



1 Advertisement

Post Title: Research Fellow in Computational Ecoacoustics

School/department: Engineering and Informatics/ Informatics

Hours: Full time - considered up to a maximum of 100% FTE

Requests for [flexible working](#) options will be considered (subject to business need).

Contract: fixed term for 6 months

Reference: 7983

Salary: starting at £34,304 to £40,927 per annum, pro rata if part time

Placed on: 15 March 2022

Closing date: 29 March 2022. Applications must be received by midnight of the closing date.

Expected start date: 1 May 2022 or as soon as possible thereafter.

A full time, 6 month Postdoctoral Research Fellow position is available to work at the forefront of Computational Ecoacoustics as part of a pilot project investigating the potential for dynamical complexity metrics in the ecological assessment of natural soundscapes. The exploratory nature of this project offers the opportunity to have strong creative input, and – if successful - the project has the potential to develop into a major research endeavor in the future.

Context: Monitoring, understanding, and predicting the integrity of our planetary biosphere is the most critical sustainability issue of our time. The emerging science of ecoacoustics points to the exciting possibility that eavesdropping on ecosystems can provide a cost-effective solution. The soundscape is a highly dynamic pattern of acoustic energy, which emerges from the interaction of the sounds of organisms, geophysical and technological processes. Current approaches in computational ecoacoustics are extremely simple, precluding investigation of these rich spatio-temporal dynamics, and how they may relate to ecosystem health and integrity. However, emerging methods in complexity science point to exciting new possibilities.

Your Role: You will bring strong mathematics and computing skills and a rigorous, experimental approach to a multidisciplinary team of pioneering researchers across ecoacoustics, complexity science, neuroscience, AI and music to investigate the potential of new and emerging information-theoretic complexity measures as new acoustic ecological assessment tools for applied conservation.

Working on the EPSRC-funded pilot project “Toward a Measure of Soundscape Dynamical Acoustic Complexity using Causal Analysis and AI”, you will collaborate with

the research team to carry out pioneering research and co-author high quality peer reviewed publications.

Situated within a world-leading research environment of the AI Research Group in the school of Engineering and Informatics at the University of Sussex, you will have ample with opportunities to engage with and contribute to a vibrant research environment nourished by activities of groups including the Sackler Centre for Consciousness Science, the Predictive Analytics Lab and the Sussex Humanities lab.

For an informal discussion of the post, please contact Alice Eldridge, Reader in Sonic Systems, in the first instance by email at: alicee@sussex.ac.uk

Applications should be accompanied by a full CV, a statement of research interests and aspirations (not more than 4 pages), and the names of three academic referees.

The University is committed to equality and valuing diversity, and applications are particularly welcomed from women and black and minority ethnic candidates, who are under-represented in academic posts in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at Sussex.

Please note that this position may be subject to [ATAS clearance](#) if you require visa sponsorship.

For full details and how to apply see our [vacancies page](#)

The University of Sussex values the diversity of its staff and students and we welcome applicants from all backgrounds.

2. The School / Division

Please find further information regarding the school/division at <https://www.sussex.ac.uk/informatics/>

3. Job Description

Job Description for the post of: Research Fellow in Computational Ecoacoustics

Department: Informatics

Section/Unit/School: AI Research Group, Department of Informatics,
School of Engineering and Informatics

Location: Chichester 2, 2R211

Grade: Research Fellow I, Grade 7 (mid)

Responsible to: Principle investigator through Head of School

Responsible for: N/A

Role Description: Research Fellow I is an early career-grade research position. Post-holders will be expected to contribute to the work of the research team, and also to develop their research skills with support from more experienced members of staff.

The post-holder will have strong programming and mathematical skills with expertise in one or more of Digital Signal Processing (DSP), complexity science, bioinformatics, information theory or machine learning/ listening.

4. Person Specification

PRINCIPAL ACCOUNTABILITIES

1. To engage in individual and/or collaborative research activity resulting in high-quality publications; and to develop research funding and knowledge exchange income individually or in collaboration with others, as appropriate, depending on the size and scope of the bid.

KEY RESPONSIBILITIES

1. Research, Scholarship & Enterprise

1.1 Develop research objectives and proposals for own or joint research, at acceptable levels, with assistance if required.

1.2 Conduct research projects individually and in collaboration with others.

- 1.3 Analyse and interpret research findings and draw conclusions on the outcomes.
- 1.4 Produce high-quality research outputs for publication in monographs or recognised high-quality journals, or performance/exhibition, as appropriate, and contribute to the School's REF submission at acceptable levels of volume and academic excellence.
- 1.5 Contribute to the preparation of proposals and applications to external bodies, for example for funding purposes.
- 1.6 Individually or with colleagues, explore opportunities for enterprise activity, knowledge exchange income and/or consultancy, where permissible.
- 1.7 Build internal contacts and participate in internal networks and relevant external networks in order to form relationships and collaborations.
- 1.8 Continually update knowledge and understanding in field or specialism, and engage in continuous professional development.

2. Contribution to School & University

- 2.1 Attend and contribute to relevant School and project meetings.
- 2.2 Undertake additional duties, as required by the Principal Investigator and/or Head of School.

3. Role-specific duties

- 3.1 Under supervision, analyse extensive acoustic data sets of natural soundscapes toward establishing i) whether the spatio-temporal structures of natural soundscapes are amenable to information-theoretic causal analysis ii) which data pre-processing methods and representations are optimal iii) whether differences in observed statistical structures track ecologically relevant data labels.
- 3.2 Keep up to date on current relevant literature in related areas of computational ecoacoustics and current trends in causal analysis and machine learning.
- 3.3 Maintain open-source code on GitHub to disseminate findings.
- 3.4 Contribute to the intellectual development of the project.
- 3.5 Collaboratively disseminate findings (co-authored publications and presentations).

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.

INDICATIVE PERFORMANCE CRITERIA

- A PhD or equivalent scholarly or relevant professional activity
- Pursuing a line of independent research within a research group.
- Publishing research (either from a recently completed PhD or new original research).
- Other forms of externally recognised professional practice of output of a standing equivalent to regular publication of original research.
- Initiating, developing or participating in links between the University and external bodies such as business and industry, the professions, community organisations and policy-makers.

PERSON SPECIFICATION

ESSENTIAL CRITERIA

1. Normally educated to doctoral level, or other equivalent qualification, or appropriate level of experience, as appropriate to the discipline (see role-specific criteria below).
2. Evidence of engagement in high-quality research activity.
3. Excellent presentation skills, with the ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences.
4. Ability to work individually on own initiative and without close supervision, and as part of a team.
5. Ability to exercise a degree of innovation and creative problem-solving.
6. Excellent organisational and administrative skills.
7. Ability to prioritise and meet deadlines.
8. Excellent IT skills.

ESSENTIAL ROLE-SPECIFIC CRITERIA

Skills/ Abilities

- Proven mathematical skills and solid programming skills with experience in Python
- Excellent organisational, administrative and project management skills

Knowledge

- Broad understanding of DSP
- Broad understanding of and experience in Machine Learning and/or Machine Listening
- Broad knowledge of applied statistics

Experience

- Evidence of independent technical research experience in DSP, information theory or related machine learning research project, or strong motivation to develop and work in such a project
- Evidence of engagement in high-quality research activity

Qualification

- PhD in Complex Systems, Machine Learning, Eco/Bioinformatics, Music Informatics or strongly related areas or equivalent industry experience

Personal Attributes

- Imaginative, exploratory, rigorous approach to research
- Enthusiasm for one or more of complexity science, ecoacoustics, conservation, ecological science

DESIRABLE CRITERIA

1. Emerging track record of high-quality publications in reputable journals and other appropriate media of similar standing.
2. Experience of generating research or knowledge exchange income
3. Specialism in information theory and/or complex systems tools and concepts