



HOT TOPIC 3: Environmental Acoustics & Soundscape

Environmental Acoustics and Soundscapes: making sense of sound environments with quantitative and qualitative approaches

Organizer: Jian Kang and Francesco Aletta, University College London; Francesco Asdrubali, University of Roma Tre; Cristina Pronello, Politecnico di Torino ; Enrico Gallo, City of Turin

ABSTRACT

The hot topic “Environmental Acoustics & Soundscapes” will cover emerging research trends and methodologies about environmental noises and their perception for both outdoor and indoor applications. The topics will be approached from both a quantitative and qualitative angle. Lecturers will deliver talks from policy-making and research backgrounds, dealing with recent advances in themes of interest, such as identification and management of (urban) quiet areas, links between noise exposure and human behaviours. The second part will cover recent progress in standardization about soundscape studies, as well as some operational tool to analyze and visualize soundscape qualitative data in workshop-based session.

TRAINING FLOW

Form: FACE-TO-FACE LECTURES AND WORKSHOP

- **Environmental Acoustics Sub-theme**

1. Linking environmental noise and human behaviour, mobility, nightlife, noise annoyance (Cristina Pronello)
2. Perspectives on environmental noise in EU / Quiet areas - current guidelines (EU/National) (Francesco Asdrubali)
3. Environmental noise & pandemic/lockdown (Francesco Asdrubali)

- **Soundscape Sub-theme (for the Soundscapy Workshop): Soundscapy**

4. Introduction and basic concepts for the soundscape approach (Jian Kang)
5. The ISO 12913 standard series on soundscape (Francesco Aletta)
6. Defining soundscape intervention applications: case studies, evaluation and design (Jian Kang-Francesco Aletta)
7. Indoor soundscaping as an emerging theme in soundscape studies (Simone Torresin)
8. The Soundscapy tool [Workshop] (Andrew Mitchell)

<https://github.com/MitchellAcoustics/Soundscapy>); International Soundscape Database (<https://zenodo.org/record/5705908#.YlJfujMJD8>) and Urban Soundscapes of the World (<https://urban-soundscapes.s3.eu-central-1.wasabisys.com/soundscapes/index.html>)



KEY TRAINERS



Cristina Pronello, Full Professor at Politecnico di Torino, Interuniversity Department of Regional and Urban Studies and Planning, coordinates the TRIS (Transport Research for Innovation and Sustainability) research group. She is member of SmartData@PoliTO - Big Data and Data Science Laboratory. Till to 2019 she was Chair holder of “Intelligent Transport Systems and Territorial Dynamics” at Sorbonne Universités – UTC and before professor at Université Lumière Lyon2. She was member of the Board of Ferrovie dello Stato Italiane (2018-2021) and President of the Regional Transport Authority of Piedmont Region (2016-2018). She is the winner of TRA VISIONS 2020 (<https://www.travisions.eu/TRAVisions/>). She coordinates the H2020 project WE-TRANSFORM. She founded the innovative start up Mobyforall. Her main research fields are Intelligent Transport Systems, transport systems’ environmental impacts, travel behaviour and travel surveys.



Francesco Asdrubali is Full Professor of Building Physics and Building Energy Systems at the Department of Engineering of Roma Tre University, Italy. Their main research interests are: Thermal behaviour of buildings; Green buildings; Building and environmental acoustics; Building materials characterization and Life cycle assessment in the building sector. He is author of more than 300 scientific papers in scientific Journals and Conference Proceedings. He is coordinator of various national and EU-funded Projects (LIFE, Intelligent Energy Europe, VII FP; Horizon 2020, COST Action). He is President of the Acoustical Society of Italy and Editor in Chief of Building Acoustics and Noise Mapping.



Jian Kang obtained his first and master degree from Tsinghua University and his PhD from the University of Cambridge. He is Fellow of Royal Academy of Engineering and Member of Academia Europaea - The Academy of Europe. He has been a full professor since 2003, and worked in the field of architectural and environmental acoustics for 35+ years, with 80+ research projects, 800+ publications, 90+ engineering/consultancy projects, and 20+ patents. He is President-Elect of the International Institute of Acoustics and Vibration (IIAV), and he also chairs the European Acoustics Association Technical Committee for Noise, and the EU COST Action on Soundscape of European Cities and Landscapes. He is recipient of the Advanced ERC Grant Award, currently working internationally on developing Soundscape Indices.



Francesco Aletta is an architect and urban sound planner by training, research associate at University College London (UK). He has been active in soundscape studies for more than 10 years with an interest in methods for measuring soundscape perception by people and standardization processes, as well as how to translate soundscape descriptors in languages other than English.



Simone Torresin is a Building Engineer, post-doctoral researcher at Eurac Research (Bolzano, Italy). He was granted the title of PhD in Civil, Environmental and Mechanical Engineering at the University of Trento, in cooperation with Eurac Research, Institute for Renewable Energy, and with the Institute for Environmental Design and Engineering, The Bartlett, University College London (UK). His research focuses on the

characterization of the relationship between sound and building occupants, by developing and applying indoor soundscape methodologies.

ACADEMIC TUTORS



Andrew Mitchell is a Research Fellow in the Soundscape Indices group at University College London. His research interests include soundscape analysis, machine learning, and human perception of complex sounds. His current work focusses on creating computational models for predicting soundscape assessment in urban public spaces so that we can create better urban spaces. Andrew is committed to open data, open software, and open science, working with the Alan Turing Institute to create The International Soundscape Database and a new soundscape

assessment tool, Soundscapy. Both of these projects follow the principles of open and reproducible science.