1   Advertisement

Post Title: Research Fellow in Machine Learning
School/department: School of Engineering and Informatics – Department of Informatics
Hours: full time or part time hours considered up to a maximum of 1 FTE.
Requests for <u>flexible working</u> options will be considered (subject to business need).
Contract: fixed term for 22 months
Reference: 9304
Salary: starting at £36,333 to £47,047 per annum, pro rata if part time
Placed on: 18 April 2023.
Closing date: 16 May 2023. Applications must be received by midnight of the closing date.
Expected Interview date: 30 May 2023 onwards
Expected start date: As soon as possible.

This advert was recently posted on 24 October 2022 – Previous Applicants need not apply.

We are looking for a post-doctoral research fellow with a strong machine learning background to work with Profs Luc Berthouze and George Parisis on one of 77 adventurous new projects recently funded by the EPSRC under the New Horizons initiative to explore high-risk speculative research ideas across Engineering and ICT.

Our project aims to transform the way ICT networks are being conceptualised for management, by developing a data-driven (e.g., temporal network based) characterisation of emerging dependencies between ICT components and allowing to characterise and act upon the functional impact of complex and changing interactions across layers and processes.

The primary aim will be to develop and implement methods for inferring time-varying latent inter-dependencies based on events emitted, processed and stored in modern network and service deployments. Conceptual challenges to be met include the presence of multiple time scales as well as hierarchical organisation.

A secondary aim is to disambiguate hypothetical causal structures from the above statistical dependencies, with the view to provide interpretable and actionable insights. Use-case scenarios considered will be failure prediction and root-cause-analysis.

We are looking for a researcher with a proven record of developing and deploying machine learning / mathematical and statistical modelling in large interconnected systems (e.g., biological, social or technological networks). Strong technical skills are required. Befitting the interdisciplinary and high-impact nature of the project, the candidate should be willing to engage with both academic and industrial partners.

Please contact Prof Luc Berthouze, l.berthouze@sussex.ac.uk for informal enquiries.

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 Department at
https://www.sussex.ac.uk/informatics/

3. Job Description

Job Description for the post of:	**Research Fellow in Machine Learning**
Department:	**Informatics**
Section/Unit/School:	**Engineering and Informatics**
Location:	**Chichester I Building, Falmer Campus**
Grade:	**7**
Responsible to:	**Prof Luc Berthouze (PI) through to Head of School**
Key contacts:	**Members of research group, members of faculty within the School and University.**

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.

PRINCIPAL ACCOUNTABILITIES

1. To engage in individual and/or collaborative research activity resulting in high-quality publications and possible further research bids.

2. To contribute to School teaching activities (if interested).

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. Teaching & Student Support

2.1 Undertake teaching duties, if interested.

2.2 Assist in the assessment of student knowledge and supervision of student projects, if interested.

2.3 Assist in the development of student research skills, for example as part of a postgraduate supervision team.

3. Contribution to School & University

3.1 Attend and contribute to relevant School and project meetings.

4. Role-specific duties

4.1 Develop and implement machine learning / mathematical and statistical (including causal inference) modelling methods adapted to the kind of data emitted, processed and stored in large-scale network deployments (from discrete events to continuous variables).

4.2 Evaluate the performance of the methods (including across applicable disciplines).

4.3 Participate actively in project meetings with collaborators and partners both online and in-person as required.

4.4 Publish scientific results in high quality journals and present work at leading international conferences.

4.5 Exchange expertise with PhD students and colleagues.

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 in machine learning (preferably), mathematics or physics, or equivalent.

▪ 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 creative 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.

▪ Evidence of successful engagement in teaching or supervision.

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

1. Demonstrable ability to develop and deploy machine learning / mathematical modelling /statistical (including causal) inference in large-scale interconnected systems. These do not have to be computer network related but practical awareness of the challenges of dealing with very large scale systems and heterogeneous components is essential.

2. Strong programming skills in a relevant programming language, e.g. Python, C++, …

3. Experience of writing high-quality technical reports and publications.

4. Ability and willingness to interact with other team members, including industrial stakeholders

DESIRABLE CRITERIA

1. Familiarity and/or experience with:
   a. Temporal networks, graph neural networks.
   b. Computer network analysis and management