Candidate Information

Position: Research Fellow - Advanced Metrology Hub for Sustainable Manufacturing
School/Department: School of Mechanical and Aerospace Engineering
Reference: 25/112736
Closing Date: Monday 4 August 2025
Salary: £39,922 per annum.
Anticipated Interview Date: Wednesday 20 August 2025
Duration: 36 month

JOB PURPOSE:

To be a highly productive and ambitious member of the Queen's University Belfast research team working within the Advanced Metrology Hub for Sustainable Manufacturing (led by the University of Huddersfield). To develop methods for manufacturing machinery design (including tooling) to support truly mechatronic design solutions for metrology-based manufacturing control systems.

The successful applicant will conduct independent research, developing and using generative design and optimisation methods, collaborating within Queen's University and externally with the broader Hub team. Direct collaboration with academic partners will be a key aspect of the role, including regular visits to research facilities across the UK.

MAJOR DUTIES:

1. Undertake research under supervision into state-of-the-art generative design and topology optimisation approaches and how they can be extended beyond the mechanical system to represent influential measurement and control system behaviours when designing manufacturing hardware / mechatronic actuator(s).
2. Carry out analyses, critical evaluations, and interpretations of design and simulation data and literature using methodologies and other techniques appropriate for engineering research.
3. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team (as appropriate) on outputs.
4. In consultation with the project team, promote research milestones and outputs at national and international conferences.
5. Assist grant holder in the preparation of funding proposals and applications to external bodies.
6. Carry out occasional educational supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
7. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Hold at least a 2:1 honours degree in Mechanical, Aerospace engineering Mechatronics or closely related discipline.
2. Have, or be about to obtain, a relevant PhD in Mechanical, Aerospace Engineering, Mechatronics or closely related discipline. (Candidates about to receive their PhD should provide proof that their viva is scheduled within three months).
3. Recent relevant research experience to include:
   • Demonstrable experience in the use of generative design and topology optimisation methods for the design, optimisation or verification of complex structures.
   • A proven track record of using relevant techniques to carry out analyses, critical evaluations, and interpretations of data as relevant to the research project.
   • Working effectively as part of a research team in the development and promotion of the research theme.
4. A track record of high quality publications appropriate to stage in career.
5. Ability to contribute to broader management and administrative processes.
6. A sufficient breadth of knowledge of general design methods, COTS software and manufacturing systems.

7. Ability to work in a team.
8. Willingness to undertake additional training in research methods and other related skills as required.
9. Practical problem solving skills, independence of thought and initiative.
10. Proven ability to communicate complex information effectively in oral and written format.
11. Proven ability to build relationships to develop internal and external networks.
12. Ability to assess and organise resources.
13. Willing to travel to partner facilities on a regular and frequent basis

DESIRABLE CRITERIA:

1. Demonstrable experience in Design & physical prototyping of complex mechatronic structures and their control systems for manufacturing applications.
2. Working with industry (or in industry) on research programmes.
3. Demonstrable experience in programming/scripting, beyond that taught in undergraduate engineering courses.

ADDITIONAL INFORMATION:

Informal enquiries can be directed to: Dr Damian Quinn - d.quinn@qub.ac.uk.