



## THE POST

<b>College:</b>	<b>College of Engineering, Mathematics and Physical Sciences</b>
<b>Post:</b>	<b>Postdoctoral Research Fellow</b>
<b>Reference No:</b>	<b>P63514</b>
<b>Grade:</b>	<b>F</b>
<b>Reporting To:</b>	<b>Prof Jonathan Fieldsend</b>

### **Job Description**

#### **Main purpose of the job:**

As part of the Innovate UK funded project: “Rapid Calibration for Operational and Strategic Digital Twins” to develop efficient Bayesian optimisation algorithms for calibrating models of building infrastructure and road networks.

#### **Main duties and accountabilities:**

1. To undertake research as appropriate to the field of study. The responsibilities may include all or some of the following:
  - Lead the development of Bayesian optimisation algorithms, specifically exploiting Gaussian processes;
  - Actively collaborate with other researchers working on the same project and external partners;
  - Lead the investigation of relevant work packages and tasks, including data preparation, and coupling the optimisation engine with the digital twin software developed by industrial partners;
  - Prepare technical reports, academic papers and grant proposals, and contribute to other dissemination activities;
  - Acting as principal investigator on research projects;
  - Developing research objectives, projects and proposals;
  - Conducting individual or collaborative research projects;
  - Identifying sources of funding and contributing to the process of securing funds;
  - Extending, transforming and applying knowledge acquired from scholarship to research and appropriate external activities;
  - Writing or contributing to publications or disseminating research findings using media appropriate to the discipline;
  - Making presentations at conferences or exhibiting work in other appropriate events;
  - Assessing, interpreting and evaluating outcomes of research;
  - Developing new concepts and ideas to extend intellectual understanding;
  - Resolving problems of meeting research objectives and deadlines;
  - Developing ideas for generating income and promoting research area;
  - Developing ideas for application of research outcomes;
  - Deciding on /following research programmes and methodologies, often in collaboration with colleagues and sometimes subject to the approval of the head of the research programme on fundamental issues.
2. To contribute to teaching and learning programmes in the School and to supervise postgraduate research students.

3. To act as research team leader including:
  - Mentoring colleagues with less experience and advising on their professional development;
  - Coaching and supporting colleagues in developing their research techniques;
  - Supervising the work of others, for example in research teams or projects;
  - Developing productive working relationships with other members of staff;
  - Co-ordinating the work of colleagues to ensure equitable access to resources and facilities;
  - Dealing with standard problems and help colleagues to resolve their concerns about progress in research.
4. To routinely communicate complex and conceptual ideas to those with limited knowledge as well as to peers using high level skills and a range of media and to present the results of scientific research to sponsors and at conferences.
5. As determined by the nature of the project and at the direction of the PI, to plan, co-ordinate and implement research programme activity including:
  - Managing the use of research resources and ensuring that effective use is made of them;
  - Monitoring and reporting on the use of research budgets;
  - Helping to plan and implement commercial and consultancy activities;
  - Where appropriate, to plan and manage own consultancy assignments.

This job description summarises the main duties and accountabilities of the post and is not comprehensive: the post-holder may be required to undertake other duties of similar level and responsibility. Please visit the Human Resources website to view the Research Fellow role profiles.

### **Person Specification**

<b>Competency</b>	<b>Essential</b>	<b>Desirable</b>
Attainments/Qualifications	PhD or equivalent qualification/experience in a related field of study, such as Computer Science or Mathematics.	Be a nationally recognised authority in the subject area.
Skills and Understanding	Possess sufficient specialist knowledge in the discipline to develop/follow research programmes and methodologies. Record of research output in high quality publications.  Excellent programming skills.  Proven proficiency in Python.  Ability to exercise a high degree of attention to detail and accuracy.	Knowledge of Bayesian optimisation and/or Gaussian processes.
Prior Experience	Experience of managing research projects and research teams.  A track record of writing high quality academic papers.  Evidence of successful contribution to relevant cutting-edge research projects.  Have experience in the development and use of Bayesian optimisation.	Experience of undergraduate /postgraduate teaching and supervision. Experience of acting as principal investigator on research projects.
Behavioural Characteristics	Excellent written and verbal communication skills.	Able to identify sources of funding, generate income, obtain

	<p>Able to communicate complex and conceptual ideas to a range of groups.</p> <p>Evidence of the ability to collaborate actively within the Institution and externally to complete research projects and advance thinking.</p> <p>Able to participate in and develop external networks.</p> <p>Able to balance the pressures of research, administrative demands and competing deadlines.</p>	<p>consultancy projects, or build relationships for future activities.</p> <p>Able to participate in and develop external networks.</p>
Circumstances		

**Informal Enquiries**

Before submitting an application you may wish to discuss the post further by contacting Prof Jonathan Fieldsend, Associate Professor in Computational Intelligence telephone (01392 722090) and email [J.E.Fieldsend@exeter.ac.uk](mailto:J.E.Fieldsend@exeter.ac.uk) or Prof Richard Everson, Professor of Machine Learning telephone (01392 724065) and email [R.M.Everson@exeter.ac.uk](mailto:R.M.Everson@exeter.ac.uk)

**Terms & Conditions**

Our Terms and Conditions of Employment can be viewed [here](#).

**Further Information**

Please see our [website](#) for further information on working at the University of Exeter.