



THE POST

College:	College of Engineering, Mathematics and Physical Sciences
Post:	Postdoctoral Research Fellow
Reference No:	P68936
Grade:	F
HERA:	ARF
Reporting To:	Dr Tim Dodwell

Job Description

Main purpose of the job:

This position will (1) Develop new parallel iterative solvers and multiscale methods for large scale, nonlinear composite modelling problems across the engineering test pyramid; building on recent developments in “dune-composites” (<https://arxiv.org/abs/1901.05188>) (2) Develop complementary multilevel Bayesian Methods to calibrate new models with experimental data across all scales.

This role will give the opportunity for new method development, mathematical theory and large scientific calculations, within an application of significant industrial importance. You should hold a PhD in Applied Mathematics with a strong background in numerical methods and scientific computing. (A PhD in Engineering may be considered providing there is a suitably strong mathematical background). The ability to code in C++ is essential. Knowledge of Bayesian methods for Stochastic Uncertainty Quantification and/or experience of solving mechanics problems will be a distinct advantage.

The role will involve a close collaboration with the Prof. Scheichl at Heidelberg (<https://ganymed.math.uni-heidelberg.de/~rscheichl/>) and the Data Centric Engineering Programme at the Alan Turing Institute (<https://www.turing.ac.uk/research/research-programmes/data-centric-engineering>). It is envisaged the position will spend extended periods collaborating at each of these institutions.

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:
 - 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

Competency	Essential	Desirable
Attainments/Qualifications	PhD or equivalent qualification/experience in a related field of study.	Be a nationally recognised authority in the subject area. Knowledge of numerical solutions to PhDs. Knowledge of Parallel Computing. Knowledge of Bayesian Methods.
Skills and Understanding	Sufficient knowledge in the discipline and of research methods and techniques to work within established research programmes.	Evidence of research activity and published research.
Prior Experience	Experience of managing research projects and research teams. Understanding of health and safety legislation.	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 communicate material of a specialist or highly technical nature. Able to manage research and administrative activities and to balance the competing	Able to identify sources of funding, generate income, obtain consultancy projects, or build relationships for future activities.

	<p>pressures of research and administrative demands and deadlines.</p> <p>Able to liaise with colleagues and students.</p> <p>Able to build contacts and participate in internal and external networks for the exchange of information and collaboration.</p> <p>Able to identify potential sources of funding.</p> <p>Actively participate as a member of a research team.</p> <p>Engage in continuous professional development.</p> <p>Understand equal opportunity issues as they may impact on areas of research content.</p> <p>Where appropriate to the role, willingness to undergo training in order to conduct risk assessments.</p>	
Circumstances	Willing to work flexibly to achieve project demands.	

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.