ZHEPEI WANG

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Education

Ph.D., Computer Science 2018 - present
University of Illinois Urbana-Champaign, Champaign, IL, USA
Division: Artificial Intelligence Advisor: Prof. Paris Smaragdis

B.S., Computer Science 2014 - 2018
Harvey Mudd College, Claremont, CA, USA Graduate with High Distinction

Research Interests

Machine Learning and **Deep Learning**, with focus on **Audio** applications

Research Experience

Audio Lab, University of Illinois Urbana-Champaign 2018 - present

- Research topics include audio event classification, detection, and synthesis

Amazon Web Services Summer 2021

- Research intern at the Chime team
- Semi-supervised target speaker extraction
- Supervisor: Dr. Ritwik Giri

Amazon Web Services Summer 2020

- Research intern at the Audio Signal Processing team
- Semi-supervised singing voice separation and data augmentation
- Supervisor: Dr. Ritwik Giri

Tencent AI Lab Summer 2019

- Research Intern at Audio Group
- Score-to-sound singing synthesis using a neural vocoder based on Text-to-Speech (TTS) pipelines
- Supervisor: Dr. Shiyin Kang

Music Information Retrieval Lab, Harvey Mudd College 2017 - 2018

- Live song identification using supervised deep learning and unsupervised machine learning methods
- Supervisor: Prof. Timothy J. Tsai

Project Experience

Tencent AI Platform Department Summer 2018

- Engineering Intern at Image and Vision Group
- Implemented object detection and image segmentation networks including SSD and Mask-RCNN using Tensorflow

Amazon Prime Now - HMC Clinic 2017 - 2018

- Project leader for a 4-member team
- Designed a system that automatically detects mismatches between product images and text descriptions with deep learning
- Designed and implemented a workflow for training a deep neural network to determine similarity between a pair of images

Teaching Experience

Teaching Assistant, UIUC

- CS 545 (CS 598PS): Machine Learning for Signal Processing Fall 2020, 2021
- CS 498PS: Audio Computing Lab Spring 2020, 2021

Teaching Assistant, HMC

- CS 181B: Advanced Topics in Algorithms Fall 2018
- CS 140 (MATH 168): Algorithms Fall 2017, Spring 2018
- CS 70: Data Structures/Program Development Lab Spring 2017

Honors and Awards

Computer Science Excellence Fellowship 2018 - 2019

Outstanding Clinic Individual Award Spring 2018

First Place of Advanced Group, 5C Hackathon Spring 2016

Harvey S. Mudd Merit Award 2014 - 2018

Publications

Z. Wang, J. Casebeer, A. Clemmitt, E. Tzinis, and P. Smaragdis, "Sound Event Detection with Adaptive Frequency Selection", *In 2021 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, Oct. 2021 (pdf) (code) (poster) (talk)

E. Tzinis, J. Casebeer, **Z. Wang**, and P. Smaragdis, "Separate But Together: Unsupervised Federated Learning for Speech Enhancement from Non-IID Data", *In 2021 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, Oct. 2021 (pdf)

Z. Wang, R. Giri, U. Isik, J.-M. Valin, and A. Krishnaswamy, "Semi-supervised Singing Voice Separation with Noisy Self-training", *In 2021 International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, June. 2021 (pdf) (poster) (talk)

E. Tzinis, **Z. Wang**, X. Jiang, and P. Smaragdis, "Compute and Memory Efficient Universal Sound Source Separation", *arXiv preprint arXiv:2103.02644* Mar. 2021 (pdf)

E. Tzinis, **Z. Wang**, and P. Smaragdis, "Sudo rm -rf: Efficient Networks for Universal Audio Source Separation", *In IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, Sept. 2020 (pdf)

E. Tzinis, S. Venkataramani, **Z. Wang**, Y. C. Sübakan, and P. Smaragdis, "Two-Step Sound Source Separation: Training on Learned Latent Targets", *In 2020 International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May. 2020 (pdf)

Z. Wang, Y. C. Sübakan, E. Tzinis, P. Smaragdis, and L. Charlin, "Continual Learning of New Sound Classes using Generative Replay", *In 2019 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, Oct. 2019 (pdf)

J. Casebeer[♯], **Z. Wang**[♯], and P. Smaragdis, "Multi-view Networks For Multi-Channel Audio Classification," *In 2019 International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May. 2019 (pdf)

[♯] Equal Contribution