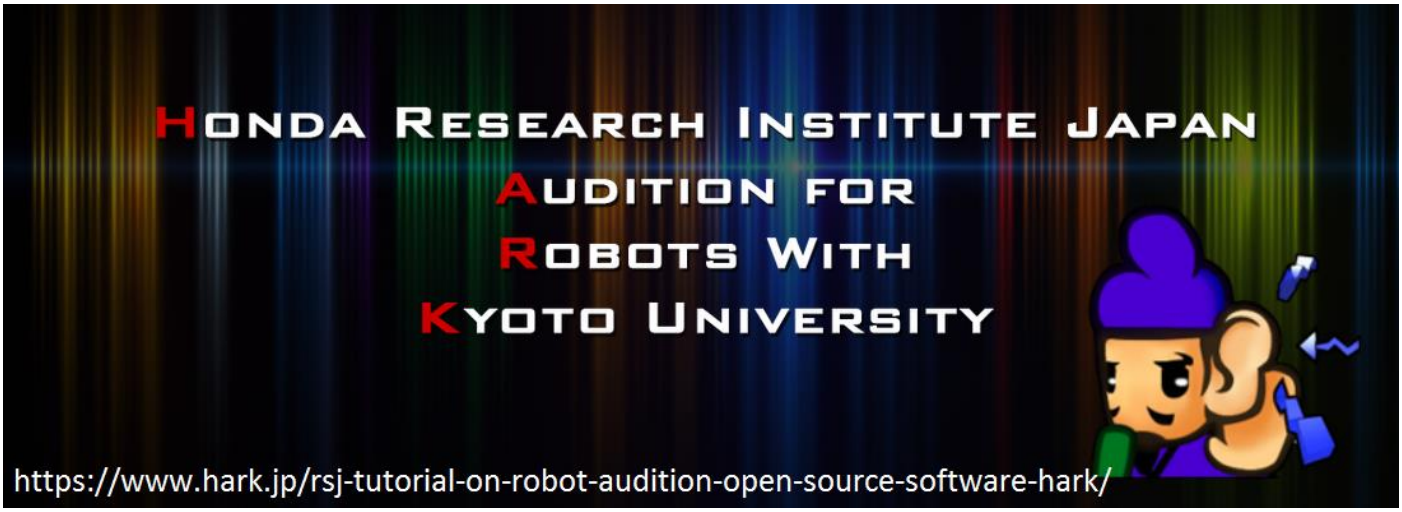
RSJ Tutorial at IROS 2018 on

Robot Audition Open Source Software HARK

Fr-TUT-3: Robot Audition: Open Source Software HARK @ IROS 2018 Tutorials

Date & Time: 9:00am – 1:30pm, October 5th, 2018
Place: Room 4.R2 (Madrid Municipal Conference Centre)



The Purpose of this Tutorial

- Basic concepts of auditory processing for a robot
- Practical knowledge on HARK, a collection of audio signal processing methods to solve problems for a robot to make vocal communication

Who should attend this tutorial, and what are the benefits?

You should participate in this tutorial if you are one of the following;

- Researchers who are interested in and/or are working on robot audition and its related research areas
- People who want to implement robot audition technologies in their robots (HARK provides a seamless interface with ROS for this.)
- People who want to learn robot audition technologies
- People who want to contribute to robot audition open source software
- People who want to use HARK in their own research areas besides robot audition such as drone and bird songs

Topics to Cover

- Overview of robot audition technologies
- Hands-on practice using HARK
- Introduction of case studies with HARK
- Live demonstration of robot audition applications

Supported by

- The Robotics Society of Japan (RSJ)
- IEEE RAS Technical Committee on Cognitive Robotics (TC-CoRo)
- Japanese Society for Artificial Intelligence (JSAI), Special Interest Group on AI-Challenge
- Honda Research Institute Japan Co., Ltd

Registration → ***https://www.iros2018.org/registration***

HARK https://www.hark.jp/

Program Time Table

Time	Content	Presenter
09:00 - 09:05	Opening remarks	Prof. Minoru Asada, Osaka University / Vice-President of RSJ
09:05 - 09:15	Lecture 1: Introduction	Prof. Hiroshi G. Okuno , Waseda University
09:15 - 09:45	Lecture 2: Overview of HARK	Prof. Kazuhiro Nakadai, Honda Research Institute of Japan / Tokyo Institute of Technology
09:45 - 10:15	Practice 0: Preparation of Your Laptop	Dr. Kotaro Hoshiba, Kanagawa University
10:15 - 10:45	Practice 1: Sound Source Localization	Dr. Ryosuke Kojima, Kyoto University
10:45 - 11:00	Practice 2-1: Sound Source Separation and Automatic Speech Recognition	Dr. Katsutoshi Itoyama, Tokyo Institute of Technology
11:00 - 11:30	Coffee break	
11:30 - 11:55	Practice 2-2: Sound Source Separation and Automatic Speech Recognition	Dr. Katsutoshi Itoyama, Tokyo Institute of Technology
11:55 - 12:25	Practice 3: Integration with ROS	Dr. Osamu Sugiyama, Kyoto University
12:25 - 12:40	Case Study 1: Drone Audition	Prof. Makoto Kumon, Kumamoto University
12:40 - 12:55	Case Study 2: Bird Song Analysis	Prof. Reiji Suzuki, Nagoya University
12:55 - 13:25	Live Demos: 1. Sound Source Localization for Drones 2. Speech Enhancement for Active Scope Robots	 Dr. Kotaro Hoshiba Dr. Katsutoshi Itoyama
13:25 - 13:30	Closing remark	Prof. Hiroshi G. Okuno, Waseda University

Equipment to Bring

Each participant should bring the following items to attend this tutorial:

1. Laptop computer.
   Requirements are as follows:
   - CPU: Core i5 / i7 series
   - at least 4 GB of RAM
   - Bootable with a USB device
   - Two USB ports: one USB 3.0/3.1 port for a bootable USB device, and another USB port to connect with a microphone array (provided by us). When only one USB port or type C, please bring USB 3.0/3.1 hub by yourself.
   - Headphone jack

2. Headphones for listening to sounds on the practices

*We will provide a USB-connectable 8 channel microphone array, TAMAGO in the right figure, to each participant. (limited to 50)


Microphone array