Candidate Information

Position:	Research Fellow in Structural design and optimisation
School/Department:	School of Mechanical and Aerospace Engineering
Reference:	25/112375
Closing Date:	Monday 3 February 2025
Salary:	£39,922 per annum
Anticipated Interview Date:	Friday 14 February 2025
Duration:	16 months

JOB PURPOSE:

To be a highly productive and ambitious member of the Queen's University Belfast and Rolls-Royce collaborative research team, investigating and using Finite Element, buckling analysis and optimisation methods to support structural design of next generation engine and aircraft.

The successful applicant will have responsibilities in independent research, collaborating with the university and the Rolls-Royce teams. Direct collaboration with Rolls-Royce will be a key aspect of the role, including regular visits to the company's state of the art facilities in the UK.

MAJOR DUTIES:

1. Undertake research under supervision into generative design, optimisation, finite element simulation, buckling analysis, and design methods for aircraft and engine structures.
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, Automotive engineering or closely related discipline.
2. Have, or be about to obtain, a relevant PhD in Mechanical, Aerospace, Automotive engineering 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 Finite Element Analysis or buckling analysis for the design, optimisation or verification of thin-walled 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. Experience of contributing to broader management and administrative processes.

5. Evidence of:
   - A sufficient breadth of knowledge of general design methods and manufacturing systems.
   - Ability to work in a team.
   -Willingness to undertake additional training in research methods and other related skills as required.
   - Practical problem-solving skills, independence of thought and initiative.
6. Proven ability to communicate complex information effectively in oral and written format.
7. Proven ability to build relationships to develop internal and external networks.
8. Ability to assess and organise resources.
9. Excellent interpersonal skills.
10. Willing to travel to partner facilities on a regular and frequent basis.

DESIRABLE CRITERIA:

1. Demonstrable experience in:
   - Automation of structural analysis methods or the creation of iterative analysis or optimisation frameworks.
   - Experience in the use of generative design systems.
   - Working with industry (or in industry) on research programmes.
   - Demonstrable experience in programming/scripting, beyond that taught in undergraduate engineering courses.
2. A track record of high quality publications appropriate to stage in career.

ADDITIONAL INFORMATION:

Informal Enquiries to Dr Damian Quinn: d.quinn@qub.ac.uk