Zhao Shuyang

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EDUCATION

- **PhD in Signal Processing** **2015 - present**
  University of Tampere
  Supervisor: Prof. Tuomas Virtanen

- **M.Sc. in Signal Processing** **2010 - 2014**
  Tampere University of Technology (merged with Tampere University)
  Cumulative GPA: 4.03
  Supervisors: Prof. Tuomas Virtanen
  Curriculum: Speech recognition, Digital linear filtering, Pattern recognition, Digital image processing Algorithm analysis, Utilization of data structure

- **B.Sc. in Biomedical Engineering** **2005 - 2009**
  Huazhong University of Science and Technology
  Curriculum: Introduction to the design of biomedical instruments, Signal and system, Biomedical image processing, Probability and Statistics, Programming in C

On-campus working positions

- **Researcher** **June 2014 - Present**
- **Research Assistant** **April 2013 – June 2014**

Research area and activities

- **Detection and classification of sound events:** Our research group is one of the leading groups on this topic, and our projects include sound event detection in various scenarios. The scenarios in my previous projects are about acoustic monitoring, including the activities of target noise sources near inhabitant areas and hazardous behaviours in elderly care center.

- **Active learning:** The development of acoustic monitoring systems requires annotated data for machine learning. Selecting audio data from a large collection of continuous recordings for annotation is important and challenging in many cases, for example when the target events are rare. Active learning aims at optimizing the data selection in a learning process. My Phd topic deals with active learning for sound event detection and classification.

- **Collaborative projects:** In addition to my own research topic, I have been working on a few collaborative research projects with partners including VTT, Nokia and DSP Group. The content includes proto-type or proof-of-concept sound event detection applications on RasberryPi or mobile devices.

PUBLICATIONS

- **Conference Papers:**
  - **Active learning for sound event classification by clustering unlabeled data**
    Zhao S., T. Heittola, T. Virtanen
    IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2017
  - **Learning vocal mode classifiers from heterogeneous data sources**
    Zhao S., T. Heittola, T. Virtanen
    IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA), 2017
  - **An active learning method using clustering and committee-based sample selection for sound event classification**
    Zhao S., T. Heittola, T. Virtanen
    16th International Workshop on Acoustic Signal Enhancement (IWAENC), 2018

- **Journal Papers:**
  - **Active Learning for Sound Event Detection**
    Zhao S., T. Heittola, T. Virtanen
    IEEE/ACM Transactions on Audio, Speech, and Language Processing, accepted
  - **Environmental noise monitoring using source classification in sensors**
    Panu M., Zhao S., T. Heittola, T. Virtanen
    Applied Acoustics, 2018

Awards

- Graduation with distinction award with master degree
- Best student paper finalist in ICASSP 2017