Zhisheng Zheng

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Homepage | Scholar | Github | twitter

Education

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

Education Performances

- **MATH1205: Linear Algebra** 97/100
- **NIS1336: Programming Practice** 99/100
- **CS1501: Thinking and Methodology in Programming(C++)** 96/100
- **CS249: Intelligent Speech Technology** 95/100
- **CS4314: Natural Language Processing** 98/100

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.
- **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 audio understanding.

Selected Awards

- Tencent Scholarship (Top 2%) 2021
- Zhiyuan College Honors Scholarship (Top 5%) 2021, 2022, 2023
- SJTU Excellent Scholarship (Top 30%) 2021

Skills

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