Postdoctoral Researcher/Research Associate - Experimental Biomechanics

Biomedical Engineering, School of Engineering

Ref. No. 011772

JOB ADVERTISEMENT

Applications are invited from suitably qualified candidates for a full-time, fixed term position as an experimental biomechanics Postdoctoral Researcher/Research Associate with Biomedical Engineering, School of Engineering at the University of Galway, Ireland.

This position is funded by Department of Business, Enterprise, and Innovation through the Disruptive Technologies Innovation Fund (DTIF). The post is available up to 24 months in duration from the earliest suitable start date.

The post will be based within the Bio-Electromechanics research programme of the Translational Medical Device Lab (TMDLab), an award-winning, multidisciplinary group of over 25 researchers co-located across the HRB Translational Research Facility at Galway University Hospital and the Alice Perry Engineering Building. The lab has a strong track record in first-in-human studies, patented technologies, and industry collaboration. **The Bio-Electromechanics programme is led by Co-Director Dr Eoghan Dunne,** whose research direction focuses on how mechanical forces fundamentally alter the electrical behaviour of biological tissue, with the goal of redefining how electromagnetic energy is measured and applied in clinical settings. His work combines rigorous biophysical modelling with hands-on medical device development, contributing to technologies in cardiac ablation, cancer treatment, and minimally invasive interventions. Dr Dunne has secured over €5 million in competitive funding and published in leading journals including IEEE Transactions on Biomedical Engineering. Researchers joining this environment will work on high-impact problems within a clinically connected ecosystem, with strong mentorship, access to translational infrastructure, and clear pathways toward both academic and commercial impact.

Salary: Research Associate/Postdoctoral Researcher salary scale €46,805 – €59,654 per annum, (subject to the project's funding limitations), and pro rata for shorter and/or part-time contracts.
The default position for all new public sector appointments is the 1st point of the salary scale. This may be reviewed, and consideration afforded to appointment at a higher point on the payscale (subject to the project's funding limitations), where evidence of prior years' equivalent experience is accepted in determining placement on the scale above point 1, subject to the maximum of the scale.
(Research Salary Scales - University of Galway)

Closing date for receipt of applications is 17:00 (Irish Time) on 22/05/2026. It will not be possible to consider applications received after the closing date.

***Please review full job description for further details and essential requirement**

JOB DESCRIPTION

Job Description:

The successful candidate will take ownership of the experimental biomechanics and verification framework for investigating tissue–device interaction in minimally invasive therapeutic delivery systems.

The role involves designing and executing controlled experimental studies, developing repeatable physical test systems, and generating high-quality datasets to characterise interaction mechanics, failure modes, and variability across physical and biological systems. This includes responsibility for the design, implementation, and evolution of experimental systems and test methodologies.

The work will progress from benchtop phantom models to ex vivo and preclinical studies, requiring careful handling of complex and variable biological systems where achieving experimental repeatability and robust interpretation presents significant challenges.

The role focuses on the experimental investigation of tissue-device interaction from a biomechanics perspective, generating structured experimental data that support Multiphysics analysis (including electromechanical behaviour) within the wider research programme.

The postholder will work closely with sensing, data-focused and clinical researchers, contributing to a multidisciplinary effort investigating how mechanical interaction influences measurable electrical response in biological tissue.

Duties:

- Design and execute controlled experimental studies of tissue–device interaction in minimally invasive systems
- Define and refine research objectives and experimental approaches in collaboration with the Principal Investigator
- Plan, coordinate, and manage day-to-day research activities and experimental workflows
- Characterise: force–displacement behaviour; insertion mechanics and alignment effects; failure modes and damage pathways
- Develop and validate repeatable physical models and experimental test systems
- Establish robust experimental protocols and verification methods
- Generate and analyse high-quality experimental datasets under controlled and variable conditions
- Lead progression from phantom systems to ex vivo tissue and preclinical studies
- Generate controlled datasets to support investigation of electromechanical behaviour in collaboration with sensing and data-focused researchers
- Where appropriate, support or contribute to computational modelling (e.g. finite element analysis) to aid interpretation of experimental results and guide test design
- Take a leading role in developing and delivering high-quality peer-reviewed publications from experimental and methodological advances
- Present research findings at group meetings, conferences, and external events
- Maintain accurate research records and ensure compliance with data management, ethics, and safety requirements
- Contribute to the mentoring and co-supervision of students and junior researchers, as appropriate
- Contribute to method development and intellectual property generation
- Support the broader research activities of the group
- The post holder will report to and work under the direction of the Principal Investigator
- Any other duties assigned commensurate to this level of post

ELIGIBILITY REQUIREMENTS

Essential Requirements:

- PhD in Biomechanics, Biomedical Engineering, Mechanical Engineering, or a closely related discipline *(Candidates who have submitted their PhD thesis and are awaiting viva may be considered for appointment at Research Associate level, in line with IUA guidelines)*
- Demonstrated experience in experimental mechanics of soft materials or biological tissue
- Hands-on experience with mechanical testing techniques (e.g. indentation, compression, tensile testing)
- Demonstrated experience designing and executing controlled experimental studies (evidenced through publications or project work)
- Experience analysing experimental data using tools such as Python or MATLAB
- Track record of peer-reviewed publications in relevant areas
- Strong written and verbal communication skills in English

Desirable Requirements:

- Experience working with biological tissues (ex vivo or in vivo)
- Experience developing or working with experimental rigs or custom test systems
- Experience studying heterogeneous or layered soft materials or tissues
- Familiarity with failure analysis or damage mechanisms in soft materials
- Experience in translational or medical device research environments
- Exposure to bioelectrical or bioimpedance measurement systems
- Experience with computational modelling (e.g. Abaqus, COMSOL), particularly where integrated with experimental work
- Experience working with variable biological or soft material systems
- Interest in working within an interdisciplinary research environment involving mechanics, sensing, and data-driven analysis
- Experience contributing to interdisciplinary research projects

As part of the application, it is expected that the applicant will submit a CV and a cover letter highlighting their motivation for the role and their fit, in particular, on how they meet the essential and desirable criteria.

CONTINUING PROFESSIONAL DEVELOPMENT

Continuing Professional Development/Training:
Researchers at University of Galway are encouraged to avail of a range of training and development opportunities designed to support their personal career development plans. University of Galway provides continuing professional development supports for all researchers seeking to build their own career pathways either within or beyond academia. Researchers are encouraged to engage with our Researcher Development Centre (RDC) upon commencing employment - see HERE for further information.

FURTHER INFORMATION/LINKS

- **TO APPLY:** Search Current University of Galway vacancies. Applications must be submitted online.
    - How to apply guide

- For informal enquiries, please contact Dr Eoghan Dunne, Lecturer in Biomedical Engineering, School of Engineering, Email eoghandonncha.dunne@universityofgalway.ie
- University's Strategic Plan
- Working in Research at University of Galway
- Moving to Ireland (Euraxess)
- Applicant Information
- We reserve the right to re-advertise or extend the closing date for this post.
- University of Galway is an equal opportunities employer.
- All positions are recruited in line with Open, Transparent, Merit (OTM) and Competency based recruitment.