

ZHE ZHANG

Email: zhangzhe2018@mail.ioa.ac.cn; **Phone:** +86-17343032202
No. 21 North 4th Ring Road, Haidian District, Beijing 100190, China

EDUCATION

Institute of Acoustics, Chinese Academy of Sciences (IACAS) **09/2017-Present**
Candidate, M.E. in Electronic Engineering
Major in Audio Signal Processing

School of Physics Science and Engineering, Tongji University **09/2013-06/2017**
B.S. in Applied Physics
Major in Acoustics
Overall GPA: 4.6/5.0

RESEARCH EXPERIENCE

DSP-based Implementation of Far-field Sound Source Localization Algorithms

Institute of Acoustics, Chinese Academy of Sciences (IACAS)

2/2019-Present

- ◆ Optimized sound source localization algorithms, such as SRP for DSP-based real-time system.
- ◆ Composed a multi-core program to support large computing task of the algorithm.
- ◆ Developed and tested the codes of the algorithms via TMS320C6678 board.
- ◆ Experimented with the prototype and evaluated the accuracy of locating.

DSP-Based Implementation of a Real-time Sound Field Visualization System

Institute of Acoustics, Chinese Academy of Sciences (IACAS)

08/2018-01/2019

- ◆ Modified and improved the hardware of TMS320C6678 DSP developing board and microphone array.
- ◆ Performed simulation experiments of SONAH algorithms to evaluate the results and complexity of the algorithm via MATLAB.
- ◆ Designed a multi-core program framework that leveraged multi-core structure and DDR3 memory to support large computing task with a large storage of coefficients.
- ◆ Developed and tested the embedded programs via computer simulation and experiments.
- ◆ Experimented with the prototype and evaluated the resolution of sound visualization.

Improved MUSIC Algorithm with Enhanced Matrix for Estimating Harmonic Components

Institute of Acoustics, Chinese Academy of Sciences (IACAS)

11/2017-02/2018

- ◆ Proposed a method of estimating the number of harmonic components by observing the trend of eigenvalues of self-correlation matrix of the signal's enhanced matrix.
- ◆ Performed the experiments of estimating harmonic components in different SNR situations to

evaluate the algorithm.

- ◆ Compared the effects of using different window functions.
- ◆ Compare the results with the Periodogram method.

Measurement of Total Sound Energy Density Based on Sound Field Microphone

Institute of Acoustics, Tongji University

01/2017-06/2017

- ◆ Designed the structure for Recording A-Format audio signals in different cardinal directions based on Soundfield SPS200 microphone.
- ◆ Computed the filter banks for converting A-Format signals to B-Format signals by the Least Square Method.
- ◆ Compared the results of conversion between the built filter bank and the audio plug-in SurroundZone officially provided by Soundfield.

Study on the Decay of Sound Energy in Stage-Auditorium Coupled Sound Field of Theaters

Institute of Acoustics, Tongji University

06/2016-09/2017

- ◆ Designed and supervised the construction of the scale model of the theater in a sound-proof chamber.
- ◆ Measured the T60s at certain points of stage and auditorium inside the model under different acoustic absorption coefficients.
- ◆ Analyzed the collected data to predict the reverberation in different locations inside a theater with acoustical coupling phenomenon between stage and auditorium.

PUBLICATIONS

- ◆ Zhe Zhang, Ming Wu, Jun Yang. DSP-Based Implementation of a Real-time Sound Field Visualization System Using SONAH Algorithm[C]. The 2019 5th International Conference on Harmony Search, Soft Computing and Applications, 2019. (Accepted)
- ◆ Xinyu Han, Ming Wu, Jun Yang, Zhe Zhang. Sound Source Localization Using Distributed Microphone in Spherical Harmonics Domain[J]. Journal of Signal Processing, 2019. (Accepted)

HONORS & AWARDS

- ◆ AMBASSADOR of Kadenze, Kadenze.com, 2019
- ◆ Academic Scholarship, IACAS, 2018
- ◆ National Encouragement Scholarship, Tongji University, 2016
- ◆ 2nd Class Outstanding Student Scholarship, Tongji University, 2015
- ◆ Full-race Completed, Shanghai International Marathon, Shanghai, 2014
- ◆ 1st Class Outstanding Student Scholarship, Tongji University, 2014
- ◆ Successful Participant MCM/ICM Contest, Tongji University, 2014

INTERNS & ACTIVITIES

- ◆ Audio Engineer & PA Engineer, Chinese Folk Orchestra of University of Chinese Academy of Sciences, Beijing, 09/2018-Present
- ◆ One-man band, The Artifacts of Ripples, Beijing, 03/2018-Present

- ◆ Tech documents composing and translation, Waves Audio Ltd., Beijing, 11/2017-02/2018
 - ◆ Composing, Arrangement, Recording, Mixing and Guitarist, Subaqua Roaming Guide (band), Beijing, 09/2017-06/2018
 - ◆ Recording Engineer, The Machinery of Other Skeletons (band), Shanghai, 06/2016-11/2016
 - ◆ Associate Audio Engineer & Stage Tech, MAO Livehouse, Shanghai, 10/2015-02/2017
 - ◆ Bassist & Producer, Narcissus (band), Shanghai, 05/2015–06/2017
 - ◆ Investigator, Environmental Protection Agency of Zhabei District, Shanghai, 2014 Summer
-