

Fuzhao XUE

+65 83434586 | xuefuzhao@outlook.com | Singapore

EDUCATION

- Doctor of Philosophy (Ph.D.)** Jul. 2025 (expected)
National University of Singapore
Singapore
- Majored in Computer Science
 - Submitted two papers at AAAI 2022
 - Submitted two papers at ICASSP 2022
- Master of Engineering (M.Eng.)** Jul. 2021
Nanyang Technological University
Singapore
- Majored in Computer Science and Engineering
 - Thesis: Refining latent multi-view graph for relation extraction
 - GPA: 5.0/5.0
 - Published paper at ICML 2020
 - Published paper at AAAI 2021
- Bachelor of Engineering (B.Eng.)** Jul. 2020
Harbin Engineering University
Harbin, China
- Majored in Computer Science and Technology
 - GPA: 86.09/100 ; Rank: Top 5%
 - 6 times University First-Class Scholarship 2016-2019
 - 4th Place of China AI Futurelab Contest 2018
 - 2nd Prize of 2017 National Robot and Artificial Intelligence Competition "Human-like Robot Dash Project"
 - National University of Singapore Summer Workshop Singapore
- Grade: A

PROFESSIONAL EXPERIENCE

- National University of Singapore | Singapore** *Ph.D. Student* Jul. 2021-Present
In charge of scaling transformer to more trainable parameters or longer sequence by algorithm or system design. Submitted two papers at AAAI 2022.
- Compressed along depth by parameter sharing and scaling along width by mixture-of-experts to construct a parameter-efficient framework.
 - Proposed individual layer normalization to maximize the modeling capacity of shared mixture-of-experts.
 - Outperformed transformer baselines on both computer vision and natural language processing tasks with less parameters.
 - Proposed sequence parallelism to optimize long sequence training at system-level
- Nanyang Technological University | Singapore** *M.Eng. Student* Jul. 2020-Jun. 2021
In charge of design of improving dialogue-level relation extraction by adaptive graph pooling proposed. Published paper at AAAI 2021
- Identified inductive words using Dynamic Time Wrapping Pooling in an unsupervised manner with high accuracy.
 - Improved the state-of-the-art of dialogue-level relation extraction by 6% on DialogRE.
- National University of Singapore | Singapore** *Research Intern* Oct. 2019-Apr. 2020
In charge of design of hybrid speech recognition framework with utilization of Pytorch and Kaldi. Published paper at ICML 2020
- Used Pytorch underlying operations to implement acoustic models such as DNN, LSTM, SRU, RRN and RTN.
 - Modeled relational thinking through Deep Graph Process, reducing WER by 10% on Chime2, Chime5 and SWBD.
- National University of Singapore Summer Workshop | Singapore** Jul. 2018-Aug. 2018
Designed fire-fighting trolley with automatic driving, speaker recognition, target detection, image classification, automatic obstacle avoidance, semi-automatic driving with manual driving, voice control, and fully automatic driving. Grade: A
- Solved problem of image uploading speed of trolley through MQTT protocol being way faster than model recognizing speed, and significantly reduced latency from 9s to 2s.
 - Preprocessed all audio data with sox as well as modeled first 0.25s of each channel voice and uniformed sampling rate, improved speech recognition and voiceprint recognition and audio data quality.

SKILLS

- **Programming:** Python, C/C++, C#, Matlab, assembly language
- **Frameworks:** TensorFlow, PyTorch, Keras, Theano, Scikit-learn, pandas, OpenCV
- **Advanced Technologies:** Docker, CUDA, Unity3D, Kaldi

PUBLICATIONS

* denote equal contribution.

- **Fuzhao Xue**, Ziji Shi, Futao Wei, Yong Liu, Yang You "*Go Wider Instead of Deeper*" Submitted at Association for the Advancement of Artificial Intelligence (AAAI) 2022
- **Fuzhao Xue**, Aixin Sun, Hao Zhang, Eng-Siong Chng "*An Embarrassingly Simple Model for Dialogue Relation Extraction*" Submitted at International Conference on Acoustics, Speech, & Signal Processing (ICASSP) 2022
- **Fuzhao Xue**, Aixin Sun, Hao Zhang, Eng-Siong Chng "*GDPNet: Refining Refining Latent Multi-View Graph for Relation Extraction*" Published at Association for the Advancement of Artificial Intelligence (AAAI) 2021
- Shenggui Li*, **Fuzhao Xue***, Yongbin Li, Yang You "*Sequence Parallelism: Making 4D Parallelism*" Submitted at Association for the Advancement of Artificial Intelligence (AAAI) 2022
- Xiaoxin He, **Fuzhao Xue**, Xiaozhe Ren, Yang You "*Large-Scale Deep Learning Optimizations: A Comprehensive Survey*" Submitted at ACM Computing Surveys
- Yuxuan Lou, **Fuzhao Xue**, Zangwei Zheng, Yang You "*Sparse-MLP: A Fully-MLP Architecture with Conditional Computation*" arXiv preprint arXiv:2109.02008
- Andrew Koh, **Fuzhao Xue**, Eng Siong Chng "*Automated Audio Captioning using Transfer Learning and Reconstruction Latent Space Similarity Regularization*" Submitted at International Conference on Acoustics, Speech, & Signal Processing (ICASSP) 2022
- Hengguan Huang, **Fuzhao Xue**, Hao Wang, Ye Wang * "*Deep Graph Random Process for Relational-Thinking-Based Speech Recognition*" Published at International Conference on Machine Learning (ICML) 2020
- Xingmei Wang, **Fuzhao Xue**, Wei Wang, Anhua Liu. "*A network model of speaker identification with new feature extraction methods and asymmetric BLSTM*" Published at Neurocomputing
- Jinjie Ni, Tom Young, Vlad Pandealea, **Fuzhao Xue**, Vinay Adiga, Erik Cambria "*Recent Advances in Deep Learning-based Dialogue Systems*" Submitted at Artificial Intelligence Review
- Xingmei Wang, Anhua Liu, Yu Zhang, **Fuzhao Xue**. "*An Underwater Acoustic Target Recognition: A Combination of Multi-dimensional Fusion Features and Modified Deep Neural Network*" Published at Remote Sensing.