Senior Research Associate in Aeroacoustics

1 JOB DESCRIPTION

Faculty / School or Division: Faculty of Engineering/ School of Civil, Aerospace and Design Engineering (CADE)

Faculty/School or Division Address: Queen's Building, University Walk, Clifton, Bristol, BS8 1TR

Job Family:	**Research and Teaching**		
Grade/Pathway:	**J/Pathway 2**	**Salary range:**	**£45,641 - £51,258 per annum**
Hours of work:	**100% time**	**Contract type:**	**Fixed term contract until 31/12/2027 (01/02/27 – 31/12/27)**
Work pattern:	**Full time**	**Vacancy Reference Number: ACAD108747**	

1.1 Main Job Purpose

You will be joining a world-leading team working on aerodynamics and aeroacoustics of propellers and bluff bodies. At the University of Bristol, you will become a member of a large group of highly motivated researchers, with a research focus of aerodynamics and aeroacoustics and development of new measurement tools. University of Bristol is home to the UK's National Aeroacoustic Facility, National Boundary Layer Facility and National Pressure Neutral Acoustic Wind tunnel, and by joining the team you will have access to our state-of-the-art experimental facilities.

Your will be responsible for performing aerodynamic and aeroacoustic CFD simulations, based on LBM method, on propellers and bluff bodies at different operating conditions. As part of this project, you will make use of PowerFlow software and perform several high-fidelity simulations on propellers and bluff bodies at different operating conditions. You will then post-process the results, share the results with partners and contribute towards publications. The work proposed here is very novel and it results are expected to be published in the fields top journals.

The project provides an opportunity to work on some fundamental, but also industrially important problems and collaborate with world-leading academics in the field, as well as industry partners. You will be able to attend several international conferences to present your results. As well as carrying the research defined in the project to the highest standards, the successful applicant will be expected to work as part of a team and to prepare reports and presentations for project meetings and publications for international journals.

1.2 Main Statement of Responsibilities

Research Responsibilities

- Contribution to the research programme under the supervision of Prof. Mahdi Azarpeyvand.
- Use initiative and creativity to develop the relevant methods and codes.
- Ensure that personal knowledge in relevant fields of study is kept up to date.
- Interact with the other RAs and academic staff working on the project.
- Write up results from the project, as required, in the form of reports, conference and journal papers.
- Attend progress meetings with project partners and give presentations.
- Work to deadlines and manage, with support, competing priorities.
- Use of research resources (including, where required, laboratories, workshops and specialist equipment) as appropriate.
- Maintenance of academic standards and freedom, and work in accordance with university policies (e.g. equal opportunities, health and safety policies).
- May be involved (if desired and appropriate) in the supervision of summer interns, undergraduate research projects and PhD students.

Administration Responsibilities

- As well as carrying the research defined in the project to the highest standards, the successful applicant will be expected to work as part of a team and to prepare reports and presentations for project meetings and publications for international journals.
- Co-supervision of PhD and UG students

Teaching Responsibilities

As this role is a Pathway 2 (Research) role, there are no formally specified teaching duties required of the role-holder. However, other commitments permitting, the role-holder may be given development opportunities to undertake activities such as teaching on Masters and Doctoral programmes and/ or supervising MSc dissertations within the Faculty of Engineering, as appropriate.

1.3 Relationships

The post holder will work with Professor Mahdi Azarpeyvand and collaborate with other project staff and the technicians that support the running of the Wind Tunnel Facility.

Line manager: Prof. Mahdi Azarpeyvand

Line manager to (where appropriate): Not applicable

1.4 Job Hazards/Safety Critical Duties (Pre-employment health screening)

The following duties are an intrinsic part of the role and any offer of employment will be conditional upon satisfactory health screening by the University Occupational Health Service:

- Working in a wind tunnel environment

2 PERSON SPECIFICATION

2.1 Relevant Experience, Skills and Knowledge

Essential

- Strong understanding of aerodynamics and aeroacoustics
- Strong understanding of propeller aerodynamics and aeroacoustics
- Experience of working with PowerFlow and LBM method
- Working knowledge and practical experience in wind tunnel testing and experimental rig design
- Experience in programming in MATLAB or similar
- Have significant previous experience of independent research, including experimental aerodynamics and aerodynamics measurements (or transferable skills gained from professional or clinical experience combined with some experience or an awareness of the research environment)

Desirable

- Good understanding of propeller aerodynamics and performance
- Experience in aerodynamic experimental testing (Load measurements, Acoustic measurement, PIV …)

2.2 Relevant Qualifications

Essential

- Have (or be working towards) a postgraduate research degree (or equivalent professional qualification) in Aerospace/Mechanical Engineering/a subject in a related field **or** significant professional experience in the area required equivalent to a PhD.
- Have a postgraduate research degree (or an equivalent professional qualification) in Aerospace/Mechanical Engineering/a subject in a related field **and** have relevant professional experience in the area required

2.3 Communication and Interpersonal Skills

Essential

- Proven communication, presentation and interpersonal skills with the ability to communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the industry and academic community
- Experience of presenting work at conferences
- Ability to write good quality technical reports
- A strong track record of publishing in respected journals and presenting in conferences

Desirable

- Experience of interacting with industry and making presentations to industry
- Published journal articles

2.4 Additional Criteria

Essential

- Ability to work under pressure
- Ability to work to deadlines
- Ability to work in a team
- Self-motivated and able to work on their own

3 CAREER PATHWAY AND OTHER RELEVANT INFORMATION

3.1 Career Pathways

All members of academic staff have a clear career pathway involving a series of levels with distinct role profiles, each with its unique requirements. Each profile sets out what is expected of an academic at the particular level. The role profiles also set out a collection of competencies expected for each level. Progression or promotion to the next level will occur after these competencies have been attained and where a role at the higher level is available.

The academic pathways are as follows:

Career Pathway One - academic roles that combine teaching, research and administrative duties.

Career Pathway Two - academic roles focusing on research and associated administrative duties.

Career Pathway Three – academic roles focusing on teaching and associated administrative pathways

This post is located on Pathway Two. Role Summaries setting out what is expected of an academic at each particular profile level on pathway two can be found below. Please note that an appointment may be made at any level of the pathway.

A schematic diagram of the career pathways can be found at http://www.bristol.ac.uk/hr/grading/academic/.

For Pathway Two roles progression to the next level will only occur where a role has been identified as being eligible for progression, having reached the relevant point on the salary scale and after the relevant competencies have been attained. A progressable role is a role at Level b or Level c that has been determined as being eligible for progression by the Head of Department, based on departmental needs, priorities and funds. Individuals in progressable roles at Level b or Level c are expected to develop their skills, knowledge and experience in order to ultimately progress to Level c or Level d, as applicable. A non-progressable role is one either at Level a (which are not subject to formal progression arrangements, although there may be opportunities to develop into a Level b role, based on departmental needs, priorities and funds), or at Level b or c for which the Head of Department has identified an ongoing need at that particular level. Movement to Level e will be by promotion only.

3.1.1 Role Summaries

Research Associate (Level a)
Role holders at this level are concerned with *assisting* an individual research leader or team to conduct a particular study (or group of studies). They will generally be involved in data generation and/or collection using standard and well-defined methods developed by others. They will be working under close supervision by, and direction from, a more senior researcher, who will be ultimately responsible for the project. This may be the entry level for some staff who are expected

to train and/or develop to take on more senior researcher roles. Role holders will be provided with academic and pastoral support within the department (including counselling on realistic career opportunities) and training will be available designed to develop their competences and to prepare them to take on more responsibilities associated with a higher grade.

Senior Research Associate (Level b)
Role holders at this level will be experienced and professional researchers (or have considerable professional experience) and will be specialists in a particular area or methodology, drawing upon knowledge gained from postgraduate research and/or working within a Level a role. They will be *associated* with a particular project (or projects) and will contribute ideas, and/or enhancement of techniques or methodologies. They will be expected to do some writing for dissemination outside the Department. They will still be working under supervision, but will be expected to take significant initiatives in their work and consult with the Principal Investigator over the details of the project. They may, where practical, contribute to the department's teaching, through supervision of projects, overseeing practical classes, or taking small group classes. They will be provided with academic and pastoral support within the department and training will be available designed to develop their competences (including counselling on realistic career opportunities) and prepare them to take on more responsibilities associated with a higher grade.

Research Fellow (Level c)
Role holders at this level will have substantial experience of research (normally not less than six years). They will initiate and take responsibility for some research projects and may be Principal Investigators or, where a Research Council does not permit this, act as though they were Principal Investigators. They will be involved in administration relevant to their projects (e.g. helping to prepare bids for research funding), managing other researchers and monitoring research budgets. They will be expected to be undertaking research individually and/or collectively and to be advancing the state of knowledge and understanding within their particular area of expertise. They will be publishing regularly in high quality outlets. They are likely to provide some teaching support for the department (consonant with the terms of their funding). They will be expected to be establishing a growing reputation within their particular research field and academic discipline and to be developing and demonstrating intellectual independence.

Senior Research Fellow (Level d)
Role holders at this level will have extensive experience in research and research management. They will normally be Principal Investigators, leading collaborative research bids and research teams, or driving forward innovative research themselves. They will be involved in scholastic projects (e.g. editing journals and academic books), and be making a significant leadership and/or management contribution within their department or the wider university, to be participating in national/international academic networks and conferences. They may be transferring their knowledge through some teaching and/or supervision to undergraduate or graduate students (consonant with the terms of their funding). Role holders at this level will be independent researchers and will have an established national and growing international reputation within their academic discipline generally and research field in particular.

Professorial Research Fellow (Level e)

Role holders at this level will have very extensive experience of research leadership and related management/administration. They will enjoy a wide recognition for their expertise within the academic community internationally (as evidenced by conference invitations, journal editorships, office holding in specialist groupings, associations with appropriate Research Councils etc.). They will have made recognised and significant contributions to the developing knowledge and

understanding of their research area. They will already have responsibilities for the creation, initiation, development and overall management of significant research programmes. They will 'profess' their discipline within the Department, as appropriate and consonant with the terms of their funding. They may also carry significant leadership roles within the Faculty or University.

3.4 Key Contacts

Contact Type	Purpose of Contact
Prof. Mahdi Azarpeyvand	General enquiries