

Candidate Information

Position:	Research Fellow in Sensor Technology - Project STARLITE
School/Department:	School of Mechanical and Aerospace Engineering
Reference:	26/113652
Closing Date:	Monday 28 September 2026
Salary:	£42,972 - £51,270 per annum
Anticipated Interview Date:	Tuesday 20 October 2026
Duration:	Fixed Term - Full Time; Available for approximately 12 months

JOB PURPOSE

UKRI-funded Project STARLITE (super-miniature ultra-sensitive force sensors for small innovative spacecraft, next-gen aircraft and cutting-edge biotech applications) is an ambitious 12-month programme advancing a new class of ultra-sensitive MEMS-based surface force sensors from TRL4 to TRL5. We are recruiting an ambitious Senior Engineer with strong experimental engineering expertise to lead the development of professional-grade demonstrator units suitable for deployment to external partners. We are looking for a hands-on practical engineer who is skilled in technology integration. Demonstratable experience with integrating optoelectronics is desirable.

This is a strategically important role that sits at the centre of the platform's technical integration.

The post holder will play a critical role in bringing together sensor dies, packaging, optoelectronic systems integration, calibration, and signal-processing workflows to produce robust, field-ready demonstrators. The role requires technical leadership, hands-on engineering capability, excellent organisational and communication skills, and the ambition to shape a future spin-out company. As such, the position offers a unique opportunity for substantial long-term career progression. The project is on a clear commercialisation pathway—including preparation for ICURe Explore and assessment of spin-out routes—and the successful candidate will be ideally placed to take a major technical leadership role in any future spin-out opportunity as the technology transitions toward commercial deployment.

The post holder will lead on sensor packaging, packaging design, calibration, documentation, supporting the PIs in driving the technology from laboratory to real-world environments.

MAIN DUTIES

Technical Responsibilities

- Lead the development of calibrated, professional-grade demonstrator sensor units, integrating MEMS dies with optoelectronic subsystems (optoelectronics provided by an external consultant).
- Design and develop mechanical packaging solutions, ensuring precision alignment, robustness, optical coupling, and suitability for deployment in wind tunnels and other test environments.
- Conduct static and dynamic calibrations, including uncertainty analysis, stability characterisation, and benchmarking against existing methods and data.
- Develop and implement digital signal-processing solutions for extracting reliable force measurements from optoelectronic displacement data.
- Produce technical documentation, assembly procedures, calibration guides, and user manuals for early adopters.
- Contribute to the development of publication-ready material, including methods papers, demonstration studies, and results showcasing sensor performance.

Research, Dissemination, and Collaboration

- Undertake independent research within the STARLITE project and contribute to the evolution of the sensing platform.

- Assist with the planning of experiments, test campaigns, and performance validation in collaboration with external partners (academic and industry).
- Contribute to high-quality publications, co-authoring with the PIs and project team.
- Present research milestones and outputs at weekly team meetings.
- Work proactively with partners involved in fabrication, optoelectronics, and testing to ensure smooth integration across the project.
- Assist the PIs in the preparation of funding proposals to transition the technology to spin-out formation and commercialisation status.

Project and Lab Support

- Support day-to-day planning, procurement, and resource management related to the demonstrator builds.
- Provide guidance in lab safety and best practice for equipment use.
- Undertake relevant administrative tasks, travel and training required for project success.

Essential Criteria:

1. Have or be about to obtain a PhD in a relevant discipline (e.g., MEMS sensors, microengineering, mechanical engineering, electrical engineering, applied physics, or related field).
2. Recent and relevant research or engineering experience in MEMS sensors, microfabricated devices, or precision instrumentation.
3. Experience integrating hardware components (e.g., MEMS dies, optical components, mechanical packaging).
4. Experience in the mechanical and electrical design of MEMS devices.
5. Experience conducting and analysing experimental measurements, including calibration.
6. Experience implementing digital signal processing (DSP) solutions.
7. Track record of working effectively within a research or engineering team.
8. Strong publication record commensurate with career stage.
9. Evidence of strong teamwork and communication skills.
10. Practical problem-solving skills, independence of thought, and technical initiative.
11. Ability to coordinate work across multiple partners and manage technical workflows.
12. Ability to communicate complex technical concepts clearly in written and oral form.
13. Proven ability to build relationships and develop internal and external networks.
14. Highly self-motivated, proactive, and able to work independently with a can-do attitude.
15. Strong organisational skills and ability to bring together multiple technical workstreams.
16. Ambition and leadership potential, with interest in future spin-out participation.
17. Ability to assess, organise, and prioritise resources effectively.

Desirable Criteria:

1. Demonstrable expertise in sensor packaging, optical measurement systems, optoelectronics engineering and/or high-precision instrumentation.
2. Experience preparing technology for external users or deployment outside the lab.
3. Experience working in industry and/or start-ups.
4. Experience translating research findings into practical guidance, manuals.
5. Previous involvement in industry collaboration or commercialisation activities.

Additional Information

Informal enquiries may be directed to Richard Whalley at r.whalley@qub.ac.uk