *Proficient*: Pytorch, TensorFlow, and other scientific computing libraries
- *Familiar*: Kaldi

PROFESSIONAL EXPERIENCE

2017 - now **Graduate Research Associate**

Perception and Neurodynamics Laboratory (PNL), OSU

- Supervised Speech Separation
- Deep Learning Based Acoustic Echo Cancellation

2016 - now **Graduate Teaching Associate**

Department of Computer Science and Engineering, OSU

- 2016 Fall: CSE 1223 - Introduction to Computer Programming In Java
- 2017 Spring - 2018 Fall : CSE 5526 - Introduction to Neural Networks

05/20- 08/20 **Research Intern**

Amazon, Sunnyvale, CA, the US

- Deep learning for low-latency speech enhancement

05/19- 08/19 **Research Intern**

Amazon, Sunnyvale, CA, the US

- Deep learning for music source separation
- Music upmixing

05/18- 08/18 **Research Intern**

Elevoc Technology Co., Ltd., Shenzhen, Guangdong, China

- Deep learning based acoustic echo cancellation
- Superdirective beamforming

HONORS AND AWARDS

- 2015 China National Scholarship (the highest honor for Chinese students, 0.2%)
- 2014 China National Scholarship (0.2%)
- 2012 Meritorious Winner in the US National Mathematical Contest of Modeling
- 2011 China National Scholarship (0.2%)