HAO SHI

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RESEARCH INTERESTS

Automatic Speech Recognition:

- Robust ASR (Under noise conditions, with front-end)
- Knowledge distillation for ASR (Model compression)
- Accents-based ASR (Accent adaptation)

Speech Enhancement:

- Spectrograms fusion (Complementary between different systems, frequency-domain models)
- Front-end for robust ASR (Improve both human hearing and recognition performance)

Speech Separation:

- Blind source separation (for ASR)

EDUCATION

Ph.D. in Computer Science and Technology, Kyoto University, Kyoto, Japan — Apr. 2021 – Present.
Department of Intelligence Science and Technology, Graduate School of Informatics
- Supervisor: Prof. Tatsuya Kawahara

Master in Computer Science and Technology, Tianjin University, Tianjin, China — Sep. 2018 – Jan. 2021
College of Intelligence and Computing
- Supervisor: Prof. Longbiao Wang

B.Sc. in Computer Science and Technology, Southwest Jiaotong University, Sichuan, China — Sep. 2014 – Jun. 2018
The School of Information Science and Technology

Research Internships

Research Assistant, at Tianjin University — Aug. 2021 – Jan. 2022

LANGUAGE SKILL

* Chinese (native)
* English (fluent)

PUBLICATIONS

Conference Papers (Reviewed Paper, First Author):

1. **Hao Shi**, Yuchun Shu, Longbiao Wang, Jianwu Dang, Tatsuya Kawahara, "Fusing Multiple Bandwidth Spectrograms for Improving Speech Enhancement," in Proc. of APSIPA ASC, 2022, pp. 1935–1940.
2. **Hao Shi**, Longbiao Wang, Sheng Li, Jianwu Dang, Tatsuya Kawahara, "Subband-Based Spectrogram Fusion for Speech Enhancement by Combining Mapping and Masking Approaches," in Proc. of APSIPA ASC, 2022, pp. 286–292.
3. **Hao Shi**, Longbiao Wang, Sheng Li, Jianwu Dang, Tatsuya Kawahara, "Monaural speech enhancement based on spectrogram decomposition for convolutional neural network-sensitive feature extraction," in Proc. of Interspeech, 2022, pp. 221–225.
4. **Hao Shi**, Longbiao Wang, Sheng Li, Cunhang Fan, Jianwu Dang, Tatsuya Kawahara, "Spectrograms Fusion-based End-to-end Robust Automatic Speech Recognition," in Proc. of APSIPA ASC, 2021, pp. 438–442.
5. **Hao Shi**, Longbiao Wang, Meng Ge, Sheng Li, Jianwu Dang, "Spectrograms Fusion with Minimum Difference Masks Estimation for Monaural Speech Dereverberation," in Proc. of ICASSP, 2020, pp. 7544-7548.
6. **Hao Shi**, Longbiao Wang, Sheng Li, Chenchen Ding, Meng Ge, Nan Li, Jianwu Dang, Hiroshi Seki, "Singing Voice Extraction with Attention based Spectrograms Fusion," in Proc. of Interspeech, 2020, pp. 2412-2416.

Conference Papers (Reviewed Paper, Corresponding Author):

1. Tongtong Song, Qiang Xu, Meng Ge, Longbiao Wang, **Hao Shi**, Yongjie Lv, Yuqin Lin, and Jianwu Dang, "Language-specific Characteristic Assistance for Code-switching Speech Recognition," in Proc. of Interspeech, 2022, pp. 3924–3928.

2. Qiang Xu, Tongtong Song, Longbiao Wang, **Hao Shi**, Yuqin Lin, Yongjie Lv, Meng Ge, Qiang Yu, and Jianwu Dang, "Self-Distillation Based on High-level Information Supervision for Compressing End-to-End ASR Model," in Proc. of Interspeech, 2022, pp. 1716–1720.

Conference Papers (**Reviewed Paper, Joint first author, equal contribution**):

1. Luya Qiang, **Hao Shi**, Meng Ge, Haoran Yin, Nan Li, Longbiao Wang, Sheng Li, and Jianwu Dang, "Speech Dereverberation Based on Scale-aware Mean Square Error Loss," in Proc. of ICONIP, 2021, pp. 55–63.
2. Haoran Yin, **Hao Shi**, Longbiao Wang, Luya Qiang, Sheng Li, Meng Ge, Gaoyan Zhang, and Jianwu Dang, "Simultaneous Progressive Filtering-based Monaural Speech Enhancement," in Proc. of ICONIP, 2021, pp. 213–221.

Conference Papers (**Reviewed Paper, Co-Author**):

1. Yanbing Yang, **Hao Shi**, Yuqin Lin, Meng Ge, Longbiao Wang, Qingzhi Hou and Jianwu Dang, "Adaptive Attention Network with Domain Adversarial Training for Multi-Accent Speech Recognition," in Proc. of ISCSLP, 2022, pp. xx–xx.
2. Meng Ge, Longbiao Wang, Nan Li, **Hao Shi**, Jianwu Dang, Xiangang Li, "Environment-dependent attention-driven recurrent convolutional neural network for robust speech enhancement," in Proc. of Interspeech, 2019, pp. 3153-3157.

MANUSCRIPTS

Conference Papers (**First Author**):

1. **Hao Shi**, Masato Mimura, Longbiao Wang, Jianwu Dang, Tatsuya Kawahara, "Time-domain Speech Enhancement Assisted by Multi-resolution Frequency Encoder And Decoder," (Under review, ICASSP 2023).

Conference Papers (**Corresponding Author**):

1. Qiang Xu, Tongtong Song, Longbiao Wang, **Hao Shi**, Yuqin Lin, Qiang Yu, Jianwu Dang, "Inter-layer Soft Knowledge Distillation for Speech Recognition," (Under review, ICASSP 2023).
2. Tongtong Song, Qiang Xu, Haoyu Lu, Longbiao Wang, **Hao Shi**, Yuqin Lin, Yanbing Yang, Jianwu Dang, "Monolingual Recognizers Fusion for Code-switching Speech Recognition," (Under review, ICASSP 2023).

REVIEWER

Lead Reviewer:

1. ICASSP 2023

Secondary Reviewer:

1. Interspeech 2022
2. ICASSP 2022
3. Interspeech 2021
4. ICASSP 2021
5. APSIPA ASC 2020
6. Interspeech 2020