

CANDIDATE BRIEF

Research Fellow in Computational Biotribology,

Faculty of Engineering and Physical Sciences



Salary: Grade 7 (£39,355 – £46,735 p.a. pro rata) Reference: EPSME1193 Location: Leeds main campus Fixed-term for 6 months, starting from 01 August 2025 Part-time, 22.5 hours per week Closing date: Wednesday 25 June 2025 We are open to discussing flexible working arrangements.

Research Fellow in Computational Biotribology, Institute of Thermofluids, School of Mechanical Engineering.

Do you have a background crossing the disciplines of computational mechanics and biomedical engineering? Do you have an interest in developing computational models to investigate the lubrication of natural joints? Do you want to contribute modelling outcomes for publication in biotribology?

This is a short-term position to develop and study the underlying ultra-low friction mechanisms of natural joints. The coupling between poroelastic cartilage material properties and the lubricating film formed between contacting surfaces facilitates this phenomenon. This is important in understanding joint health and the adverse effects of degenerative musculoskeletal conditions.

The role will use your skills in computational mechanics and biotribology to develop a model capable of predicting the friction in natural joints under representative physiological conditions. You will require a background in computational mechanics and biomedical engineering and to demonstrate innovative approaches to problem solving. You will need to have good experience in validating computational models against experimental evidence to evaluate model performance.

This post will see you working with partners who are expert in biotribology at the University of Leeds, together with industrial and clinical practitioners. You will use your skills in interdisciplinary research to communicate your findings to researchers with a range of backgrounds.



What does the role entail?

As a Research Fellow, your main duties will include:

- Lead the development of computational models for the natural lubricated joint using the latest understanding in biotribological interfaces;
- Collaborate closely with academics and researchers to verify and validate model outcomes with theoretical and experimental evidence;
- Collation of data and interpretation of findings, with a view to presenting these to scientific collaborators from different disciplines;
- Present work to industrial and academic partners, and review the direction of the research following feedback;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own research;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.



What will you bring to the role?

As a Research Fellow, you will have:

- A PhD (or have submitted your thesis before taking up the role) in Mechanical Engineering or a closely allied discipline;
- A strong background in developing computational models for biotribological problems, or problems involving cartilage or thin-film lubrication;
- Experience of working with cartilage as a biomaterial, with a detailed understanding of the poroelastic mechanics which underpin ultra-low friction;
- Skills to collate comprehensive validation data sets and the ability to draw conclusions and elicit discussion from findings;
- An innovative mindset around your research demonstrating the ability to establish new approaches and techniques;
- The ability to work with scientists and researchers with a range of backgrounds and to be able to communicate effectively within interdisciplinary teams;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- A developing track record of peer-reviewed publications in international journals;
- Excellent communication skills both written and verbal, and the ability to communicate your research at national and international conferences;
- A proven ability to work well both independently and in a team;
- A strong commitment to your own continuous professional development.

You may also have:

• Experience of pursuing external funding to support research.

How to apply

You can apply for this role online; more guidance can be found on our <u>How to Apply</u> information page. Applications should be submitted by **23:59** (UK time) on the advertised <u>closing date</u>.



Contact information

To explore the post further or for any queries you may have, please contact:

Dr Greg de Boer, Associate Professor Tel: +44 (0)113 343 2607 Email: G.N.Deboer@leeds.ac.uk

Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the <u>Faculty</u> of <u>Engineering & Physical Sciences</u>, and the <u>School of Mechanical Engineering</u>.

Working at Leeds

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our <u>Working at Leeds</u> information page.

A diverse workforce

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN <u>Silver</u> Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our <u>equality and inclusion</u> <u>webpage</u> provides more information.



Information for disabled candidates

Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our <u>How to Apply</u> information page or by getting in touch by emailing HR via <u>hr@leeds.ac.uk</u>.

Criminal Record Information Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our <u>Criminal Records</u> information page.

Salary Requirements of the Skilled Worker Visa Route

Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit the Government's Skilled Worker visa page.

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit <u>the Government's page, Apply for the Global</u> <u>Talent visa.</u>

