UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Computational Spine Biomechanics,

Faculty of Engineering and Physical Sciences

Salary: Grade 7 (£37,009 – £44,263 p.a.) Due to funding restrictions, an appointment will not be made higher than £39,347 p.a.

Reference: EPSME1143

Closing date: Wednesday 30 August 2023

Fixed-term for up to 16 months

We are open to discussing flexible working arrangements

Research Fellow in Computational Spine Biomechanics, Institute of Medical and Biological Engineering, School of Mechanical Engineering.

Do you have a strong technical background in computational joint biomechanics with an interest in spine biomechanics? Would you like to work as part of a multidisciplinary institute to address a clinically driven challenge?

We are looking for a proactive individual to join our team of researchers at the institute of Medical and Biological Engineering, leading research on longer lasting joint replacements, tissue sparing interventions and biological scaffolds for tissue regeneration.

This role is created part of an EPSRC project aiming to characterise spinal facet joints biomechanics. In the UK, four out of five adults suffer from back pain at some point in their life, some of which require spinal fusion, an invasive intervention designed to stop the motion of the affected spinal area. After fusion however, facet joint degeneration can increase and create new symptoms and long-term pain for one in four patients.

This project will develop novel testing methods and tools combining experimental and computational modelling to gain a better understanding of the degenerated facet joint biomechanics and how it changes following fusion. You will join a wider group developing in vitro and in silico preclinical models of musculoskeletal joints.

You will have a strong background in computational joint biomechanics or in computational contact mechanics and have a proactive approach to working in an experimental and computational environment. You will join an institute that includes different expertise and substantial experience in supporting early stage researchers in a key phase of their career. We encourage an environment of collaboration, trust and wellbeing, which values difference of ideas and embraces diversity.

What does the role entail?

As a Research Fellow, your main duties will include:

- Leading the development of computational models of the human facet joints, to evaluate their biomechanical behaviour depending on level of degeneration;
- Developing image-based computational models representative of existing experimental models;
- Undertaking sensitivity and parametric tests to determine how the facet biomechanics changes following spinal fusion;
- Documenting the methods developed and the results obtained, and working towards the objective of curating data and processes so that they can be adopted by others;
- Generating and pursuing independent and original research methods 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;
- 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;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own research;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Potentially contributing to the training of undergraduate or 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) with aspects of finite element analysis of musculoskeletal joints;
- A strong background in image-based computational biomechanics or in computational contact mechanics;
- Experience of image processing and methods of deriving model information from image data;
- The ability to write code for automatic processing of models or data analysis;
- Good time management and planning skills, with the ability to meet tight deadlines and carefully document the work undertaken;
- A developing track record of peer-reviewed publications in relevant international journals or international conference presentations, commensurate with level of experience;
- 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:

- Complementary experience in image-based computational biomechanics or in computational contact mechanics;
- Experience in spine biomechanics;
- Experience in experimental joint mechanics;
- 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 How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Contact information

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

Dr Marlène Mengoni, Associate Professor
Email: M.Mengoni@leeds.ac.uk

Additional information

Faculty and School Information
Further information is available on the research and teaching activities of the Faculty of Engineering & Physical Sciences, and the School of Mechanical Engineering and the Institute of Medical & Biological Engineering.

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 Silver Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our equality and inclusion webpage provides more information.

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 Working at Leeds information page.

Information for disabled candidates
Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at disclosure@leeds.ac.uk.

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 Criminal Records information page.