Candidate Information

Position: Research Assistant
School/Department: School of Mechanical and Aerospace Engineering
Reference: 25/112499
Closing Date: Monday 5 May 2025
Salary: £33,785 per annum
Anticipated Interview Date: Monday 26 May 2025
Duration: 4.5 Years or until 30 September 2029 (whichever is soonest)

JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of the EPSRC funded research project Dealing with Evolving Constraints in Design Systems (DECIDE) for Net Zero (see https://gtr.ukri.org/projects?ref=EP%2FX041719%2F1). The project is an exciting 5-year programme of research exploring new methods in the design of future aircraft structures with the aim of creating capability to reduce the weight of structures sufficiently to enable net zero flight as soon as possible.

The Research Fellow will join a vibrant network of collaborators both in this project and the associated RIED (Re-Imagining Engineering Design) programme. They will assist in the development of research proposals and the planning and delivery of the research activity specifically to investigate new ways of dealing with constraints in a design.

The project is supported by Rolls-Royce, Spirit Aerosystems, the National Composites Centre (NCC) and the Advanced Manufacturing Innovation Centre.

The post is a critical role, and as such, successful applicants will have responsibilities in independent research, supervision, planning, outreach and collaboration both internally and externally.

MAJOR DUTIES:

1. Undertake research under supervision within the specific research project and as a member of the collaborative research team on design systems to understand and devise new approaches that deal with constraints in design systems. In particular, to explore bio-inspired approaches to the design of aircraft structures.
2. Design, develop and refine research using a range of experimental numerical models.
3. Specifically, to develop algorithms and software tools to implement biological development analogies within an artificial evolutionary environment.
4. Carry out analyses, experimental tests, critical evaluation and implementation, and interpretations of experimental data and the literature using methodologies and other techniques appropriate to area of research across a range of platforms and facilities of the wider DECIDE & RIED partnership.
5. 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.
6. In consultation with the project team, promote research milestones and outputs at national and international conferences and through social media (where applicable).
7. Assist grant holder in the preparation of funding proposals and applications to external bodies.
8. Undertake supplementary duties relevant to the success of the project including administrative duties, presentation of regular progress reports and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. 2.1 Honours Degree (or equivalent) in Aerospace, Mechanical, Manufacturing Engineering or closely related discipline.

2. Relevant research experience to include
   - Undertaking research in the area of stress analysis, structural analysis and design of aircraft structures or relevant industrial experience in similar.
   - Experience in CAD systems
   - Experience in software development.
3. Demonstrate having at least 2 years' experience in a relevant industrial post.
4. Proven ability to contribute to broader management and administrative processes.
5. Contribute to the School's outreach programme by links with industry, community groups etc
6. Solid breadth of knowledge of general design methods and engineering systems.
7. Practical problem solving skills, independence of thought and initiative.
8. Ability to assess and organise resources.
9. Demonstrable ability to communicate complex information in English effectively in oral and written format to technical and non-technical audiences.
10. Demonstrable ability to build relationships with a wide range of people and roles at different levels of seniority and to influence decision making
11. Ability to manage self and prioritise workload
12. A pro-active approach to work and team development.
13. Commitment to continuous professional development
14. Ability to meet the mobility requirements of the post including the travel to project partners as required by the role.

DESIRABLE CRITERIA:
1. Scripting and automation within CAD systems.
2. Experience in the python programming language.
3. Experience in the programming and use of pythonOCC, Caclulix or similar systems.

ADDITIONAL INFORMATION:
Informal Enquiries to Professor Trevor Robinson t.robinson@qub.ac.uk