Fuzhao XUE

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EDUCATION

Master of Engineering (M.Eng.) Expected Jun. 2021
Nanyang Technological University Singapore

- Majored in Computer Science and Engineering
- GPA: 5.0/5.0 (First Class Honours)
- Submitted paper at ACL-IJCNLP 2021
- 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

Nanyang Technological University | Singapore ***Graduate Student*** July. 2020-Present

In charge of design of improving dialogue-level relation extraction by adaptive graph pooling proposed. Published paper at AAAI 2021

- Identified indictive 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.

Harbin Engineering University | Harbin, China ***Research Engineer*** Dec. 2017-Sep. 2019

In charge of project of speaker identification, established and designed relevant models and algorithms, applied national patent and published paper at Neurocomputing

- 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 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.

China AI Futurelab Contest | Harbin, China ***Contestant*** Nov. 2017-Jul. 2018

Participated in speech algorithm group, with contest titled in speaker verification task for less sample migration learning. Result: National 4th Place

- 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 ***Intern Engineer*** Jun. 2017-Sep. 2017

- Collaboratively designed dance robots, and participated in Chinese Robotics and Artificial Intelligence Competition. Won national second prize.

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

- **Fuzhao Xue**, Aixin Sun*, Hao Zhang, Eng-Siong Chng *"An Embarrassingly Simple Model for Dialogue Relation Extraction"* arXiv preprint, Submitted at The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP) 2021
- **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."*