



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

**Research Fellow in Computational Skull Biomechanics,
Faculty of Engineering and Physical Sciences**



Salary: Grade 7 (£39,105 – £46,485 p.a.)

Reference: EPSME1184

Location: Leeds Campus (with scope for hybrid working)

Closing date: Sunday 05 January 2025

Fixed-term for up to 12 months

We are open to discussing flexible working arrangements

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

Are you an early career researcher looking for your first challenge? Do you have a background in Computational Biomechanics? Do you want to further your career in one of the UK's leading research-intensive universities?

We are looking for a proactive individual to join the [Institute of Medical and Biological Engineering](#) to investigate the functional performance in bird skulls through using computational modelling to simulate bone adaptation in the skull.

The role is part of an BBSRC project, in collaboration with the University of Hull, which is investigating how the morphological variation between bird skulls influences their skull biomechanics.

The computational modelling required to accurately simulate bone adaptation in the bird skull is extremely challenging. Therefore, this role will use a range of computational techniques to: (1) create computational models that contain sufficient detail of the external and internal bone geometry; (2) validate the computational models to establish best practices for modelling bird feeding; and (3) implement appropriate remodelling algorithms to simulate bone adaptation to changes in loading environment.

You will have a strong background in computational biomechanics, and have a proactive approach to working in an computational modelling 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:

- Process μ CT data to create finite element models of the bird skull that accurately represent the external and internal bone geometry;
- Interpret and use experimental data to develop and validate finite element models which accurately simulate kinesis in bird skulls during feeding;
- Apply appropriate remodelling algorithms to simulate the adaption of the internal bone geometry to changes in mechanical forces;
- 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, biomedical engineering, biomechanics or other relevant related field;
- A strong background in computational biomechanics through finite element analysis;
- 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 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;
- Knowledge of skull biomechanics;
- Experience of adaptive remodelling algorithms in finite element modelling;
- Experience in biomechanical simulations of anatomical structures;
- Complementary experience in image-based computational biomechanics;
- Experience of large deformation simulations using finite element modelling.

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 Peter Watson](#), Associate Professor in Computational Biomechanics

Tel: +44 (0)113 343 9241

Email: P.Watson1@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](#).

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.

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.



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 [How to Apply](#) information page or by getting in touch by emailing HR via hr@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.

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 [the Government's page, Apply for the Global Talent visa](#).

