

Zhisheng Zheng

Shanghai Jiao Tong University, Shanghai, China
matrixzheng01@gmail.com

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EDUCATION

- **Visiting Scholar of Computer Science** Austin, USA
College of Natural Science, The University of Texas at Austin May 2023 - Jan 2024
- **Member of Zhiyuan Honors Program of Engineering** Shanghai, China
Zhiyuan College, Shanghai Jiao Tong University; Top 5% Sept. 2020 - June 2024 (expected)
- **Bachelor of Information Engineering** Shanghai, China
School of Electronic Information and Electrical Engineering, SJTU; GPA: 3.79 Sept. 2020 - June 2024 (expected)

PUBLICATIONS

- **MT4SSL: Boosting Self-Supervised Speech Representation Learning by Integrating Multiple Targets** —*INTERSPEECH 2023 Best student paper shortlist*
Ziyang Ma, Zhisheng Zheng, Changli Tang, Yujin Wang, Xie Chen.
- **Unsupervised Active Learning: Optimizing Labeling Cost-Effectiveness for Automatic Speech Recognition** —*INTERSPEECH 2023*
Zhisheng Zheng, Ziyang Ma, Yu Wang, Xie Chen.
- **Emotion2vec: Self-Supervised Pre-Training for Speech Emotion Representation** —*preprint*
Ziyang Ma, Zhisheng Zheng, Jiaxin Ye, Jinchao Li, Zhifu Gao, Shiliang Zhang, Xie Chen.
- **Pushing the Limits of Unsupervised Unit Discovery for SSL Speech Representation** —*INTERSPEECH 2023*
Ziyang Ma, Zhisheng Zheng, Guanrou Yang, Yu Wang, Chao Zhang, Xie Chen.
- **Fast-HuBERT: An Efficient Training Framework for Self-Supervised Speech Representation Learning** —*ASRU 2023*
Guanrou Yang, Ziyang Ma, Zhisheng Zheng, Yakun Song, Zhikang Niu, Xie Chen.
- **Exploring Effective Distillation of Self-Supervised Speech Models for Automatic Speech Recognition** —*ASRU 2023*
Yujin Wang, Changli Tang, Ziyang Ma, Zhisheng Zheng, Xie Chen, Wei-Qiang Zhang.
- **Front-End Adapter: Adapting Front-End Input of Speech based Self-Supervised Learning for Speech Recognition** —*ICASSP 2023*
Xie Chen, Ziyang Ma, Changli Tang, Yujin Wang, Zhisheng Zheng.

RESEARCH EXPERIENCE

- **MoE Key Lab of Artificial Intelligence, AI Institute, X-LANCE Lab, SJTU** Shanghai, China
Research Intern, Advised by Prof. Xie Chen Dec. 2021 - Present
 - **Improve ASR Performance Through Self-Supervised and Unsupervised Learning**
Utilizing the *fairseq* framework, replicated mainstream Self-Supervised Learning (SSL) models such as wav2vec 2.0, HuBERT, data2vec, and Wav2vec-U 2.0. By synergistically integrating the unique features of these models, further boosted their performance in Automatic Speech Recognition (ASR).
 - **Unsupervised Active Learning for Automatic Speech Recognition**
This work enhances SSL's capability to further reduce labeling costs using active learning. Through unsupervised derivation of speech units and a contrastive data selection method, achieve an over 11% improvement in word error rate (WER) with equivalent labeled data or halve the labeling cost while maintaining the same WER, compared to random selection.
- **Speech, Audio, and Language Technologies (SALT) Lab, UT-Austin** Austin, USA
Research Intern, Advised by Prof. David Harwath and Eunsol Choi May, 2023 - Present

- **Audio and Language Understanding (LLM)**
Leveraging advanced language models (LLaMA) for spatial audio perception, which demonstrating superior performance in complex audio processing tasks, setting a new standard in spatial audio research. Preparing to submit to ICML 2024.

SELECTED AWARDS

- SenseTime Scholarship for Undergraduate AI Researchers (30 winners nationwide each year) 2023
- Rongchang Science and Technology Innovation Scholarship (<0.1%) 2023
- Tencent Scholarship (Top 2%) 2021
- Zhiyuan College Honors Scholarship (Top 5%) 2021, 2022, 2023

SKILLS

- **Coding:** Python (Pytorch), C/C++, Bash.
- **Languages:** Chinese (Native), English (TOEFL 104).