

# Yang LIU

## PERSONAL DATA

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## RESEARCH INTEREST

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My research interest is audio-visual data fusion, multi-target tracking, video scene generation and understanding. 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	<b>Researcher (Intern), Perception Group, Microsoft, UK</b> <ul style="list-style-type: none"><li>• Design and collect a video scene dataset (30TB).</li><li>• Propose an acoustic scene classification network, an audio-visual translation and generation network based on GAN and VAE.</li><li>• The application is implemented on Keras and Snpe on Android.</li><li>• Submit papers to IJCAI, ECCV and NIPS and a patent.</li></ul>
9.2015 - 3.2019	<b>Teaching Assistant</b> on 'Computers and Programming', 'AI and AI Programming', 'Computer Algorithms and Architecture', 'Web and Database Systems', 'Advanced Signal Processing' and 'Computer and Digital Logic', CVSSP, UK
1.2015- 9.2015	<b>iOS Developer, Co-founder of Dadame studio, CN</b>
8.2012- 9.2012	<b>Engineer (Intern), Siemens AI LAB, CN</b>

## RESEARCH PROJECT

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### 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 multi-speaker tracking framework with a microphone array and a camera using DOA, MUSIC, faster R-CNN and YOLO network.
- The multi-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

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### 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 Kilic, LOCATA challenge workshop, 2018.
- Audio-visual SMC-PHD Filter with Non Zero Diffusion Particle Flow, **Yang Liu**, Wenwu Wang, Volkan Kilic, 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