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Job Description

Post title: **Senior Research Fellow in Digital Engineering for Gas Turbines**

Date last updated/evaluated: January 2025

Author: Prof. David Toal

Standard Occupation Code: 2119

School / Department: School of Engineering / Department of Aeronautics & Astronautics

Faculty / Directorate: FEPS

Job Family: Education, Research and Enterprise (ERE)

Grade: Level 5

ERE Pathway (if applicable): Research

Post reporting to: Prof. David Toal

Post line report(s): N/A

Post base location: Campus **:** Boldrewood Innovation Campus

Job purpose: Education: Achieving a record of effective, independent scholarly educational practice and beginning to develop scholarship of education. Increasingly involved in the development, organisation and management of teaching and learning activities, alongside delivery.

Research: Achieving research independence. Establishing and growing a reputation for research quality. Increasingly taking leading or supervisory roles within research teams, often as Principal Investigator or Co-Investigator.

Knowledge Exchange and Enterprise: Achieving a record of effectively and independently managing knowledge exchange and/or enterprise activities and outputs through public engagement, outreach and/or other impact-generating activities.

Leadership, Management and Engagement: Assuming defined management roles and increasingly taking leading or supervisory roles within teams or projects, including line management and resource management where appropriate.

All contributions build on ERE Level 4.

## Key accountabilities and indicative time allocation:

1. **5%**

**Education Contribution**:

* Contribute to the supervision of PhD students
* Contribute to the supervision of undergraduate/postgraduate student projects

1. **70%**

**Research Contribution**:

* Sustain a personal programme of research which contributes to or complements wider research programmes or strategies.
* Develop and deliver independent, rigorous and original research that leads to the discovery of new knowledge, insight and/or understanding.
* Lead an individual or team research project or projects.
* Regularly produce a range of high-quality research outputs that: underpin an established and growing reputation within the research community for the originality, significance and rigour of research; and demonstrably contribute to debate, knowledge, understanding and impact within and/or beyond academia.
* Plan and develop innovative new research proposals, either as self-contained items or as part of wider programmes, identifying potential funding sources and lead, co-lead or contribute to income proposals.
* Collaborate and utilise networks to develop and deliver research with colleagues in own and other disciplines and/or organisations. Co-create with a range of public groups, partners or organisations, as appropriate.
* Project manage research activity, manage the application of a range of research methodologies and manage or supervise other members of a research team, as appropriate.
* Ensure effective co-creation, sharing of, and engagement with, research and research findings by a range of audiences (e.g., academic peers, practitioners, policymakers, publics), using a range of methods (e.g., peer-reviewed publications, conferences, public engagement, outreach, media releases).
* Proactively identify and pursue opportunities to ensure research activities benefit educational practice.
* Co-supervise or contribute to the supervision of postgraduate students and/or research assistants.

1. **5%**

**Knowledge Exchange and Enterprise Contribution**:

* Design, develop and deliver high-quality knowledge exchange and/or enterprise activities and outputs that meet stakeholder requirements and complement wider knowledge exchange and enterprise programmes or strategies, individually or as part of a wider project, team or unit.
* Lead an individual or team innovation project or projects.
* Apply in-depth specialist knowledge to provide expert advice, generate ideas and design products or solutions that meet stakeholder requirements, where precedents may not exist.
* Manage specific projects, activities and/or facilities on a day-to-day basis. Manage resources, monitor progress, address risks, resolve issues and ensure stakeholder expectations are met.
* Organise public engagement, outreach and/or other impact-generating activities, building evidence of effective engagement.
* Develop links and contribute to relevant specialist, industry and/or professional bodies, including learned societies. Participate in committees and working groups. Share, promote and help embed best practice and innovation.
* Engage with and provide advice to public bodies in areas of specialist knowledge.
* Collaborate, engage and utilise networks to create and develop relationships of mutual benefit to the University and stakeholders within and beyond academia.
* Plan and develop innovative new knowledge exchange and enterprise proposals, either as self-contained items or as part of wider programmes, identifying potential income streams or funding sources and contributing to income proposals, as required.

1. **10%**

**Leadership, Management and Engagement Contribution**:

Building on the Leadership, Management and Engagement contributions inherent in other Level 5 activities:

* Successfully undertake defined management, engagement, administration or project roles within the department or School (e.g., admissions, examinations, excellence framework contributions).
* Manage processes and co-ordinate the work of others as required. Help determine priorities and allocate resources to meet planned objectives and requirements.
* Contribute to short and medium-term planning processes in the department or School, including budget planning for own area. Demonstrate an appreciation of longer-term requirements.
* Provide expert advice to colleagues and students. Use persuasion and influence to foster and maintain relationships.
* Effectively conduct and engage in appraisal, career development and continuing professional development activities; formulate development plans to meet current and future skill needs.
* Ensure the effective management and use of assigned resources (e.g., budgets, equipment)
* Manage external activities such as placements and field trips.
* Actively contribute to, and support, Equality, Diversity and Inclusion initiatives within your role, ensuring that EDI principles are integrated into daily tasks and interactions.

1. **5%**

To allocate 10 days a year (pro rata if part-time) to undertake training and continuing professional development (CPD), develop research identity and leadership skills in line with the Researcher Development Concordat.

1. **5%**

Any other duties as allocated by the line manager following consultation with the post holder.

Internal and external relationships:

Rolls-Royce Plc. via the Rolls-Royce UTC for Computational Engineering

Special requirements:

N/A

# Person Specification – Skills and Competencies

All essential and desirable criteria outlined in this Person Specification will be assessed through a combination of recruitment application and CV, and where applicable numerical or written assessment.

**Knowledge, Experience and Qualifications**

Essential

* Substantial and authoritative practical knowledge and experience in machine/deep learning and digital engineering, supported by detailed understanding.
* The required level of knowledge and understanding will normally have been gained through some or all of the following:
  + Considerable work experience
  + Vocational training
  + Formal qualification(s) equivalent to Level 7 or 8 of the [Regulated Qualifications Framework](https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels) e.g. master’s degree, postgraduate certificate, diploma, PhD in a relevant subject area in or Level 7 or 8 award, certificate, diploma.
* Experience of numerical modelling e.g. CFD, FEA

**Teamwork and Communication**

Essential

* Delegates and/or collaborates effectively, understanding the strengths and weaknesses of colleagues.
* Works proactively with colleagues and other stakeholders, within and beyond the University, to achieve outcomes.
* Communicates effectively to develop understanding and achieve cooperation.
* Provides clear advice, guidance and recommendations on novel or complex concepts and issues.

**Planning, Organisation and Resource Management**

Essential

* Plans and progresses education, research and/or knowledge exchange and enterprise activities within broad guidelines and established University policies and procedures.
* Formulates development plans to meet current skill requirements.

**Problem Solving and Initiative**

Essential

* Develops detailed understanding of long-standing and/or complex problems and applies accumulated knowledge and experience to understand and/or resolve them.
* Demonstrates an awareness of principles and trends within a specialist field and awareness of how this affects education, research and/or knowledge exchange and enterprise activities in the University.

# Job Hazard Assessment

A full health clearance is required for this role where any hazards marked “**^**”, using the agreed Occupational Health referral template [available from here](https://sotonac.sharepoint.com/teams/HealthWellbeing/SitePages/Occupational-Health.aspx). Where a full health clearance is required, this will apply to all role holders, including existing members of staff.

## Physical Environment

Working outside **^** Not applicable

Exposure to noise levels >80dbA **^** Not applicable

Working with dust or fumes **^** Not applicable

Working with skin irritants **^** Not applicable

Working with chemicals (industrial or cleaning) **^** Not applicable

Working in a confined space **^** Not applicable

Working at height **^** Not applicable

Working with sewage **^** Not applicable

Contact with cytotoxins **^** Not applicable

Exposure Prone Procedure (EPP) work **^** Not applicable

Contact with clinical specimens or pathology work **^**  Not applicable

Direct patient care or patient contact Not applicable

Exposure to temperature extremes Not applicable

Frequent hand washing Not applicable

Ionising radiation Not applicable

## Psychological and Social Environment

Working shifts **^** Not applicable

Working nights **^** Not applicable

Lone working Not applicable

Working with children Not applicable

Exposure to persons with challenging behaviourNot applicable

Working with larger groups Not applicable

## Equipment, Tools and Machines

Working with vibrating machinery or tools **^** Not applicable

Driving duties e.g. LGV, PCVs, forklift trucks **^** Not applicable

Food handling Not applicable

Contact with latexNot applicable

## Physical Abilities

Prolonged physical movements or actions e.g. walking **^** Not applicable

Prolonged Standing or Sitting **^** Not applicable

Moving or handling heavy loads **^** Not applicable

Repetitive pulling or pushing **^** Not applicable

Repetitive climbing (steps, stools, ladders, stairs) **^** Not applicable

Repetitive crouching, kneeling or stooping Not applicable

Repetitive lifting Not applicable

Fine motor grips (e.g. pipetting) Not applicable

Repetitive reaching below shoulder height Not applicable

Repetitive reaching at shoulder height Not applicable

Repetitive reaching above shoulder height Not applicable

# Behaviours

Our [Inclusion and Respectful Behaviour Policy](https://www.southampton.ac.uk/about/governance/regulations-policies/policies/inclusion-respectful-behaviour) describes the expectations of everyone who is a part of our community.

Our **Southampton Behaviours** (below) outline the responsibilities we each have in working collaboratively to achieve our University strategy.

**Personal Leadership**

- I take personal responsibility for my own actions and an active approach towards my development.

- I reflect on my own behaviour, actively seek feedback and adapt my behaviour accordingly.

- I demonstrate pride, passion and enthusiasm for our University community.

- I demonstrate respect and build trust with an open and honest approach.

**Working Together**

- I work collaboratively and build productive relationships across our University and beyond.

- I actively listen to others and communicate clearly and appropriately with everyone.

- I take an inclusive approach, value the differences that people bring and encourage others to contribute and flourish.

- I proactively work through challenge and conflict, considering others’ views to achieve positive and productive outcomes.

**Developing Others**

- I help to create an environment that engages and motivates others.

- I take time to support and enable people to be the best they can be.

- I recognise and value others’ achievements, give praise and celebrate their success.

- I deliver balanced feedback to enable others to improve their contribution.

**Delivering Quality**

- I identify opportunities and take action to make improvements.

- I plan and prioritise efficiently and effectively, taking account of people, processes and resources.

- I am accountable for tackling issues, making difficult decisions and seeing them through to their conclusion.

- I encourage creativity and innovation in others, to deliver workable solutions.

**Driving Sustainability**

- I consider the impact on people before taking decisions or actions that may affect them.

- I embrace, enable and embed change effectively.

- I regularly take account of external and internal factors, assessing the need for change, and gaining support to move forward.

- I take time to understand our University strategy and communicate this to others.