



<b>Job title</b>	Experimental Research Fellow - Thermofluid development	<b>Job family and level</b>	Research Level 4
<b>School/ Department</b>	Faculty of Engineering, MAS	<b>Location</b>	Jubilee Campus, Energy Technologies Building

## Purpose of role

To support multi-phase thermofluid experimental research across the Mechanical and Aerospace Systems (MAS) group. The role holder may also be expected to work on solid mechanics and dynamics projects to support experimental development within the group. The role holder will be responsible for ensuring the programme of work is carried out in a robust, well-managed and well-documented manner.

	<b>Main responsibilities</b> (Primary accountabilities and responsibilities expected to fulfil the role)	<b>% time per year</b>
1	<p><b>Research Activities</b></p> <ul style="list-style-type: none"> <li>▪ Undertake a wide range of experimental measurements, including high speed visualisation, conventional data acquisition/instrumentation for multiphase flow and heat transfer, laser diagnostic techniques, point and field measurements of two-phase flows, visualization of multiphase flow and heat transfer.</li> <li>▪ Manage the application of a range of robust and rigorous methodologies, analysis and modelling approaches appropriate to the type of research being pursued. Where appropriate, investigate and devise research methods, and instrumentation/sensors.</li> <li>▪ Acquire, analyse, interpret and evaluate research findings/data using approaches, techniques, phenomenological models and methods selected or developed for the purpose.</li> <li>▪ Undertake analytical development and system level analysis of the process to inform design and experimentation.</li> <li>▪ Support with experimental design approach and setup.</li> <li>▪ Resolve problems for self and others to meet research objective and deadlines, escalating any issues effectively to senior colleagues.</li> </ul>	70%
2	<p><b>Stakeholders Liaison</b></p> <ul style="list-style-type: none"> <li>▪ The role holder will have to make regular reports to industrial and academic partners.</li> <li>▪ They will be responsible for monitoring and communicating project milestones/deliverables.</li> <li>▪ They will also be expected to explain their work to co-workers within the MAS group and occasionally to parties from close collaborators in research groups in other Universities.</li> </ul>	10%

3	<p><b>Documentation and Reporting</b></p> <ul style="list-style-type: none"> <li>▪ The role holder will be responsible for ensuring that their work is thoroughly documented such that other researchers can advance this work either simultaneously or subsequently..</li> <li>▪ They will attend meetings with colleagues and stakeholders, both within the university and with industrial partners.</li> <li>▪ They will be required to produce written reports on their work. The individual will need to make these reports professionally written in English and easy to read without extra support.</li> <li>▪ They will, in conjunction with the project team, write journal papers and submit conference proceedings based upon the outcomes of their work.</li> </ul>	15%
4	<p><b>Other</b></p> <ul style="list-style-type: none"> <li>▪ Researchers within the MAS group are expected to contribute to internal seminar and training activities, by attending and where appropriate presenting.</li> <li>▪ The role holder will be asked to ensure that they undertake regular continued professional development.</li> <li>▪ Any other duties as appropriate to this post as requested by the line manager.</li> </ul>	5%

## Person specification

	<b>Essential</b>	<b>Desirable</b>
<b>Skills</b>	<ul style="list-style-type: none"> <li>▪ Ability to work independently and proactively manage workload whilst highlighting issues and giving potential solutions.</li> <li>▪ Able to present complex data clearly to a wide audience to show analysis and outcomes.</li> <li>▪ Good documentation practice for all work, especially relating to computer coding and experimental setup.</li> <li>▪ Ability to write and present conference and journal papers.</li> <li>▪ Ability to work in a team and interact/collaborate actively and professionally with industrial partners</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project management skills</li> </ul>
<b>Knowledge and experience</b>	<ul style="list-style-type: none"> <li>▪ Experience in technical report writing for a specialist audience.</li> <li>▪ In-depth knowledge of fundamental fluid mechanics and thermodynamics</li> <li>▪ Significant experience and knowledge in appropriate engineering programming languages.</li> <li>▪ Experience with Matlab and labview for both acquisition of data and analysis.</li> <li>▪ Experience in the practical set up and running of experimental systems, including data gathering and analysis.</li> <li>▪ Knowledge of gas/liquid multiphase flows and heat transfer.</li> <li>▪ Experience in having developed and/or adhered to strict safety systems.</li> <li>▪ Knowledge of gas/liquid multiphase flows through pipes, valves, pumps and tanks</li> <li>▪ Practical experience in experimental techniques, including point and full field experimental techniques for two phase flow</li> </ul>	<ul style="list-style-type: none"> <li>▪ Experience with CAD packages.</li> <li>▪ Working knowledge of dynamics and dynamic systems.</li> <li>▪ Experience of modelling fluid flows including Thermal/Heat Transfer phenomena using CFD or other appropriate numerical methods</li> <li>▪ Experience of laser diagnostic techniques for use in Thermofluids multiphase flow.</li> <li>▪ Knowledge of solid mechanics and material behaviour</li> <li>▪ Experience in practical hands-on working with machines.</li> </ul>
<b>Qualifications, certification and training (relevant to role)</b>	<ul style="list-style-type: none"> <li>▪ An honours degree in a relevant engineering discipline.</li> <li>▪ A PhD in relevant subject and experience directly related to knowledge/experience topics.</li> </ul>	
<b>Statutory, legal or special requirements</b>	<ul style="list-style-type: none"> <li>▪ Satisfactory basic disclosure obtained from the Disclosure and Barring Service.</li> </ul>	



The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.

## 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

