# Yang LIU

## Personal Data


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## Research Interest

My research interest is audio-visual data fusion, multi-target tracking, video scene generation and machine Perception. The related topics include Bayesian statistics, acoustic localization, acoustic scene classification, image and audio generation with GAN and video tagging.
I am the reviewers of IET Single Processing, IET Navigation, IET Computer Vision, ICASSP, IJCAI and IEEE Transaction on Multi-media.
The programming language used is C++, python (with tensorflow and Keras), Matlab. I also use PyTorch, Swift, Qt, Java, PHP and HTML5.

## Education

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| *10.2015 - 11.2019* | PhD. in Electric Engineering, University of Surrey |
| *9.2012 - 3.2015* | Master in Electric Engineering, Harbin Engineering University |
| *9.2008- 6.2012* | Bachelor in Electric Engineering, Harbin Engineering University |

## WORK EXPERIENCE

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| *9.2019 - current* | **Researcher (Intern), Perception Group, Microsoft, UK**<br>• Design and collect a video scene dataset (30TB).<br>• Propose an acoustic scene classification network, an audio-visual translation and generation network based on GAN and VAE.<br>• The application is implemented on Keras and Snpe on Android.<br>• Submit papers to IJCAI, ECCV and NIPS and a patent. |
| *9.2015 - 3.2019* | **Teaching Assistant** on 'Computers and Programming', 'Al and Al Programming', 'Computer Algorithms and Architecture', 'Web and Database Systems', 'Advanced Signal Processing' and 'Computer and Digital Logic', CVSSP, UK |
| *1.2015- 9.2015* | **iOS Developer, Co-founder of Dadame studio, CN** |
| *8.2012- 9.2012* | **Engineer (Intern), Siemens AI LAB, CN** |

## Research Project

### Multi-speaker tracking with a camera and microphone arrays

*10/2015 - 06/2019 | PhD researcher, Centre for Vision, Speech and Signal Processing, Surrey, UK*

*Supervisors: Prof. Wenwu Wang and Prof. Adrian Hilton (Royal Academy Fellowship)*

- Work with BBC and propose a mutli-speaker tracking framework with a microphone array and a camera using DOA, MUSIC, faster R-CNN and YOLO network.
- The muli-sensor data are fused by sequential Monte Carlo, deep learning and Bayesian statistics implemented on Matlab, C++ and Python (Demo).
- Nominated for Best student paper in International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2019.

### Acoustic Source Localization and Tracking

*06/2018 - 07/2018 | Centre for Vision, Speech and Signal Processing, Surrey, UK*

- Propose a mutli-speaker localization and tracking framework based on MUSIC and DOA.
- The method is evaluated on the LOCATA datasets recorded by four microphone arrays. We win third place in IEEE-AASP Challenge.

## Publication

**JOURNAL**

- Labelled non-zero particle flow for Multi-speaker tracking, **Yang Liu**, Wenwu Wang, IEEE Transactions on Signal processing (Submitted).
- Intensity Particle Flows for Sequential Monte Carlo Implementation of Probability Hypothesis Density Filter, **Yang Liu**, Wenwu Wang, IEEE Transactions on Signal processing (Submitted).
- Audio-visual Zero Diffusion Particle Flow SMC-PHD Filter for Multi-speaker Tracking, **Yang Liu**, Volkan Kilic, Jian Guan, Wenwu Wang, IEEE Transactions on Multimedia, August 2019.
- Texture features extraction method based on Worldview-II multi spectral remote sensing data, Zhenxing Zhang, Ning Li, **Yang Liu**, Systems Engineering and Electronics, 2013, 35(10): 2044-2049.

**CONFERENCE**

- Acoustic Scene Classification with 'Imagined' Images, **Yang Liu**, Eric Sommerlade, Alexandros Neophytou, Sunando Sengupta, European Conference on Computer Vision (ECCV), 2020. (Submitted)
- Labelled Non-zero Particle flow for SMC-PHD filtering, **Yang Liu**, Qinghua Hu, Yuexian Zou, Wenwu Wang, International Conference on Acoustics, Speech, and Signal Processing, 2019.
- Intensity Particle Flow SMC-PHD Filter For Audio Speaker Tracking, **Yang Liu**, Wenwu Wang, Volkan Kılıc, LOCATA challenge workshop, 2018.
- Audio-visual SMC-PHD Filter with Non Zero Diffusion Particle Flow, **Yang Liu**, Wenwu Wang, Volkan Kılıc, International Conference on Acoustics, Speech, and Signal Processing, 2018.
- Particle flow for sequential Monte Carlo implementation of probability hypothesis density, **Yang Liu**, Wenwu Wang, Yuxin Zhao, International Conference on Acoustics, Speech, and Signal Processing, 2017.
- Particle Flow SMC-PHD Filter for Audio-Visual Multi-speaker Tracking, **Yang Liu**, Wenwu Wang, onathon Chambers, Adrian Hilton, International Conference on Latent Variable Analysis and Signal Separation, 2017.
- Visual Mapping and Localization Using a Tree-structured Audio Model, Yuxin Zhao, **Yang Liu**, Wenwu Wang, International Navigation Conference, 2015.

**PATENT**

- Improved Audio Classification Using Synthesized Images (laying open for public inspection)

## ACADEMIC ACTIVITIES

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| *05, 2019* | Poster in ICASSP, Brighton, UK |
| *08, 2018* | Visitor in IEG-AI, London, UK |
| *11, 2018* | Visitor in Dcase, Surrey, UK |
| *07, 2018* | Visitor in LVA-ICA, Surrey, UK |
| *04, 2018* | Poster in ICASSP, Calgary, Canada |
| *03, 2017* | Poster in ICASSP, New Orleans, United States |
| *02, 2017* | Oral in LVA-ICA, Grenoble, France |

## AWARDS

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| *2019* | Nominated | Best student paper for ICASSP 2019 |
| *2019* | Third | Taks 4 in LOCATA workshop |
| *2015 - 2019* | First Class | CVSSP Scholarship |
| *2013* | First Class | Graduate Scholarship (2 years) |
| *2012* | Second Class | 'Siemens' National Industrial Design Contest |
| *2009 - 2011* | First Class | China Undergraduate Electronic Design Contest (three times) |
| *2011* | Third Class | 'Challenge Cup' Provincial College Student Curricular Academic Science and Technology Works Competition |
| *2011* | First Class | 'Haitai' Outstanding Scholarship |
| *2011* | First Class | China National Undergraduate Innovation program |
| *2010* | First Class | RoboCup China |
| *2010* | Third Class | International Mathematical Contest in Modeling |