Role profile

<table>
<thead>
<tr>
<th>Job title</th>
<th>Job family and level</th>
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<tbody>
<tr>
<td>Senior Research Fellow in Advanced Manufacturing and Automation</td>
<td>Research and Teaching Level 5</td>
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<tr>
<th>School/Department</th>
<th>Location</th>
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<tr>
<td>Engineering, Advanced Manufacturing - Centre for Aerospace Manufacturing</td>
<td>Jubilee Campus</td>
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Purpose of role

The Centre for Aerospace Manufacturing (CAM) requires a senior research fellow for the Future Automated Aerospace Assembly Demonstrator Phase 2 (FA3D2) project. This project is funded by Innovate UK through the Industrial Strategy Challenge Fund and will deliver a national testbed for future informatics enabled aerospace manufacturing.

The role holder will be responsible for leading and delivering this high profile project, ensuring that all funder requirements are met. The role holder will work in collaboration with the Centre Director, the Chief Technical Officer, other academics and the wider CAM team to develop and deliver a programme of high quality research outputs. The role holder is responsible for ensuring alignment with the other ongoing and future research projects across CAM. The successful candidate will also work closely with the project Industrial Advisory Board to ensure that both the demonstrator platform and the project outcomes are relevant to industry. Opportunities for future projects that utilise the platform shall be identified and proposals developed as required.

The project involves the development, specification, procurement, delivery, installation, integration, commissioning, testing and utilisation of the demonstrator platform. The role holder is responsible for ensuring the programme of work is carried out in a robust, well maintained, well managed and well documented manner. This platform will comprise the hardware, software and systems required to deliver an aerospace assembly demonstrator capable of aerostructure assembly with a focus on system integration, plug and play of automation systems, digital twin, simulation and data analytics. The role will involve the evaluation of the latest technical solutions available on the market today, to then build upon these and develop next generation systems for targeted end-user and sector requirements.

Main responsibilities

(Primary accountabilities and responsibilities expected to fulfil the role)

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<th>% time per year</th>
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<tr>
<td>35%</td>
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1. **Project Management**

- Project manage and deliver high profile UK Government funded research project.
- Develop project plans, work plans and schedules to ensure on time delivery of research to cost and in line with overall objectives.
- Responsible for management of allocated research budgets and resources to ensure that effective use is made of them to achieve the research outputs.
- Organise and participate in meetings with other staff to clarify objectives.
- Collaborate with other project team members and industry to ensure relevance of project objectives to industrial and research challenges.
- Report to key stakeholders on technical progress, costs, and achievement of milestones and deliverables.
- Manage and oversee of the procurement process in collaboration with procurement and with the support of research administrators.

### Research Activities
- Perform high quality research as part of a collaborative team and contribute to the achievement of research objectives of the Centre for Aerospace Manufacturing. The key areas of research include automated manufacture, robotics, metrology, manufacturing system integration and digital factory.
- Develop industrial prototype system, perform extensive testing and evaluate the system against set requirements.
- Develop the FA3D2 project hardware and software platform and support its application in aerospace and new domains.
- Define research objectives in collaboration with and under guidance of senior colleagues.
- Manage the application of a range of robust and rigorous methodologies, approaches and techniques appropriate to the type of research being pursued. Where appropriate investigate and devise research methods and approaches.
- Acquire, analyse, interpret and evaluate research findings/data using approaches, techniques, models and methods selected or developed for the purpose.
- Resolve problems for self and others to meet research objectives and deadlines.
- Produce research output which will be considered to be excellent in Research Excellence Frameworks (REF).
- Lead and / or support the development of new funding proposals as required.

### Dissemination & Exploitation
- Write research reports and papers to disseminate results and develop a track record of published research findings in internationally respected peer-reviewed journals.
- Disseminate results through oral and poster presentations at international meetings, conferences and seminars.
- Support the exploitation of results through the identification of new IP and/or publications.
- Participate in the delivery of workshops to a range of audiences in support of the dissemination and impact strategy.

### Engagement
- Interact with research partners and industrial partners to establish industrial requirements and specifications and drive the development of new and innovative systems based on their requirements (potentially spending time at partner sites).
- Participate and present at relevant meetings.

### Any other duties appropriate to the grade and role.
## Person specification

<table>
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<tr>
<th>Skills</th>
<th>Essential</th>
<th>Desirable</th>
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|        | • User of CAD/CAM software in electrical or mechanical domains  
• Ability to carry out systematic R&D projects with strong industrial drive  
• Understanding of documentation, testing and peer review  
• Record of high quality research publications in relevant area  
• Flexible and proactive outlook  
• Ability to plan and conduct high quality research and work unsupervised to tight deadlines  
• Innovative and creative problem solver  
• Clear communication skills both written and spoken and attention to detail  
• Strong team working skills  
• Willing to work closely with industry and to meet their expectations | |

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<tr>
<th>Knowledge and experience</th>
<th>Essential</th>
<th>Desirable</th>
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|                         | • Strong mechanical engineering knowledge  
• Understanding of technologies and science affecting advanced manufacturing and assembly systems  
• Knowledge of the following (or similar):  
  o Robotics and automation control  
  o Automated manufacturing and assembly processes  
  o Automated manufacturing systems integration  
  o Simulation  
  o Control system development  
  o Flexible reconfigurable systems and tooling  
  o Metrology and sensing systems  
  o System engineering involving the coupling or embedding of large software projects to hardware  
• Significant programming knowledge of at least one of the following (or similar):  
  o .NET  
  o C++  
  o PLC control systems | • Process capability assessment and reliability testing  
• Process benchmarking and requirements capture  
• Manufacturing, assembly and metrology processes  
• Design methods  
• A growing international reputation in their field  
• Experience, achievement and growing reputation in the discipline, reflected in relevant national committee memberships, and/or involvement in national research events |
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<tr>
<th><strong>Robot control software</strong></th>
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<tr>
<td>• Extensive experience in research specialism</td>
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<td>• Experience of developing research methodologies and devising models, approaches, techniques, critiques and methods</td>
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<td>• Practical experimental experience</td>
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<td>• Demonstrable and substantial contribution to high quality publications, considered to be within Research Excellence Framework (REF)</td>
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<tr>
<td>• Extensive experience and demonstrated success in delivering research results</td>
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<tr>
<td>• Experience of working on large research projects with multiple partners</td>
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<tr>
<td>• Experience in delivering industrial standard reports</td>
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<tr>
<td>• Project management experience</td>
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<td>• Experience of writing successful research funding proposals</td>
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<tr>
<td>• Experience of presenting to a variety of audiences</td>
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<tr>
<td>• Experience of working with industry</td>
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<tr>
<th><strong>Qualifications, certification and training (relevant to role)</strong></th>
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<tr>
<td>• Hold a PhD (or equivalent) in engineering, physics, computer science or a related subject</td>
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<td>• Higher degree (MEng/MSc) in aerospace, mechanical or manufacturing related subject</td>
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<tr>
<td>• Professional registration with the Engineering Council (CEng)</td>
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<tr>
<td>• Project management qualification e.g. PRINCE2</td>
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The University strongly endorses Athena SWAN principles, with commitment from all levels of the organisation in furthering women’s careers. It is our mission to ensure equal opportunity, best working practices and fair policies for all.
Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University’s strategy, vision and values. The following are essential to the role:

**Valuing people**
Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.

**Taking ownership**
Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.

**Forward thinking**
Driven to question the status quo and explore new ideas, supporting the team to “lead the way” in terms of know-how and learning.

**Professional pride**
Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.

**Always inclusive**
Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

![Relationship Diagram]

- **Line manager**
- **Role holder**
- **Senior Research Fellow**
- **Key stakeholder relationships**
  - Colleagues
  - Students
- **Chief Technical Officer**