

# Andrew Mitchell, PhD

Urban Soundscape and Machine Learning Researcher

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## Education

- Sep 2018 – Sep 2022 | **PhD in Environmental Acoustics & Machine Learning**  
*Institute for Environmental Design & Engineering, University College London, UK*  
Thesis title: *Predictive Modelling of Complex Urban Soundscapes – Enabling an engineering approach to soundscape design*  
Thesis supervisors: Prof Jian Kang & Dr Phil Symonds
- Sep 2012 – June 2015 | **BSc. (Hons.) Physics & Music**  
*Cardiff University, Wales, UK*  
Dissertation title: *The Physics of the Trombone Mouthpiece*  
Supervisor: Prof Bernard Richardson

## Research Experience

- June 2022 - Present | **Senior Research Fellow** in Soundscape Modelling  
*University College London, Institute for Environmental Design & Engineering*  
Responsible for leading on data analytics and machine learning within the Soundscape Indices project.  
[Promoted from Research Fellow in Oct 2023.]
- June 2023 | **Visiting Researcher**, hosted by Dr Pierre Aumond  
*IFSTTAR (The French institute of science and technology for transport, development, and networks)*  
*Université Gustave Eiffel, Nantes, France*  
Refined a new interpolation method (Acoustic Distance) and developed a novel soundscape mapping approach.
- May 2022 - Mar 2023 | **Academic PI and Challenge Owner**, Alan Turing Institute Data Study Group  
*The Alan Turing Institute, British Library, London, UK*  
Coordinated and provided data for a 5-day Turing Data Study Group exploring deep learning methods for detecting noise annoyance in smart city networks. Edited a research report detailing the resulting trials of 18 proposed models and the group's conclusions.
- Mar 2022 | **Visiting Scholar**, hosted by Prof Mats Nilsson  
*Stockholm University, Department of Psychology, Psychophysics Research Lab*
- Aug 2021 - June 2022 | **Research Assistant**, Catalogue of Soundscape Interventions  
*University College London, Institute of Environmental Design & Engineering*  
Contributed to the development of a description framework for soundscape interventions and provided copy editing for the resulting catalogue website.
- Mar 2021 - June 2022 | **Research Assistant**, Soundscape Attributes Translation Project (SATP)  
*University College London, Institute for Environmental Design & Engineering*  
Collated datasets from 28 institutions in 18 languages, applying data quality and integrity checks. Conceived and implemented the primary data analysis for the final publication of the project.

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| Mar 2021 - Nov 2021  | <b>Research Assistant</b> , DeLTA (Deep Learning Techniques for noise Annoyance detection)<br><i>University College London, Institute for Environmental Design &amp; Engineering</i><br>Co-designed a large scale online data collection and published an open access dataset designed for sound-source based noise annoyance detection. |
| Sep 2018 - June 2022 | <b>Doctoral Researcher</b> , Soundscape Indices (SSID)<br><i>University College London, Institute for Environmental Design &amp; Engineering</i>   |

## Teaching Experience

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| MSc Smart Buildings & Digital Engineering, UCL | <b>Python Tutor</b> , 2020 - Present<br>Provide weekly instruction and support in Python and machine learning for all SBDE students.<br><br><b>Guest Lectures</b> , 2022 - Present<br><i>BENVo119 Machine Learning in Smart Buildings</i><br>Deliver case study lectures on the application of machine learning models in urban soundscapes.<br><br><b>Senior Teaching Assistant</b> , 2020 - 2022<br><i>BENVo119 Machine Learning in Smart Buildings</i><br>Co-developed the MLiSB module with Dr Phil Symonds and Dr Nahid Mohajeri. Created and delivered machine learning tutorials with smart building and urban system datasets. |
| MEng Engineering & Architectural Design, UCL   | <b>Guest Lectures</b> , 2020 - Present<br><i>BARCo161 Design Practice 2</i><br>Deliver Structural, Environmental, and Architectural Design tutorialS (SEADS) on noise control in buildings.<br><br><b>Teaching Assistant</b> , 2018 - 2020<br><i>BARCo147 Urban Physics &amp; BARCoo02 Building Physics &amp; Environment</i><br>Demonstrated practical noise measurement methods.   |
| MSc Environmental Design & Engineering, UCL    | <b>Teaching Assistant</b> , 2019/20<br><i>BENVo032 Methods of Environmental Analysis</i><br>Delivered tutorials on data analytics and statistics.  |

## Supervision Experience

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| 2023 | <b>Chi Zhang</b> MSc Smart Buildings and Digital Engineering, University College London<br>Dissertation title: <i>Soundscape Exposure Duration - Its influence on human perception of soundscape</i><br><br><b>Xixi Qin</b> MSc Health, Well-being, and Sustainable Buildings, University College London<br>Dissertation title: <i>Mechanical sound effects on soundscape perception and human anxiety - A comparative study in park and road environments</i>                        |
| 2022 | <b>Shiqi Huang</b> MSc Environmental Design & Engineering, University College London<br>Dissertation title: <i>A predictive model for soundscape perception based on landscape type.</i>  |
| 2021 | <b>Zhoushu Sun</b> MSc Smart Buildings and Digital Engineering, University College London<br>Dissertation title: <i>Comparison of non-linear machine learning algorithms for predictive modeling of Soundscape Pleasantness and Eventfulness</i><br><br><b>Yan Zhang</b> MSc Smart Buildings and Digital Engineering, University College London<br>Dissertation title: <i>The relevance between the sound sources and the mood of passer-by in various types of open environments</i> |
| 2019 | <b>Veronica Rugeles Allen</b> MSc Environmental Design and Engineering, University College London<br>Dissertation title: <i>Effects of vegetation on soundscape perception: A case study in London</i>  |



## Continuing Professional Development

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- 23 Nov 2023 | **Noise from Air Source Heat Pumps: What do we know in 2023**, Institute of Acoustics  
Seminar reviewing the current state of knowledge and policy regarding heat pump noise in the UK.
- Jan 2021 | **Research Software Engineering**, The Alan Turing Institute  
Week-long course on practical software design for researchers completed during the PhD Enrichment Scheme.
- Aug 2019 | **Machine Learning for Acoustics Summer School**, UKAN  
Course on the fundamentals of supervised machine learning and how to apply them to acoustics.

## Contributions to Open Source Software and Data

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- Open Data | **The International Soundscape Database (ISD)** [Zenodo repo]  
The ISD was developed as part of the SSID project making available the datasets used throughout the SSID-related publications to form a large, cohesive, and ever-growing database of soundscape assessment. As of January 2024, this dataset has been viewed 5,259 times and downloaded 1,544 times.
- Deep Learning Techniques for noise Annoyance detection (DeLTA) Dataset** [Zenodo repo]  
A large-scale database of binaural recordings with weakly-labelled sound source labels and annoyance ratings. Designed for testing ML and deep learning techniques for the prediction of noise annoyance.
- Soundscape Attributes Translation Project (SATP) Dataset** [Zenodo repo]  
A reference dataset of binaural soundscape recordings evenly covering the soundscape perception space and a set of 19,088 survey responses from 707 participants, across 18 languages. Initially designed for use in a large international translation effort comprising 29 partner research institutions, the reference recordings have since been used as a more general reference dataset for soundscape perception research.
- Software | **Soundscapy** [PyPI Package]  
 Soundscapy is an open-source python package for analysing and visualising soundscape data. Originally developed as a visualisation tool for my own PhD research, Soundscapy now provides a wide swath of acoustic and psychoacoustic analyses for binaural recordings, optimised for large-scale batch processing.
- Circumplex** [PyPI Package]  
 Circumplex is a Python package for analyzing and visualizing circumplex data. It provides a set of tools for analyzing and visualizing circumplex data, following the Structural Summary Method.

## Industry Experience

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- Jun 2019 - Mar 2021 | **Soundscape Consultant / Acoustics Engineer**  
*Hoare Lea, LLC, London, UK*  
Led an R&D project developing bespoke software to integrate soundscape assessments with Hoare Lea's in-house smart building systems.
- Jun 2016 - Sep 2018 | **Acoustical Consultant**  
*Newson Brown Acoustics, Santa Monica, CA*  
Provided comprehensive technical design reports on over 50 building projects
- Jul 2015 - Apr 2016 | **Junior Acoustical Consultant - Wind Farm Assessments**  
*Hayes McKenzie Partnership, Ltd., Machynlleth, Wales*  
Specialised in planning assessments for on-shore wind farm developments and noise complaints.

## Professional Standing

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| Institutional<br>Citizenship        | <p><b>Nuffield Research Placement Scheme</b>, UCL Energy Institute<br/><i>Assisted Dr Michael Fell and Dr Gesche Huebner by delivering noise assessment tutorials and offering feedback and advice to sixth form pupils from backgrounds underrepresented in HE.</i></p> <p><b>IEDE Research Themes Deputy Lead - Acoustics &amp; Soundscape</b>, 2023 - 2024</p> <p><b>Sustainability in Higher Education Initiative (SHEI)</b>, UCL BSEER<br/><i>Delivered the inaugural talk on the implications of AI writing tools in education.</i></p> <p><b>UCL R User Group</b> Regular attendee &amp; contributor, 4 talks delivered since 2019.</p> |
| Standards                           | <p><b>ISO/TC 43/SC 1</b>, ANSI Independent Expert<br/><i>Working Group 54: Perceptual Assessment of Soundscape Quality</i><br/>Appointed to the American working group on ISO 12913 [pending final confirmation].</p>  |
| Science Outreach &<br>Communication | <p><b>The Rest Is Just Noise Podcast</b>, Host<br/>The Rest Is Just Noise is a monthly podcast exploring the relationship between sound and our cities. As the primary host, each episode I interview an expert guest from fields such as acoustics, architecture, and environmental psychology, to discuss their latest work and introduce our audience to the science, beauty, and noise of urban sound.</p> <p><b>Across Acoustics, Podcast of the Acoustical Society of America</b>, Featured Guest</p> <p><b>The Pandemic Sensory Archive</b>, Expert Guest</p>   |
| Editing                             | <p><b>Journal of the Acoustical Society of America &amp; JASA EL Special Issue</b>, Guest Editor<br/>Entitled "Advances in Soundscape: Emerging Trends and Challenges in Research and Practice"</p> <p><b>Elsevier Applied Acoustics Special Issue</b>, Guest Editor<br/>Entitled "Soundscape Attributes Translation: Current Projects and Challenges"</p> <p><b>De Gruyter Noise Mapping Special Issue</b>, Guest Editor<br/>Entitled "Living with the Pandemic: Reflections on the Urban Sound Consequences of 2 years of the COVID-10 Pandemic"</p>   |
| Conference Chair                    | <p><b>184th Meeting of the Acoustical Society of America</b>, Chicago 2023<br/>Session: <i>Artificial Intelligence and Machine Learning</i></p> <p><b>52nd Inter-Noise</b>, Chiba, Tokyo 2023<br/>Session: <i>Soundscape Evaluations: Towards the Developments of Standards</i></p> <p><b>51st Inter-Noise</b>, Glasgow 2022<br/>Session: <i>Soundscape and Health</i><br/>Session: <i>Artificial Intelligence (AI)</i></p>  |
| Professional<br>Memberships         | <p><b>Acoustical Society of America</b>, Member 2016 - Current<br/><i>Technical Committees: Architectural Acoustics, Noise</i></p> <p><b>UK Acoustics Network (UKAN+)</b>, Member 2018 - Current</p> <p><b>Institute of Acoustics, UK</b>, Student Member 2015 - 2022</p> <p><b>International Misophonia Research Network (IMRN)</b>, Researcher &amp; Advisory Board Member 2018 - 2022</p>   |
| Reviewing                           | <p>Applied Acoustics, Journal of Acoustical Society of America, Urban Forestry and Urban Greening, IEEE Transactions on Affective Computing, International Journal of Environmental Research and Public Health, People and Nature, Building Acoustics, Building and Environment, ISPRS International Journal of Geo-Information</p> <p>Review Editor for Urban Science in Frontiers in Built Environment</p>   |

## Grants

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- Apr 2023 | **Fellowship Incubator Award**, UCL Research Culture  
Lead applicant for a grant to lead a team developing an open-source web app GUI for soundscape assessment visualisations (based on Soundscapy).
- Dec 2022 | **Turing Data Study Group grant**, The Alan Turing Institute, British Library, London, UK  
In-kind funding grant worth £20,000-£40,000 to support running a Turing Data Study Group.
- 2022 - 2023 | **Post Doctoral Enrichment Award**, The Alan Turing Institute, British Library, London, UK
- 2020 - 2024 | **Early Careers Group Support Funding**, UK Acoustics Network+  
£2,000 p/a support funding to develop, host, and produce *The Rest Is Just Noise* podcast.
- June 2020 | **Research Capital Investment Fund (RCIF)**, UKRI Research England  
Co-author on a successful £50,469 funding application for an Integrated Modular Environmental Monitoring Suite (LivEnviro).
- 2018 - 2022 | **PhD Studentship**, ERC Advanced Grant no. 740696: Soundscape Indices–SSID  
Fully-funded 3-year (+6-month extension) PhD Studentship at University College London
- 2019 | **Monolith Seed Funding**, UCL Culture Performance Lab


## Honors & Awards

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- 2023 | **Science Communication Award**, Acoustical Society of America  
Awarded in the Acoustics Expert in Multimedia category for *The Rest Is Just Noise* podcast.
- Oct 2022 | **John Connell Award - Soundscape**, Noise Abatement Society, UK  
Awarded for the Soundscape Attributes Translation Project (SATP).
- Sep 2021 - Mar 2022 | **Enrichment Scheme placement**, The Alan Turing Institute, British Library, London, UK  
Highly competitive 6-month placement drawing from PhD students across the UK applying AI or machine learning in original research.
- Jan - Sept 2021 | **Engagement Scheme placement**, The Alan Turing Institute, British Library, London, UK  
Virtual placement version of the Turing Enrichment Scheme, developed in response to COVID-19 conditions.
- Dec 2019 | **Best Paper Award**, ASA San Diego TC-Noise  
Awarded for the presentation 'Making cities smarter with new soundscape indices'  
**ECR Travel Grant**, UK Acoustics Network

## Skills & Programming Languages

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- Advanced | Soundscape assessments, Python, scikit-learn, Seaborn & matplotlib, , Excel, ArtemiS SUITE,  $\LaTeX$
- Intermediate | Pytorch, CadnaA, SPSS, git/Github, Stan/brms, Linux, Matlab
- Basic | Tensorflow, Docker

## Peer-reviewed Journal Publications

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- 2024 | 1. Hou, Y., Kang, B., **Mitchell, A.**, Wang, W., Kang, J. & Botteldooren, D. Cooperative Scene-Event Modelling for Acoustic Scene Classification. *IEEE/ACM Transactions on Audio, Speech, and Language Processing* **32**, 68–82 (2024)
- 2023 | 2. Aletta, F., Oberman, T., **Mitchell, A.**, Erfanian, M. & Kang, J. Soundscape experience of public spaces in different world regions: A comparison between the European and Chinese contexts via a large-scale on-site surveya). *The Journal of the Acoustical Society of America* **154**, 1710–1734 (Sept. 2023)
- 2023 | 3. Hou, Y., Ren, Q., Zhang, H., **Mitchell, A.**, Aletta, F., Kang, J. & Botteldooren, D. AI-based soundscape analysis: Jointly identifying sound sources and predicting annoyance. *The Journal of the Acoustical Society of America* **154**, 3145–3157 (Nov. 2023)
4. Kang, J., Aletta, F., Oberman, T., **Mitchell, A.**, Erfanian, M., Tong, H., Torresin, S., Xu, C., Yang, T. & Chen, X. Supportive soundscapes are crucial for sustainable environments. *Science of The Total Environment* **855**, 158868 (Jan. 2023)
5. Papadakis, N. M., Aletta, F., Kang, J., Oberman, T., **Mitchell, A.**, Aroni, I. & Stavroulakis, G. E. City, town, village: Potential differences in residents soundscape perception using ISO/TS 12913-2:2018. *Applied Acoustics* **213**, 109659 (Oct. 2023)
6. Vida, J., Antonio Almagro, J., García-Quesada, R., Aletta, F., Oberman, T., **Mitchell, A.** & Kang, J. Soundscape attributes in Spanish: A comparison with the English version of the protocol proposed in Method A of the ISO/TS 12913-2. *Applied Acoustics* **211**, 109516 (Aug. 2023)
- 2022 | 8. **Mitchell, A.**, Erfanian, M., Soelistyo, C., Oberman, T., Kang, J., Aldridge, R., Xue, J.-H. & Aletta, F. Effects of Soundscape Complexity on Urban Noise Annoyance Ratings: A Large-Scale Online Listening Experiment. *International Journal of Environmental Research and Public Health* **19**, 14872 (Nov. 2022)
9. **Mitchell, A.**, Aletta, F. & Kang, J. How to analyse and represent quantitative soundscape data. *JASA Express Letters* **2**, 037201 (2022)
- 2021 | 10. Erfanian, M., **Mitchell, A.**, Aletta, F. & Kang, J. Psychological well-being and demographic factors can mediate soundscape pleasantness and eventfulness: A large sample study. *Journal of Environmental Psychology* **77**, 101660 (Oct. 2021)
11. Lionello, M., Aletta, F., **Mitchell, A.** & Kang, J. Introducing a Method for Intervals Correction on Multiple Likert Scales: A Case Study on an Urban Soundscape Data Collection Instrument. *Frontiers in Psychology* **11**, 3943 (2021)
12. **Mitchell, A.**, Oberman, T., Aletta, F., Kachlicka, M., Lionello, M., Erfanian, M. & Kang, J. Investigating urban soundscapes of the COVID-19 lockdown: A predictive soundscape modeling approach. *The Journal of the Acoustical Society of America* **150**, 4474–4488 (Dec. 2021)
13. Orga, F., **Mitchell, A.**, Freixes, M., Aletta, F., Alsina-Pagès, R. M. & Foraster, M. Multilevel Annoyance Modelling of Short Environmental Sound Recordings. *Sustainability* **13**, 5779 (May 2021)
14. Tong, H., Aletta, F., **Mitchell, A.**, Oberman, T. & Kang, J. Increases in noise complaints during the COVID-19 lockdown in Spring 2020: A case study in Greater London, UK. *Science of The Total Environment* **785**, 147213 (2021)
15. Vida Manzano, J., Almagro Pastor, J. A., Garcíea Quesada, R., Aletta, F., Oberman, T., **Mitchell, A.** & Kang, J. The "sound of silence" in Granada during the COVID-19 lockdown. *Noise Mapping* **8**, 16–31 (2021)

- 2020
16. Aletta, F., Oberman, T., **Mitchell, A.**, Tong, H. & Kang, J. Assessing the changing urban sound environment during the COVID-19 lockdown period using short-term acoustic measurements. *Noise Mapping* 7, 123–134 (Jan. 2020)
  17. **Mitchell, A.**, Oberman, T., Aletta, F., Erfanian, M., Kachlicka, M., Lionello, M. & Kang, J. The Soundscape Indices (SSID) Protocol: A Method for Urban Soundscape Surveys–Questionnaires with Acoustical and Contextual Information. *Applied Sciences* 10, 2397 (Apr. 2020)
- 2019
18. Aletta, F., Oberman, T., **Mitchell, A.**, Erfanian, M., Lionello, M., Kachlicka, M. & Kang, J. Associations between soundscape experience and self-reported wellbeing in open public urban spaces: A field study. *The Lancet* 394, S17 (Nov. 2019)
  19. Erfanian, M., Mitchell, A. J., Kang, J. & Aletta, F. The Psychophysiological Implications of Soundscape: A Systematic Review of Empirical Literature and a Research Agenda. *International Journal of Environmental Research and Public Health* 16, 3533 (2019)

## Conference Papers

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- 2023
1. **Mitchell, A.**, Aletta, F., Oberman, T., Erfanian, M. & Kang, J. *A conceptual framework for the practical use of predictive models and Soundscape Indices: Goals, constraints, and applications* in INTER-NOISE 2023 Conference (Chiba, Greater Tokyo, Aug. 2023)
  2. **Mitchell, A.**, Aletta, F., Oberman, T. & Kang, J. *How do we define soundscape?* in Forum Acusticum 2023 (Turin, Italy, Sept. 11, 2023)
  3. **Mitchell, A.** et al. *Deep learning techniques for noise annoyance detection: Results from an intensive workshop at the Alan Turing Institute* in. 153 (Acoustical Society of America (ASA), Chicago, Mar. 2023), A262–A262
  4. Aletta, F., Oberman, T., **Mitchell, A.**, Kang, J. & SATP Consortium. *Preliminary results of the Soundscape Attributes Translation Project (SATP): lessons learned and next steps* in Forum Acusticum 2023 (Turin, Italy, Sept. 11, 2023)
  5. Harvie-Clark, J., Pitone, R. R., Pereira, L. & **Mitchell, A.** *Integrating acoustics engineering and soundscape design for an urban park: a case study* in Forum Acusticum 2023 (Turin, Italy, Sept. 2023)
  6. Hou, Y., Song, S., Luo, C., **Mitchell, A.**, Ren, Q., Kang, J., Want, W. & Botteldooren, D. *Joint prediction of audio event and annoyance rating in an urban soundscape by hierarchical graph representation learning* in 24th INTERSPEECH Conference (Dublin, Aug. 2023)
  7. Hou, Y., **Mitchell, A.**, Ren, Q., Aletta, F., Kang, J. & Botteldooren, D. *Exploring annoyance in a soundscape context by joint prediction of sound source and annoyance* in Forum Acusticum 2023 (Turin, Sept. 2023)
  8. Kang, J., Aletta, F., Oberman, T., **Mitchell, A.** & Erfanian, M. *On the development of Soundscape Indices (SSID)* in The 29th International Congress on Sound and Vibration (Prague, July 2023)
  9. Kang, J., Aletta, F., Oberman, T., **Mitchell, A.** & Erfanian, M. *Subjective evaluation of environmental sounds in context - Towards Soundscape Indices (SSID)* in Forum Acusticum 2023 (Turin, Italy, Sept. 13, 2023)
  10. Moshona, C., Aletta, F., Chen, X., Fiebig, A., Henze, H., Kang, J., **Mitchell, A.**, Oberman, T., Schulte-Fortkamp, B. & Tong, H. *Deriving a typology of soundscape design interventions* in Forum Acusticum 2023 10th Convention of the European Acoustics Association (Turin, Italy, 2023)
  11. Xu, X., Oberman, T., **Mitchell, A.**, Huang, S., Aletta, F. & Kang, J. *Effects of Visual Stimulus on Soundscape Perception: A Pilot Study Using Immersive Virtual Reality (IVR)* in Forum Acusticum 2023 (Turin, Italy, Sept. 12, 2023)
- 2022
11. Moshona, C. C., Aletta, F., Henze, H., Chen, X., **Mitchell, A.**, Oberman, T., Tong, H., Fiebig, A., Kang, J. & Schulte-Fortkamp, B. *What is a soundscape intervention? Exploring definitions and identification criteria and a platform to gather real-world examples* in 51st International Congress and Exposition on Noise Control Engineering (INTER-NOISE 2022) (2022)

- 2021
12. Kang, J., Aletta, F., Oberman, T., **Mitchell, A.** & Tong, H. *Acoustic environments and soundscapes in London during the Spring 2020 lockdown in Acoustics in Focus – 180th Meeting of the Acoustical Society of America* (Virtual, 2021)
  13. Erfanian, M., **Mitchell, A.**, Aletta, F. & Kang, J. *Soundscape Pleasantness and Eventfulness can be mediated by Psychological Well-being and Demographic factors in The 32nd International Conference of Psychology (ICP)* (Prague, Jan 2021).
- 2020
14. Ma Alsina-Pagès, R., Orga, F., Freixes, M., Mallol, R., Aletta, F., **Mitchell, A.**, Kang, J. & Foraster, M. *Urban environment soundscape evaluation: Milan case study of noise events perceptions by citizens in INTER-NOISE and NOISE-CON Congress and Conference Proceedings 261* (2020), 3434–3441
- 2019
15. Erfanian, M., **Mitchell, A.** & Kang, J. *The neurophysiology and physiology of soundscape: A review of the empirical literature in The 6th European Conference on Psychology & the behavioral Sciences (ECP2019)* (2019), 1–2
  16. Kang, J., Aletta, F., Oberman, T., Erfanian, M., Kachlicka, M., Lionello, M. & **Mitchell, A.** *Towards soundscape indices en. in Proceedings of the 23rd International Congress on Acoustics integrating 4th EAA Euroregio 2019 : 9-13 September 2019* (RWTH Aachen University, Aachen, Sept. 2019), 2488–2495

## Other Publications

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- 2024
- Mitchell, A.**, Oberman, T., Aletta, F. & Kang, J. Searching for a common understanding of 'soundscape': A critical look at the definitions and uses of the term. *OSF Preprints* (Jan. 2024)
- 2023
- Data Study Group Team & **Mitchell, A.** *Data Study Group Final Report: IEDE Acoustics Group, University College London Deep Learning Techniques for noise annoyance detection (DeLTA)* en. Research rep. (The Alan Turing Institute, 2023)

## Invited Lectures

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- 2024
1. **Mitchell, A.** *Applications for Soundscape Modelling: Soundscape Engineering*. Interdisciplinary Perspectives on Soundscapes & Wellbeing workshop, Environmental Psychology Research Group, University of Surrey. 16 Jan 2024.
- 2023
2. **Mitchell, A.** *New Methods and Proposals for Evaluating Soundscape Designs and Interventions*. Pi-Lab, Industrial Design Engineering, TU Delft. Nov. 30, 2023.
  3. **Mitchell, A.** *Fundamentals of soundscape data analysis (Soundscapy)*. 2023 EAA Summer School, Torino. Sept 9, 2023.
  4. **Mitchell, A.** *Computational Soundscape Modelling: Enabling an Engineering Approach to Soundscape Design*. UMRAE Seminar Series, Nantes, France. June 2023.
  5. **Mitchell, A.** *et al. Deep learning techniques for noise annoyance detection: Results from an intensive workshop at the Alan Turing Institute* in. **153** (Acoustical Society of America (ASA), Chicago, Mar. 2023), A262–A262
- 2022
6. **Mitchell, A.** *Python (or R) for Open and Reproducible Science*. Department of Psychology, Stockholm University.
  7. **Mitchell, A.** *Soundscapy: An Introductory Workshop*. Soundscape: Applied Acoustics Group, Dept of Energy, Politecnico di Torino.
  8. **Mitchell, A.**, Aletta, F., Oberman, T., & Kang, J. *Soundscapy: A new analysis and visualisation method for representing the range of soundscape perceptions*. Aural Diversity Workshop - Soundscape and Sound Studies. Sept. 16, 2022.



- 2021
9. **Mitchell, A.**, Oberman, T., Aletta, F. & Kang, J. *Development of a multi-level predictive soundscape model to assess the soundscapes of public spaces during the COVID-19 lockdowns* in *181st Meeting of the Acoustical Society of America* **150** (Seattle, 2021), A293–A293
  10. **Mitchell, A.** *Industry and Research Collaboration in Soundscapes* in *Acoustics 2021* (Panel talk, Oct 2021).
  11. **Mitchell, A.** *Measuring and Reproducing Urban Soundscapes* for *Chicago Audio Engineering Society* (Virtual lecture, Feb 2021)
- 2020
12. **Mitchell, A.** *The Soundscape Indices (SSID) Protocol – A method for practical soundscape assessments in the city* in *Acoustics 2020* (Virtual, Oct 2020).
- 2019
13. **Mitchell, A.** & Kang, J. *The spectral structure of acoustic time series can predict the perceptual assessment of urban soundscapes* in *178th Meeting of the Acoustical Society of America* **146** (Acoustical Society of America (ASA), San Diego, Dec. 2019), 2795–2795
  14. **Mitchell, A.**, Aletta, F., Oberman, T., Erfanian, M., Kachlicka, M., Lionello, M. & Kang, J. *Making cities smarter with new soundscape indices* in *178th Meeting of the Acoustical Society of America* **146** (Acoustical Society of America (ASA), San Diego, Dec. 2019), 2873–2873