1 Advertisement

Post Title: Research Fellow in Computational Cognitive Neuroscience
School/department: Engineering and Informatics
Hours: Full time
Requests for flexible working options will be considered (subject to business need).
Contract: The contract is fixed term for 24 months. However, it has the possibility to be extended for a further 24 months.
Reference: 10101
Salary: starting at £34,304 to £40,927 per annum, pro rata if part time
Placed on: 11 November 2022.
Closing date: 09 December 2022. Applications must be received by midnight of the closing date.
Expected start date: As soon as possible

A Research Fellowship is available at the University of Sussex in the groups of Prof. Christopher L Buckley and Prof. Anil K Seth (Department of Informatics and Centre for Consciousness Science) on the EU-funded project entitled "A metapredictive model of synthetic awareness for enabling tool invention (METATOOL)". The METATOOL project is a ground-breaking international and multidisciplinary project that aims at developing a novel computational model of cognition based on predictive processing (metacognition) and validating its utility in real robots in the context of conditional sequential tasks (tool use) and tool creation.

You will work within our labs which have expertise in the technical, theoretical, and experimental aspects of Bayesian approaches to cognition. This particular project will pursue an understanding of tool creation within the framework of active inference and predictive processing. It will involve theoretical development, computational models, and collaboration with roboticists. The successful candidate will come from a numerate background and have programming experience.

The bulk of the work will be carried out on the beautiful Falmer campus of the University of Sussex on the outskirts of the lively South Coast town of Brighton. As part of the project, you will present at international conferences and have a chance to visit collaborators across the EU.

Please contact c.l.buckley@sussex.ac.uk in the first instance 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 school/division at
https://www.sussex.ac.uk/research/centres/ai-research-group/

3. Job Description

Job Description for the post of: Research Fellow in Computational Cognitive Neuroscience

Department: Engineering and Informatics

Section/Unit/School: Informatics

Location: Chichester 1

Grade: 7.1

Responsible to: Prof. Christopher L Buckley and Prof. Anil Seth

Responsible for: n/a

Role Description
The successful candidate will join the scientific team at Sussex led by Prof. Christopher L Buckley and Prof. Anil Seth, with close collaboration with partners across the EU. You will take on the key role of developing the theory of active inference and predictive coding for a computational model of creative tool use. You will be responsible for pursuing this work in collaboration with robotics groups.

The successful candidate will have:

- a strong programming and math background
- a prior strong academic background in computational cognitive neuroscience, machine learning or a similar discipline.
- ideally experience in active inference and/or predictive coding
- interest in metacognition, tool use, and/or robotics

4. 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. Experience with programming and mathematical modeling

2. Familiarity with ideas in artificial intelligence

3. Comfortable with Bayesian or probabilistic approaches to cognition

4. Ability to work to deadlines imposed by the larger remit of the project

DESIRABLE CRITERIA

1. Emerging track record of high-quality publications in reputable journals and other appropriate media of similar standing.

2. Experience in active inference or predictive coding

3. Experience in machine learning, particularly reinforcement learning

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 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.

1.4 Contribute to the preparation of proposals and applications to external bodies, for example for funding purposes.

1.5 Individually or with colleagues, explore opportunities for enterprise activity, knowledge exchange income and/or consultancy, where permissible.

1.6 Build internal contacts and participate in internal networks and relevant external networks in order to form relationships and collaborations.

1.7 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 required.

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

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.

3.2 Undertake additional duties, as required by the Principal Investigator and/or Head of School.

4. Role-specific duties

4.1 Theoretical and conceptual development of computational models of metacognition and tool use, and collaboration with roboticists.

4.2 Manage open source software repositories

4.3 Carry out analysis of collected data using both off-the-shelf and custom-designed software packages.

4.4 Prepare, in collaboration with the Principal Investigators and other group members, manuscripts for publication describing the research conducted.

4.5 Prepare, in collaboration with the Principal Investigators and other group members, reports

4.6 Carry out the above duties in the context of tight timelines and deadlines associated with the project.

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 creative output of a standing equivalent to regular publication of original research.
- Evidence of successful engagement in teaching or supervision.