

Weipeng He

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Research Interests

Acoustic Signal Processing · Machine Learning · Robot Audio Perception

Education

École Polytechnique Fédérale de Lausanne (EPFL) Switzerland
Ph.D. Candidate enrolled since 2016
- Thesis (working title): Audio-Visual Tracking for Multi-Party Human-Robot Interaction
- Supervisors : [Dr. Jean-Marc Odobez](#) and [Dr. Petr Motlicek](#)

University of Hamburg Germany
M.Sc. in *Intelligent Adaptive Systems*, GPA: 1.38/1.0 (excellent) September 2015

Tsinghua University China
B.E. in *Computer Science and Technology*, GPA: 90/100 (top 10%) July 2012
B.S. in *Pure and Applied Mathematics* (second major), GPA: 83/100

Experience

Idiap Research Institute Switzerland
Research Assistant June 2016 - Present
- Investigated deep learning-based method for sound source localization in real human robot interaction scenarios. Achieved more than 90% precision and recall for detecting and localizing multiple simultaneous sources in real-time. [[video demo](#)]
- Investigated method for simultaneous localization and speech/non-speech classification of multiple sound sources. The joint multi-task approach significantly outperforms traditional methods those sequentially process localization and classification. [[video demo](#)]

National University of Singapore Singapore
Software Engineer January - May 2016
- Developed web interface (back-end) of a business insight information retrieval system.

University of Hamburg Germany
Research Assistant October 2012 - November 2015
- Studied interactive object recognition methods with audio-visual sensory fusion.

Hulu (Beijing) China
Research Intern July - September 2012
- Optimized search engine for fast and error tolerant search with fast approximate string matching.

Publications

- **Adaptation of multiple sound source localization neural networks with weak supervision and domain-adversarial training.** Weipeng He, Petr Motlicek and Jean-Marc Odobez, 2019 *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*
- **Joint localization and classification of multiple sound sources using a multi-task neural network.** Weipeng He, Petr Motlicek and Jean-Marc Odobez, *Proc. Interspeech 2018* (nominated for a best student paper award) [[doi](#), [video](#)]
- **Deep neural networks for multiple speaker detection and localization.** Weipeng He, Petr Motlicek and Jean-Marc Odobez, 2018 *IEEE International Conference on Robotics and Automation (ICRA)* [[doi](#), [video](#)]
- **Multimodal object recognition from visual and audio sequences.** Weipeng He, Haojun Guan and Jianwei Zhang, 2015 *IEEE International Conference on Multisensor Fusion and Information Integration for Intelligent Systems (MFI)*
- **What to do first: the initial behavior in a multi-sensory household object recognition and categorization system.** Haojun Guan, Weipeng He and Jianwei Zhang, 2014 *IEEE International Conference on Multisensor Fusion and Information Integration for Intelligent Systems (MFI)*
- **THUNLP at TAC KBP 2011 in entity linking.** Yu Zhao, Weipeng He, Zhiyuan Liu and Maosong Sun, *Proceedings of TAC*, 2011

Technical Skills

Programming: Python · C · C++ · Java · MATLAB
 Libraries: PyTorch · Gstreamer · OpenCV · GSL · OpenMP · OpenMPI
 Other Tools: Vim · Bash · \LaTeX · GDB · Git · Gnuplot

Languages

English: TOEFL ibt 106 (reading 29 · listening 27 · speaking 23 · writing 27)
 Chinese: Native Speaker
 German: Basic
 French: Basic

Miscellaneous

Interests: Snowboarding · Classical Guitar
 GitHub: github.com/hwp (highlighted projects: [apkit](#), [notGHMM](#))