YUHAN SHEN

Email: shen.yuh@husky.neu.edu Date of Birth: October 31, 1997
Office: Room 472, West Village Hall, 440 Huntington Ave, Boston 02115, MA

EDUCATION

Northeastern University, Boston, USA *Sep. 2019 - present*
PhD in Computer Science, Khoury College of Computer Sciences
Courses: Advanced Algorithm, Machine Learning

Tsinghua University, Beijing, China *August 2014 - July 2018*
Bachelor of Engineering in Department of Electronic Engineering
Major: Electronic information science and technology

PUBLICATIONS

Yu-Han Shen, Ke-Xin He, Wei-Qiang Zhang, "*Learning How to Listen: A Temporal-Frequential Attention Model for Sound Event Detection*," in Proceedings of The 20th Annual Conference of the International Speech Communication Association (Interspeech 2019), Graz, Austria, 2019. (oral presentation) [PDF]

Ke-Xin He*, **Yu-Han Shen***, Wei-Qiang Zhang, "*Hierarchical Pooling Structure for Weakly Labeled Sound Event Detection*," in Proceedings of The 20th Annual Conference of the International Speech Communication Association (Interspeech 2019), Graz, Austria, 2019. (* equal contribution) [PDF]

Yu-Han Shen, Ke-Xin He, Wei-Qiang Zhang, "*SAM-GCNN: A Gated Convolutional Neural Network with Segment-Level Attention Mechanism for Home Activity Monitoring*," in Proceedings of 2018 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2018), Louisville, USA, 2018. [PDF]

WORK EXPERIENCE

Speech & Audio Technology Lab, Tsinghua University *Jul. 2018 - Present*
Research assistant, Advisor: Prof. Wei-Qiang Zhang *Beijing, China*
Focus: audio and speech analysis, sound event detection, low-resource end-to-end keyword spotting

RESEARCH EXPERIENCE

Multi-modal Procedure Learning for Video Summarization (in progress) *Sep. 2019 - Present*
MCADS Lab and NLP Group *Northeastern University*
· To summarize the key steps of instructional videos from both visual and language data using unsupervised procedure learning.

Audio Tagging with Noisy Labels and Minimal Supervision *Mar. 2019 - Jul. 2019*
Speech and Audio Lab *Tsinghua University*
· Developed a well-performed audio tagging system using a small amount of manually-labeled data and a large quantity of noisy-labeled data.
· Proposed several strategies, mainly including sigmoid-softmax activation structure, staged training strategy and score normalization post-processing method, to achieve state-of-the-art performance.
· Ranked the 2nd place in task 2 of DCASE 2019 Challenge. [Website]
· Paper accepted by DCASE 2019 Workshop as co-first author.

Keyword Spotting from Speech *Mar. 2019 - Jul. 2019*
Speech and Audio Lab *Tsinghua University*
· Developed an encoder-decoder based template-matching baseline system for cross-lingual query-by-example keyword spotting (QbE-KWS) system.
· Developed a DTW based keyword spotting system using pseudo text feature.

Research on Sound Event Detection *Oct. 2017 - Mar. 2019*
Speech and Audio Lab *Tsinghua University*
· Proposed a bi-domain (on both time domain and frequency domain) attention model for sound event detection.
· Proposed a hierarchical pooling structure for weakly-labeled sound event detection.

· Outperformed state-of-the-art methods on evaluation dataset of Task 2 and Task 4 of Detection and Classification of Acoustic Events and Scenes (DCASE) 2017.
· Two Papers published in Proceedings of Interspeech 2019 as first or co-first author.

Monitoring of Domestic Activities Based on Multi-Channel Acoustics *May 2018 - Jul. 2018*
Speech and Audio Lab *Tsinghua University*
· Adopted gated convolutional neural networks and model ensemble method for home activity classification.
· Ranked the 4th place in task 5 of DCASE 2018 Challenge. [Website]
· Proposed a segment-level attention mechanism for home activity monitoring and improved our previous work.
· Paper published in Proceedings of ISSPIT 2018 as first author.

SCHOLARSHIPS & AWARDS

National Endeavor Scholarship, Ministry of Education of China	2016 & 2017
Comprehensive Excellence Award, Tsinghua University	2016 & 2017
Academic Excellence Award, Tsinghua University	2015 & 2016 & 2017
Social Work Excellence Award, Tsinghua University	2016 & 2017
German Scholarship, Tsinghua University	2016
Qu Yuzhi Scholarship, Tsinghua University	2015
Second Prize in National Undergraduate Physics Olympic (Non-Physics Major)	2015

ADDITIONAL INFORMATION

Programming	C/C++, Python, Matlab, Verilog, Shell Script
Deep-learning Tools	Tensorflow, Keras, PyTorch, Caffe
Languages	Mandarin (native), English (fluent), German (elementary)
TOEFL-iBT	110/120 (R: 30, L: 28, S: 22, W: 30)
GRE	Verbal: 165/170, Quantitative: 170/170, Analytical Writing: 3.5/6.0
Personal Website	yuhan-shen.github.io