

## 1 Advertisement

**Post Title:** Research Fellow in Informatics

**School/department:** School of Engineering and Informatics - Informatics

**Hours:** Full-time or part-time hours considered up to a maximum of 1FTE

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

**Location:** Brighton, United Kingdom

**Contract:** fixed term for 3 years

**Reference:** 20764

**Salary:** starting at £36,333 to £43,155 per annum, pro rata if part-time.

**Placed on:** 24 May 2023

**Closing date:** 05 July 2023. Applications must be received by midnight of the closing date.

**Expected interview date:** To be confirmed.

**Expected start date:** 01 August 2023

Are you an FPGA expert looking to use your skills to accelerate cutting-edge AI applications with spiking neural networks? If so, we have an exciting opportunity for a Research Fellow to join the AI group within the Department of Informatics at the University of Sussex.

We have many years of experience using GPU hardware to accelerate spiking-neural networks which we have distilled into our GeNN library (<https://genn-team.github.io/>). However, while GPUs can provide excellent performance on static datasets, they are less suitable for 'live' data. FPGAs provide an exciting alternative and have already been shown to be well-suited to spiking neural network simulation. In this project – funded through Dr James Knight's prestigious EPSRC Research Software Engineering Fellowship – the research fellow will work with the GeNN team to codesign hardware and software for a programmable FPGA accelerator which will be driven by our GeNN software and deployable at scales ranging from the edge to the data-centre.

### Key requirements

You should be educated to PhD level (or be close to completion) with extensive experience of using Hardware Description Languages to implement accelerators for hard or soft-core FPGA processors. You should also have a strong interest in spiking neural networks and machine learning and, ideally, already some experience in these areas. When applying, please fill in the application form and attach a full CV. Use the space for additional information in support of your application to address in detail what you are bringing to the project and why you are the best candidate for the position, referring to the role specific criteria as outlined in the Job Description. Please contact Dr James Knight (J.C.Knight@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.*

**Please note: The University requires that work undertaken for the University is performed from the UK.**

## **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 Informatics

**Department:** Informatics

**School:** Engineering and Informatics

**Location:** Chichester 1

**Grade:** Research Fellow I, Grade 7

**Responsible to:** Dr James Knight

**Responsible for:** Job Title of direct line reports (if applicable)

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.

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## **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.
2. To contribute to School teaching activities.

## **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 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 Conduct research on the FPGA acceleration of spiking neural networks under the direction of the Principal Investigator and in collaboration with the team and their collaborators

#### 4.2 Present results at leading international conferences and publish in leading international journals

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 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.

### **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. Extensive experience with Hardware Description Languages i.e. Verilog, VHDL or BlueSpec
2. Experience with implementing accelerators for hard and soft-core processors on FPGA e.g. on Xilinx/AMD Zynq
3. Experience implementing numerical algorithms on FPGA or ASIC

## **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. Experience with partial FPGA reconfiguration
4. Experience in spiking neural networks and/or machine learning