

<b>Job Title:</b>	Research Assistant / Associate in Wing Design (1 - Numerical Simulation of Structural Failure)
<b>Department/Division/Faculty:</b>	Department of Aeronautics, Faculty of Engineering
<b>Campus location:</b>	South Kensington Campus
<b>Job Family/Level:</b>	Research Job Family, Research Assistant or Research Associate* ( <a href="#">Research salary scale</a> )
<b>Responsible to:</b>	Prof. Lorenzo Iannucci, Prof. Silvestre Pinho
<b>Key Working Relationships (internal):</b>	Supervisors, Technical staff, PhD students and RAs in group, Academics, PhD students and RAs in NextComp project elsewhere in college, MEng and MSc project students
<b>Key Working Relationships (external):</b>	Academics, PhD students and RAs in NextWing at Imperial and other partner universities, industrial NextWing project partners
<b>Contract type:</b>	Full time, fixed term for 24 months

### Purpose of the Post

The successful candidate will work with a dedicated team, funded by an Airbus-led Innovate UK / Aerospace Technology Institute grant (NextWing), and interacting closely with a consortium that includes key aerospace industries and academia.

Within NextWing, our aim is to create processes and routines which allow the generation of smart component models for wing box components.

Applicants should demonstrate an ability to develop and use numerical modelling techniques for simulating composite structures and materials.

### Key Responsibilities

Main Duties:

- To develop an understanding of different wing constructions relevant to high aspect ratio wings
- To develop a model for the preliminary analysis of a novel structural feature
- To develop a model for initial failure mode characterisation
- To update failure mode characterisation and equivalent design allowables (surrogate model)
- To identify and investigate opportunities for demonstrating the merits of newly-developed solutions to industry
- Assist with the analysis of data
- Ensure the validity and reliability of data at all times
- Maintain accurate and complete records of all findings
- Assist with the writing of reports to research sponsors
- Present findings to colleagues
- Provide advice to other staff and students
- Assist with the publication of findings
- Attend relevant workshops and conferences as necessary

- Develop contacts within the College and the wider community
- Promote the reputation of the Group, the Department and the College

In addition, at Research Associate level:

- Take initiatives in the planning of research
- Direct the work of small research teams
- Write reports for submission to research sponsors
- Submit publications to refereed journals
- Provide guidance to staff and students
- Provide guidance to PhD Students
- Contribute to bids for research grants
- Conduct and plan own scientific work with appropriate supervision.
- Maintain highly organised and accurate record of experimental Work.
- Actively participate in the research programme of the Group
- Publish in high quality journals and to present data at national and international meetings.
- Participate in Group research meetings and internal seminars.
- Collaborate with other allied scientists within Imperial College and elsewhere in London and abroad, as appropriate.
- Contribute to the smooth running of the Group's laboratories and, facilities with other scientists, clinicians, technicians and students within the laboratories.
- Assist in the supervision of undergraduate and postgraduate research students and research assistants as required.

**Where Imperial or funder conditions necessitate, you will be required to complete timesheets for your work on projects in a timely manner.**

Other Duties

- Undertake any necessary training and/or development
- Undertake appropriate administration tasks
- Attend relevant meetings

### Person Specification

Requirements	Essential (E)/ Desirable (D)
Candidates/post holders will be expected to demonstrate the following:	
<b>Education</b>	
<b>Research Associate</b> Hold a PhD (or equivalent) in Aeronautics, Mechanical Engineering, Materials Science or a closely related discipline, or equivalent research, industrial or commercial experience	E
<b>Research Assistant</b> A Masters (or equivalent) in Aeronautics, Mechanical Engineering, Materials Science or a closely related discipline, or equivalent research, industrial or commercial experience	
<b>Experience</b>	

Practical experience within a research environment and / or publication in relevant and refereed journals	E
Experience of dealing with specific groups of people, e.g. sponsors, patients	D
Practical experience in a broad range of techniques including Experimental Mechanical Analysis of Composite Materials and Finite Elements	E
<b>Knowledge</b>	
Finite Element Method, including scripting	E
Fibre-reinforced composites, including how they fail	E
Fracture Mechanics, including numerical techniques for simulating failure / fracture	E
Knowledge of research methods and statistical procedures	E
<b>Skills &amp; Abilities</b>	
Ability to conduct a detailed review of recent literature	E
Ability to develop and apply new concepts	E
Creative approach to problem-solving	E
Excellent verbal communication skills and the ability to deal with a wide range of people	E
Excellent written communication skills and the ability to write clearly and succinctly for publication	E
Ability to organise own work with minimal supervision	E
Ability to prioritise own work in response to deadlines	E
Advanced computer skills	E
Ability to direct the work of a small research team and motivate others to produce a high standard of work	E (Associate)
<b>Other</b>	
Willingness to work as part of a team and to be open-minded and cooperative	E
Flexible attitude towards work	E
Discipline and regard for confidentiality and security at all times	E
Willingness to undertake any necessary training for the role	E
Willingness to travel both within the United Kingdom and abroad to conduct research and attend conferences	D
Willingness to work out of normal working hours (including weekends) if the requirements of the project demand, provided the personal circumstances of the candidate allow it	D

Imperial College is committed to equality of opportunity and to eliminating discrimination. All employees are expected to follow the [Imperial Values & Behaviours framework](#). Our values are:

- Respect
- Collaboration
- Excellence
- Integrity
- Innovation

Employees are also required to comply with all College policies and regulations paying special attention to: Confidentiality, Conflict of Interest, Data Protection, Equal Opportunities, Financial Regulations, Health and Safety, Information Technology, Smoking, Private Engagements and Register of Interests. They must also undertake specific training and assume responsibility for safety relevant to specific roles, as set out on the [College Website Health and Safety Structure and Responsibilities](#) page.

*The College is a proud signatory to the San-Francisco Declaration on Research Assessment (DORA), which means that in hiring and promotion decisions, we evaluate applicants on the quality of their work, not the journal impact factor where it is published. For more information, see <https://www.imperial.ac.uk/research-and-innovation/about-imperial-research/research-evaluation/>*

*The College believes that the use of animals in research is vital to improve human and animal health and welfare. Animals may only be used in research programmes which are ultimately aimed towards finding new treatments and making scientific and medical advances, and where there are no satisfactory or reasonably practical alternatives to their use. Imperial is committed to ensuring that, in cases where this research is deemed essential, all animals in the College's care are treated with full respect, and that all staff involved with this work show due consideration at every level. [Find out more about animal research at Imperial.](#)*

*We are committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment for all. We therefore encourage candidates to apply irrespective of age, disability, marriage or civil partnership status, pregnancy or maternity, race, religion and belief, gender identity, sex, or sexual orientation. We are an [Athena SWAN Silver Award](#) winner, a [Disability Confident Leader](#) and a [Stonewall Diversity Champion](#).*

**January 2023**