

# ZHUOHUANG ZHANG

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## EDUCATION

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### Indiana University Bloomington

*Doctor of Philosophy:* Computer Science, Hearing Sciences

*May 2022 (Expected)*

*Master of Science:* Computer Science

*December 2021*

Advisors: [Prof. Donald S. Williamson](#), [Prof. Yi Shen](#)

### University of Rochester

*Master of Science:* Electrical and Computer Engineering

*May 2017*

Advisor: [Prof. Zhiyao Duan](#)

### Beijing Institute of Technology

*Bachelor of Engineering:* Opto-Electrical Information Engineering

*June 2015*

## POSITIONS HELD

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### Indiana University Bloomington

- Research Assistant
  - Speech enhancement algorithms for hearing-impaired listeners
  - Non-intrusive speech assessment
  - Speech perception on phase distorted speech for hearing-impaired listeners
- Associate Instructor
  - CSCI B-565 Data Mining
  - CSCI B-455 Principles of Machine Learning

*Fall 2021*

*Spring 2020*

### Microsoft

- Research Intern
  - Redmond, WA, USA
  - All-neural beamformer for continuous speech separation
  - Publication: conference paper [\[url\]](#)
- Supervisor: [Dr. Takuya Yoshioka](#)

*May 2021 - August 2021*

### Tencent

- Research Intern
  - Tencent AI Lab, Bellevue, WA, USA
  - All deep learning MVDR beamformer [\[url\]](#)
  - Publication: conference paper [\[url\]](#), journal paper [\[url\]](#)
- Supervisor: [Dr. Yong Xu](#)
- Manager: [Dr. Dong Yu](#)

*May 2020 - October 2020*

### DiDi Chuxing

- Research Intern
  - DiDi AI Labs, Beijing, China
  - GAN-based speech enhancement project
  - Publication: conference paper [\[url\]](#)
- Supervisor: Dr. Hui Song
- Manager: Dr. Xiangang Li

*Summer 2019*

## PROFESSIONAL ACTIVITIES

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### Reviewer:

- IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP): 2021
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP): 2022
- EURASIP Journal on Audio, Speech, and Music Processing (JASM): 2022

### Organizer/Co-organizer:

- Co-organizing ConferencingSpeech 2022 Challenge at INTERSPEECH [\[url\]](#).

## PUBLICATIONS

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### Journal Articles:

- **Zhuohuang Zhang**, Yong Xu, Meng Yu, Shi-Xiong Zhang, Lianwu Chen, Donald S. Williamson, Dong Yu (2021). *Multi-channel Multi-frame ADL-MVDR for Target Speech Separation*. IEEE/ACM Transactions on Audio, Speech, and Language Processing.
- Yi Shen, Celia Zhang, **Zhuohuang Zhang** (2018). *Feasibility of interleaved Bayesian adaptive procedures in estimating the equal-loudness contour*. The Journal of the Acoustical Society of America.
- Yong Song, Qun Hao, Yue liu, Tianle Tan, **Zhuohuang Zhang** (2014). *Design and Implementation of A Retina-like Imaging System Based on Non-uniform Lens Array*. International Symposium on Optoelectronic Technology and Application, SPIE.
- Qingsheng Luo, Zhongyang Xiao, Pan Lu, **Zhuohuang Zhang**, Lei Zhao (2014). *Mechanical Design and Kinematic Analysis of a Wearable Lumbodorsal Therapeutic Instrument*. Journal of Mechanical & Electrical Engineering.

### Conference Papers:

- Yong Xu, **Zhuohuang Zhang**, Meng Yu, Shi-Xiong Zhang, Dong Yu. *Generalized Spatio-Temporal RNN Beamformer for Target Speech Separation*. Interspeech 2021, Brno, Czech.
- **Zhuohuang Zhang**, Yong Xu, Meng Yu, Shi-Xiong Zhang, Lianwu Chen, Dong Yu. *ADL-MVDR: All Deep Learning MVDR Beamformer for Target Speech Separation*. ICASSP 2021, Toronto, Canada.
- **Zhuohuang Zhang**, Piyush Vyas, Xuan Dong, Donald S. Williamson. *An End-to-End Non-intrusive Model For Subjective and Objective Real-world Speech Assessment using a Multi-task Framework*. **Outstanding student paper award**, ICASSP 2021, Toronto, Canada.
- **Zhuohuang Zhang**, Donald S. Williamson Yi Shen (2020). *Investigation of Phase Distortion on Perceived Speech Quality for Hearing-impaired Listeners*. Interspeech 2020, Shanghai, China.
- **Zhuohuang Zhang**, Chengyun Deng, Yi Shen, Donald S. Williamson, Yongtao Sha, Yi Zhang, Hui Song and Xiangang Li (2020). *On Loss Functions and Recurrency Training for GAN-based Speech Enhancement Systems*. Interspeech 2020, Shanghai, China.
- **Zhuohuang Zhang**, Yi Shen (2019). *Listener Preference on the Local Criterion for Ideal Binary-Masked Speech* (oral). Interspeech 2019, Graz, Austria.
- **Zhuohuang Zhang**, Donald S. Williamson, Yi Shen (2019). *Impact of Amplification on Speech Enhancement Algorithms Using an Objective Evaluation Metric* (poster). ICA 2019, Aachen, Germany.
- **Zhuohuang Zhang**, Yi Shen, Donald S. Williamson (2019). *Objective Comparison of Speech Enhancement Algorithms with Hearing Loss Simulation* (poster). ICASSP 2019, Brighton, UK.
- Zhen Tan, Lianfeng Zhao, Bolin Shan, Jing Wang, Jun Xu, **Zhuohuang Zhang** (2014). *Sulfur Passivation Enhancement for GaSb MOS Devices by Adding H<sub>2</sub>O<sub>2</sub> to (NH<sub>4</sub>)<sub>2</sub>S Solution* (poster). IEEE SISC 2014, San Diego, USA.

### Manuscript:

- **Zhuohuang Zhang**, Takuya Yoshioka, Naoyuki Kanda, Zhuo Chen, Xiaofei Wang, Dongmei Wang, Sefik Emre Eskimez. *All-neural Beamformer for Continuous Speech Separation*. In review, submitted to ICASSP 2022.

## INVITED TALKS

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- *Impact of phase distortion and phase-insensitive speech enhancement on speech quality perceived by hearing-impaired listeners*, 179th Meeting Acoustic Society of America, Acoustics Virtually Everywhere, 2020.
- *Monaural Speech Enhancement with Convolutional Recurrent Generative Adversarial Networks* (guest lecture), CSCI-B659: Deep Learning for Speech Processing, Indiana University Bloomington, USA, 2019.
- *Impact of Amplification on Speech Enhancement Algorithms Using an Objective Evaluation Metric* (poster), ICA 2019, Aachen, Germany, 2019.
- *Inconsistencies between the predicted qualities of enhanced speech signals from two objective metrics*, 177th Meeting Acoustic Society of America, Louisville, KY, 2019.
- *Can listeners reliably identify their preferred amplification profiles for speech listening?* (poster), 177th Meeting Acoustic Society of America, Louisville, KY, 2019.

## AWARDS

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Larry Humes travel award, Indiana University Bloomington	08/2021
Outstanding student paper award, ICASSP 2021	06/2021
Research support grant from Indiana Lions Speech and Hearing, Inc.	12/2020
Travel grant from ISCA for Interspeech 2019	07/2019
Research support grant, Indiana University Bloomington	02/2018
Fellowship, Indiana University Bloomington	08/2017
Tuition grant, University of Rochester	08/2015