ZEYU ZHAO

Google Scholar LinkedIn Personal Website

Computation Foundry, Swansea University (Bay Campus), Swansea, SA1 8EN, Wales, UK

zeyu.zhao.edin@gmail.com

RESEARCH INTERESTS

Generative AI, End-to-End (E2E) Automatic Speech Recognition (ASR), Text-to-Speech (TTS), Large Language Models (LLMs)

SKILLS

- Languages, Libraries, & Tools: Python, C++, Shell, PyTorch, k2, Git

- Machine Learning: Transformer, CTC, Seq2Seq, Generative AI

- Research: ASR, LLM Fine-tuning

- Software Engineering: Open-source Development, Modular Framework Design

EDUCATION

University of Edinburgh *September 2020 - July 2025*
PhD Student, supervised by Prof Peter Bell
End-to-End Speech Recognition
Centre for Speech Technology Research
School of Informatics

Tsinghua University *September 2017 - August 2020*
Master of Science, supervised by Dr Wei-Qiang Zhang
End-to-End Keyword Search and Speech Recognition for Low Resource Languages
Speech and Audio Technology Lab
Department of Electronic Engineering CGPA: 3.6/4.0

Beijing Institute of Technology *September 2013 - June 2017*
Bachelor of Science
Department of Electronic Engineering CGPA: 90/100

EXPERIENCE

Research Officer (postdoc) *September 2024 - Present*
Generative and Interactive AI
School of Mathematics and Computer Science, Swansea University

Research Associate (part-time) *March 2024 - August 2024*
Post-training and evaluating Large Language Models (LLMs) for finance application
Main contributor and code writer
School of Informatics, University of Edinburgh

Teaching Support (part-time) *January 2022 - March 2024*
Preparing teaching materials and marking courseworks
School of Informatics, University of Edinburgh

OPEN-SOURCE CONTRIBUTION

SpeechBrain k2 integration
A popular open-source speech processing processing toolkit on Github
Contributor
Contributed to integration of k2-based traning and decoding into SpeechBrain's ASR pipeline.

Ben Nevis
An End-to-End ASR framework based on PyTorch and k2, a Differentiable Weighted Finite-State Transducer library
Creator
Please see my personal Github for more information.

SELECTED PUBLICATIONS

For the full list, please see my Google Scholar.

Z. Zhao and P. Bell, *Regarding the Existence of the Internal Language Model in CTC-Based E2E ASR*, ICASSP 2025

Z. Zhao and P. Bell, *Advancing CTC Models for Better Speech Alignment: A Topological Approach*, SLT 2024

Z. Zhao, P. Chen and P. Bell, *Regarding Topology and Adaptability in Differentiable WFST-Based E2E ASR*, ICASSP 2024 XAI-SA Workshop

Z. Zhao, P. Bell and O. Klejch, *Exploring Dominant Paths in CTC-Like ASR Models: Unraveling the Effectiveness of Viterbi Decoding*, ICASSP 2024 XAI-SA Workshop

Z. Zhao and P. Bell, *Regarding Topology and Variant Frame Rates for Differentiable WFST-based End-to-End ASR*, Interspeech 2023

Y. Li[†], **Z. Zhao**[†], O. Klejch, P. Bell, and C. Lai, *A Word-Level Investigation of the Mutual Impact of Speech and Emotion Recognition*, Interspeech 2023

Z. Zhao and P. Bell, *Investigating Sequence-Level Normalisation For CTC-Like End-to-End ASR*, ICASSP 2022

Z. Zhao and W. Q. Zhang, *End-to-End Keyword Search Based on Attention and Energy Scorer for Low Resource Languages*, Interspeech 2020

Z. Zhao and W. Q. Zhang, *End-to-End Keyword Search System Based on Attention Mechanism and Energy Scorer for Low Resource Languages*, Neural Networks, 2021

AWARDS & SCHOLARSHIPS

Student Research Award   *2019*
Research Center for Media Big Data Cognitive Computing, Department of Electronic Engineering
Tsinghua University, Beijing, China

National Scholarship   *2014 - 2016*

[†]Equal contribution.

Beijing Institute of Technology, Beijing, China
For top students only

First Undergraduate Scholarship *2013 - 2017*
Beijing Institute of Technology, Beijing, China
For top students only

Third Prize, Beijing Electronic Design Competition *2016*

Honorable Mentioned, Mathematical Contest in Modelling *2015*

First Prize in National Physics Competition *2014*