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Research Assistant or Associate in Data-Driven Modelling of Fuel Cell Dynamics

Department/Division/Faculty:	Department of Aeronautics, Faculty of Engineering
Campus/Location:	South Kensington Campus (Hybrid)
Job Family/Level:	Research Job Family, Research Assistant or Research Associate* (Salary scales)
Responsible to:	Dr Urban Fasel
Line management for:	N/A
Key working Relationships (Internal):	Prof Anthony Kucernak, Dr Ludovic Renson
Key Working Relationships (External):	N/A
Contract type:	Full-time, Fixed-term, 12 months

Purpose of the Post

The post is funded by an Airbus- and Aerospace Technology Institute (ATI), project to develop data-driven modelling methods for next-generation hydrogen-powered commercial aircraft.

At Research Associate level: To carry out a research programme in interpretable modelling of the complex, nonlinear dynamic behaviour of fuel cells, to undertake project management and/or supervise multi-disciplinary teams. The Research Associate will be expected to submit publications to refereed journals.

Key Responsibilities

Main Duties:

- To develop nonlinear dynamic models of fuel cell electrochemistry.
- To identify interpretable reduced-order models for fuel cell control using the Sparse Identification of Nonlinear Dynamics (SINDy) algorithm applied to numerical and experimental data.
- Ensure the validity and reliability of numerical results and data at all times.
- Maintain accurate and complete records of all findings.
- Assist with the writing of reports to research sponsors.

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- 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 Imperial and the wider community.
- Promote the reputation of the research group, the Department and Imperial.

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.
- Actively participate in the research programme of the Department.
- 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 scientists within Imperial College and abroad, as appropriate.
- Assist in the supervision of undergraduate and postgraduate research students and research assistants as required.

Other Duties:

- To undertake any necessary training and/or development.
- To undertake appropriate administration tasks.
- To attend relevant meetings.

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

Person Specification

Requirements

Candidates/post holders will be expected to demonstrate the following:

**Essential (E)/
Desirable (D)**

Education

Research Associate: Hold a PhD in Aerospace Engineering, Chemistry, or a closely related discipline, or equivalent research, industrial or commercial experience (E)

Research Assistant: A Master's degree (or equivalent) in Aerospace Engineering, Chemistry, or a closely related discipline (E)

**Candidates who have not yet been officially awarded their PhD will be appointed as Research Assistant.*

Experience

Practical experience within a research environment and / or publication in relevant and refereed journals	(E)
Strong background in fuel cell systems	(E)
Experience in numerical modelling of electrochemical systems	(E)
Experience in machine learning and data-driven modelling	(D)

Knowledge

Knowledge of methods of numerical modelling of electrochemical systems	(E)
Knowledge of research methods and statistical procedures	(E)

Skills & Abilities

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 and knowledge of state-of-the-art software development processes	(E)
Ability to direct the work of a small research team and motivate others to produce a high standard of work	(E)
Willingness to work as part of a team and to be open-minded and cooperative	(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	(E)

Further Information

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

[Our values](#) are at the root of everything we do and everyone in our community is expected to demonstrate Imperial:

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- Respect
- Collaboration
- Excellence
- Integrity
- Innovation

Employees are also required to comply with all Imperial policies and regulations.

We are committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment for all. We encourage candidates to apply irrespective of age, disability, marriage or civil partnership status, pregnancy or maternity, race, religion and belief, gender reassignment, sex, or sexual orientation. You can read more about our commitment [on our webpages](#).

As this post is exempt from the Rehabilitation of Offenders Act 1974, a satisfactory [Disclosure and Barring Service \(DBS\) check](#), at the appropriate level, will be required for the successful candidate.

Imperial 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/>

Imperial 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 our 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](#).

September 2026