

Fuzhao XUE

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EDUCATION

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

PROFESSIONAL EXPERIENCE

Nanyang Technological University Singapore <i>In charge of design of improving dialogue-level relation extraction by adaptive graph pooling proposed. Published paper at AAAI 2021</i>	Graduate Student July. 2020-Present
• 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 <i>In charge of design of hybrid speech recognition framework with utilization of Pytorch and Kaldi. Published paper at ICML 2020</i>	Research Intern Oct. 2019-Apr. 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.	
Harbin Engineering University Harbin, China <i>In charge of project of speaker identification, established and designed relevant models and algorithms, applied national patent and published paper at Neurocomputing</i>	Research Engineer Dec. 2017-Sep. 2019
• Proposed idea of using original one-dimensional audio signal instead of two-dimensional Mel-spectrum or Cochleagram as input, enabling one-dimensional convolutional neural network robust.	
• Processed Mel-spectrum and Cochleagram map to MC-cube as model input, increased accuracy by 89.5%-95.5%.	
National University of Singapore Summer Workshop Singapore <i>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</i>	Jul. 2018-Aug. 2018
• 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.	
China AI Futurelab Contest Harbin, China <i>Participated in speech algorithm group, with contest titled in speaker verification task for less sample migration learning. Result: National 4th Place</i>	Contestant Nov. 2017-Jul. 2018
• Replaced MFCC as input with one-dimensional audio data, then replaced traditional two-dimensional convolution kernel with one-dimensional convolution kernel, solved the serious under-fitting state of the model.	
• Used final layer of pre-model as input of transfer learning model before passing SoftMax function. Trained transfer learning model by Siamese network, and enriched samples by generating data pairs, better solved problem of fewer sample quantities and overfitting problem.	

INTERNSHIP EXPERIENCE

Harbin Institute of Technology Robotic Lab Harbin, China • Collaboratively designed dance robots, and participated in Chinese Robotics and Artificial Intelligence Competition. Won national second prize.	Intern Engineer Jun. 2017-Sep. 2017
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SKILLS

- **Programming:** Java, C/C++, Python, Matlab, assembly language
- **Frameworks:** SINGA, TensorFlow, PyTorch, Keras, Scikit-learn, pandas, Theano, OpenCV, MFC
- **Advanced Technologies:** Docker, CUDA, Unity3D, Robot Studio, Zigbee, Kaldi

PUBLICATIONS

* denote equal contribution.

- **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
- 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
- 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.
- Xingmei Wang and **Fuzhao Xue**, National invention patent of the People's Republic of China, Application Number: CN201910045664.2) "*A speaker recognition method based on one-dimensional convolution asymmetric BLSTM.*"
- **Fuzhao Xue**, Aixin Sun, Hao Zhang, Eng-Siong Chng "*An Embarrassingly Simple Model for Dialogue Relation Extraction*" arXiv preprint arXiv: 2012.13873
- Shenggui Li, **Fuzhao Xue***, Yongbin Li, Yang You "*Sequence Parallelism: Making 4D Parallelism*" arXiv preprint arXiv: 2105.13120
- Jinjie Ni, Tom Young, Vlad Pandelea, **Fuzhao Xue**, Vinay Adiga, Erik Cambria "*Recent Advances in Deep Learning-based Dialogue Systems*" arXiv preprint arXiv: 2105.04387