

YUHAN SHEN

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EDUCATION

Northeastern University, Boston, USA

Sep. 2019 - present

PhD student in Computer Science, Khoury College of Computer Sciences

Concentration: machine learning (GPA: 4.0/4.0)

Tsinghua University, Beijing, China

August 2014 - July 2018

Bachelor of Engineering, Department of Electronic Engineering

Major: Electronic information science and technology (GPA: 89/100)

PUBLICATIONS

Yuhan Shen, Lu Wang, Ehsan Elhamifar. “*Learning to Segment Actions from Visual and Language Instructions via Differentiable Weak Sequence Alignment*,” CVPR 2021. (oral presentation)

Kexin He, **Yuhan Shen**, Wei-Qiang Zhang, Jia Liu. “*Staged Training Strategy and Multi-Activation for Audio Tagging with Noisy and Sparse Multi-Label Data*,” IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2020). [PDF]

Yuhan Shen, Kexin He, Wei-Qiang Zhang, “*Learning How to Listen: A Temporal-Frequential Attention Model for Sound Event Detection*,” Interspeech 2019. (oral presentation) [PDF]

Kexin He*, **Yuhan Shen***, Wei-Qiang Zhang, “*Hierarchical Pooling Structure for Weakly Labeled Sound Event Detection*,” Interspeech 2019. (* equal contribution) [PDF]

Yuhan Shen, Kexin He, Wei-Qiang Zhang, “*SAM-GCNN: A Gated Convolutional Neural Network with Segment-Level Attention Mechanism for Home Activity Monitoring*,” IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2018). [PDF]

WORK EXPERIENCE

MCADS Lab, Northeastern University

Sep. 2019 - present

Graduate Research Assistant, Advisor: Prof. Ehsan Elhamifar

Boston, MA

- Focus: video summarization, subset selection, weakly-supervised and unsupervised learning

Speech & Audio Technology Lab, Tsinghua University

Jul. 2018 - Jul. 2019

Research Assistant, Advisor: Prof. Wei-Qiang Zhang

Beijing, China

- Focus: audio and speech analysis, sound event detection

RESEARCH EXPERIENCE

Multi-Modal Unsupervised Procedure Learning from Instructional Videos

Sep. 2019 - Present

MCADS Lab and NLP Group, Advisors: Prof. Ehsan Elhamifar, Prof. Lu Wang Northeastern University

- Addressed the problem of unsupervised localization of key-steps and feature learning in instructional videos using both visual and language instructions.
- Proposed an ordered prototype learning module, which extracts visual and linguistic prototypes representing key-steps in an unsupervised manner.
- Proposed a differentiable weak sequence alignment loss that finds ordered one-to-one matching across modalities for feature learning.
- Paper accepted to CVPR 2021 as oral presentation.

Research on sound event detection and audio tagging

Oct. 2017 - Jul. 2019

Speech and Audio Technology Lab, Advisor: Prof. Wei-Qiang Zhang

Tsinghua University

- Proposed a temporal-frequential attention model for rare sound event detection. [Interspeech 2019a]
- Proposed a hierarchical pooling structure for weakly-labeled sound event detection. [Interspeech 2019b]
- Proposed multi-activation structure and staged training strategy for sparse multi-class audio tagging with noisy label; ranked the 2nd place in task 2 of DCASE 2019 Challenge. [DCASE 2019; ICASSP 2020]
- Adopted gated convolutional neural networks and model ensemble method for home activity classification; ranked the 4th place in task 5 of DCASE 2018 Challenge. [DCASE 2018; ISSPIT 2018]

SCHOLARSHIPS & AWARDS

Graduate Fellowship, Northeastern University	2019
2nd Prize in Challenge on Detection and Classification of Acoustic Scenes and Events (DCASE 2019)	2019
4th Prize in Challenge on Detection and Classification of Acoustic Scenes and Events (DCASE 2018)	2018
Comprehensive Excellence Scholarship, Tsinghua University	2016 & 2017
Academic Excellence Scholarship, Tsinghua University	2015 & 2016 & 2017
Social Work Excellence Scholarship, Tsinghua University	2016 & 2017
German Scholarship, Tsinghua University	2016
<i>Qu Yuzhi</i> Scholarship, Tsinghua University	2015
Second Prize in National Undergraduate Physics Olympic (Non-Physics Major)	2015

ADDITIONAL INFORMATION

Programming	Python, C/C++, Matlab, Shell Script
Deep-learning Tools	PyTorch, Tensorflow, Keras
Languages	Mandarin (native), English (fluent)
Personal Website	yuhan-shen.github.io

Last Updated on January, 2021.