

YUANBO HOU ✉ [YUANBO.HOU@ENG.OX.AC.UK](mailto:YUANBO.HOU@ENG.OX.AC.UK)

[Homepage](#)   [Google Scholar](#)   [ResearchGate](#)

Post-doctoral Researcher, University of Oxford, UK.

## RESEARCH INTERESTS

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Advancing machine listening: understanding acoustic scenes and events and the emotions they evoke.  
Topics include: computational auditory scene analysis, environmental sound detection and affective computing, audio-visual scene and event recognition, bioacoustic monitoring and analysis, LLM-based automated soundscape affective analysis, and enhancing robot intelligibility through sounds.

## ACADEMIC APPOINTMENTS

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**Post-doctoral Researcher, Machine Learning Research Group (MLRG)** Dec. 2024 — Present

*Department of Engineering Science, University of Oxford, UK*

*Supervisor: Prof. Stephen Roberts (Engineering), Prof. Kathy Willis (Biology)*

**Post-doctoral Researcher** Oct. 2024 — Dec. 2024

*WAVES Research Group, FEA, Ghent University, Belgium*

*Supervisor: Prof. Dick Botteldooren*

**Honorary Research Assistant** Nov. 2022 — Mar. 2023

*The Bartlett School of Environment, Energy and Resources, University College London (UCL), UK*

*Supervisor: Prof. Jian Kang*

## EDUCATION

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**Full scholarship Ph.D. in Computer Science Engineering** Oct. 2020 — Sep. 2024

*WAVES Research Group, Faculty of Engineering and Architecture (FEA), Ghent University, Belgium*

*Supervisor: Prof. Dick Botteldooren*

**Master of Electronics Science and Technology** Sept. 2016 — Jun. 2020

*Beijing University of Posts and Telecommunications (BUPT), China   Supervisor: Prof. Shengchen Li, Prof. Ming Liu*

## AWARDS & SCHOLARSHIPS

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- **Chinese Government Award for Outstanding Self-financed Students Abroad** July. 2024  
(The **highest honor** bestowed by the Ministry of Education (China) on Chinese students studying abroad. Recipients are chosen worldwide among all Chinese overseas graduate students for their outstanding accomplishments in academia; only up to 600 are awarded each year.)
- **China National Scholarship** Oct. 2014  
(The **highest honor** bestowed by the Ministry of Education (China) on Chinese students.)
- BUPT Honorary Scholarship Feb. 2019
- BUPT Scholarship for Postgraduate Studies Oct. 2016; Oct. 2017; Oct. 2018

## TEACHING & SUPERVISION

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### Course Tutor

*Department of Computer Science, University of Oxford, Oxford, UK* Oct. 2025

- **Course:** Machine Learning (2025/2026).
- **Responsibilities:** Small class tutorial teaching, in groups of about 15 to 20 students. Mark students' work, holding tutorials and Q&A for each group of students, and provide reports to colleges on the work undertaken by the students. Set and mark collections (mock exams) and deliver a revision class before the exams.

### Teaching Assistant

1. *Department of Computer Science, University of Oxford, Oxford, UK* 2025 and 2026
  - **Course:** Uncertainty in Deep Learning (2024/2025) and (2025/2026).
  - **Responsibilities:** marking individual course projects for undergraduate, master's, and PhD students.
2. *Beijing University of Posts and Telecommunications (BUPT), China* 2018
  - **Course:** Pattern Recognition and Machine Learning
  - **Responsibilities:** marking undergraduate students' coursework.

### Supervisor

1. *Department of Computer Science, University of Oxford, Oxford, UK* 2025
  - Supervised undergraduate projects and summer interns.
  - **Responsibilities:** propose research topics, guide research plans, improve experimental designs, discuss analysis and demonstration of results.
2. *Department of Computer Science, University of Oxford, Oxford, UK* 2025
  - **Master's thesis:** Machine Learning to Detect Invasive Species.
  - **Responsibilities:** guide research plans, improve experimental designs, and discuss analysis and demonstration of results.
3. *Master of Science in Computer Science, Ghent University, Belgium* 2024
  - **Master's thesis:** Enhancing Environmental Sound Classification and Dataset Annotation Through **Geospatial Data** Analysis with Large Language Models.
  - **Responsibilities:** propose research topics, formulate research questions, guide research plans, improve experimental designs, discuss analysis and demonstration of results, supervise and review academic writing, and develop skills in presentation.
4. *Master of Information Engineering Technology, Ghent University, Belgium* 2024
  - **Master's thesis:** Audio-based Environmental Monitoring for Edge Devices.
  - **Responsibilities:** propose research topics, formulate research questions, guide research plans, improve experimental designs, discuss analysis and demonstration of results, supervise and review academic writing, and develop skills in presentation.

## PROFESSIONAL EXPERIENCE (INDUSTRY INTERNSHIPS)

**Research intern at Speech Research Group, Supervisor: Prof. Frank K. Soong** Jul. 2018 – Jun. 2019  
*Microsoft Research Asia (MSRA)* Beijing, China

- Singing voice detection for Xiaolce AI
- 1 patent (OBTAINING A SINGING VOICE DETECTION MODEL, patent ID: CN112309428A) + INTERSPEECH 2020 paper

**Research intern at Music Research Group, Supervisor: Dr. Bilei Zhu** Nov. 2019 – Oct. 2020  
*ByteDance AI Lab* Shanghai, China

- Audio-visual singing voice detection in live musical streams This internship explores the feasibility of in live video streams.
- ICASSP 2021 + INTERSPEECH 2021 papers

## SELECTED PUBLICATIONS

[GOOGLE SCHOLAR](#)

### Journals

1. **IEEE Transactions on Multimedia (IEEE TMM)**  
 Y. Hou, Q. Ren, A. Mitchell, W. Wang, J. Kang, T. Belpaeme, D. Botteldooren, "Soundscape captioning using sound affective quality network and large language model".
2. **IEEE/ACM transactions on audio, speech, and language processing (IEEE/ACM TASLP)**  
 Y. Hou, B Kang, A Mitchell, W Wang, J Kang, D Botteldooren, "Cooperative Scene-Event Modelling for Acoustic Scene Classification".
3. **IEEE Signal Processing Letters (IEEE SPL)**  
 Y. Hou, S Song, C Yu, W Wang, D Botteldooren, "Audio Event-Relational Graph Representation Learning for Acoustic Scene Classification".

4. **The Journal of the Acoustical Society of America (JASA)**  
Y. Hou, Q Ren, H Zhang, A Mitchell, F Aletta, J Kang, D Botteldooren, "AI-based soundscape analysis: Jointly identifying sound sources and predicting annoyance".
5. **IEEE Robotics and Automation Letters (IEEE RA-L)**  
Q Ren, Y. Hou, D Botteldooren, T Belpaeme, "No More Mumbles: Enhancing Robot Intelligibility Through Speech Adaptation".
6. **IEEE Signal Processing Letters (IEEE SPL)**  
Z Liu, Y. Hou, W. Wang, S. Michiels, D. Hughes, "SCAN: Selective Contrastive Learning Against Noisy Data for Acoustic Anomaly Detection".
7. **Sensors:** Q Ren, Y. Hou, D Botteldooren, T Belpaeme, "Behavioural Models of Risk-Taking in Human-Robot Tactile Interactions".
8. **Applied Acoustics:** J. Xie, J. Kang, Z. Zhao, Y. Hou, "Effects of audiovisual information and its perception on the sense of culture in everyday heritage"
9. **Poultry Science:** P. Soster, T. Grzywalski, Y. Hou, P. Thomas, A. Dedeurwaerder, M. Gussem, F. Tuytens, P. Devos, D. Botteldooren, G. Antonissen, "Automated detection of broiler vocalizations a machine learning approach for broiler chicken vocalization monitoring"
10. **Poultry Science:** T. Grzywalski, P. Soster, Y. Hou, P. Thomas, F. Tuytens, A. Dedeurwaerder, M. Gussem, P. Devos, G. Antonissen, D. Botteldooren, "Identification and Characterization of Clusters of Potentially New Vocalizations in Broiler Chickens Using Advanced Acoustic Analysis"

#### *Conferences*

1. **IEEE ICASSP 2025:** Y. Hou, Q Ren, Y Song, W Wang, & D. Botteldooren, "Sound-Based Recognition of Touch Gestures and Emotions for Enhanced Human-Robot Interaction".
2. **IEEE ICASSP 2024:** Y. Hou, Q Ren, S Song, Y Song, W Wang, & D. Botteldooren, "Multi-level graph learning for audio event classification and human-perceived annoyance rating prediction".
3. **AAAI 2024:** Q Lin, C Luo, Z Niu, X He, W Xie, Y. Hou, L Shen, S Song, "Boosting Adversarial Transferability across Model Genus by Deformation-Constrained Warping".
4. **IEEE ICASSP 2023:** Y. Hou, Y. Wang, W. Wang, D. Botteldooren, "GCT: Gated Contextual Transformer for Sequential Audio Tagging".
5. **INTERSPEECH 2023:** Y. Hou, S Song, C Luo, A Mitchell, Q Ren, W Xie, J Kang, W Wang, D. Botteldooren, "Joint Prediction of Audio Event and Annoyance Rating in an Urban Soundscape by Hierarchical Graph Representation Learning".
6. **ACM/IEEE HRI 2023:** Q Ren, Y. Hou, T. Belpaeme, "Low-latency Classification of Social Haptic Gestures Using Transformers".
7. **ICONIP 2023:** Z Liu, Y. Hou, H Tang, Á López-Chilet, S Michiels, D Botteldooren, "CLF-AIAD: A Contrastive Learning Framework for Acoustic Industrial Anomaly Detection".
8. **IEEE MMSP 2022:** Y. Hou, B. Kang & D. Botteldooren, "Audio-visual scene classification via contrastive event-object alignment and semantic-based fusion".
9. **INTERSPEECH 2022:** Y. Hou, Z. Liu, B. Kang, Y. Wang & D. Botteldooren, "CT-SAT: Contextual Transformer for Sequential Audio Tagging".
10. **INTERSPEECH 2022:** Y. Hou, & D. Botteldooren, "Event-related data conditioning for acoustic event classification".
11. **IJCNN 2022:** Y. Hou, B. Kang, W. Hauwermeiren, & D. Botteldooren, "Relation-guided acoustic scene classification aided with event embeddings".
12. **IEEE ICASSP 2021:** Y. Hou, Y. Deng, B. Zhu, Z. Ma, & D. Botteldooren, "Rule-embedded network for audio-visual voice activity detection in live musical video streams".
13. **INTERSPEECH 2021:** Y. Hou, Z. Yu, X. Liang, X. Du, B. Zhu, Z. Ma, & D. Botteldooren, "Attention-based cross-modal fusion for audio-visual voice activity detection in musical video streams".

## ACADEMIC SERVICES

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### Journal reviewer

- IEEE/ACM Transactions on Audio Speech and Language Processing (TASLP)
- EURASIP Journal on Audio, Speech, and Music Processing (JASM)
- IEEE Internet of Things Journal (IoT)
- IEEE Transactions on Systems, Man, and Cybernetics: Systems (SMC: Systems)
- Journal of the Acoustical Society of America (JASA)
- Computers, Environment and Urban Systems (CEUS)
- Signal, Image and Video Processing
- Landscape and Urban Planning

### Conference reviewer

- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
- Conference of the International Speech Communication Association (INTERSPEECH)
- IEEE International Workshop on Machine Learning for Signal Processing (MLSP)
- IEEE International Joint Conference on Neural Networks (IJCNN)
- IEEE Conference on Artificial Intelligence (IEEE CAI)
- International Conference on Neural Information Processing (ICONIP)
- ACII Workshop on Affective Human-Robot Interaction (AHRI)
- National Conference on Man-Machine Speech Communication (NCMSC)

## INVITED TALKS

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1. Topic: **Deep learning-based Soundscape research and analysis** Dec. 2024  
Organizer: Harbin Institute of Technology, Shenzhen, China
2. Topic: **Understanding Acoustic Scenes and Events and the Emotions They Evoke** Oct. 2024  
Organizer: China Electronic Audio Industry Association

## INTERVIEW

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1. [Unlocking the World of Sounds: Machines that Hear and Feel](#)  
**Ghent University** Dec. 2024
2. **Chinese Government Award for Outstanding Self-financed Students Abroad (A Category)**  
**Education Section of the Embassy of the People's Republic of China in the Kingdom of Belgium**  
Sept. 2024