



<b>Job title</b>	Research Associate/Fellow Thermal Management	<b>Job family and level</b>	Research & Teaching Level 4 Training Grade/Level 4
<b>School/ Department</b>	Faculty of Engineering, G2TRC	<b>Location</b>	Jubilee Campus, Energy Technologies Building

## Purpose of role

The Gas Turbine Transmission Research Centre (G2TRC) requires a Research Fellow for a new project investigating thermal management issues in future propulsion systems. G2TRC has a large intra-disciplinary team of researchers, engineers, technicians, support staff and academics who work together to deliver research from fundamental to high level TRL.

The project involves the development, validation and application of a new modelling platform to allow design investigations of the thermal management requirements for new propulsion architectures. 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 - Creation and Validation of Transient Thermal Management Tool</b></p> <ul style="list-style-type: none"> <li>▪ Perform high quality research as part of a collaborative team that contributes to the achievements of the research objectives of G2TRC.</li> <li>▪ Manage the application of a range of robust and rigorous methodologies, analysis and models appropriate to the type of research being pursued. Where appropriate, work with colleagues to investigate and devise research methods, approaches and models.</li> <li>▪ Acquire, analyse, interpret and evaluate research findings/data using approaches, techniques, models and methods selected or developed for the purpose.</li> <li>▪ Collect and analyse modelling requirements from stakeholders – both internal and external – and help define detailed research objectives in collaboration with and under guidance of senior colleagues.</li> <li>▪ Select modelling/tool architecture in liaison with stakeholders – both internal and external</li> <li>▪ Creation &amp; validation of model utilising data and information from stakeholders – both internal and external</li> <li>▪ Resolve problems for self and work with others to meet research objective and deadlines, escalating any issues effectively to senior colleagues.</li> </ul>	60%
2	<b>Stakeholder Liaison</b>	20%

	<ul style="list-style-type: none"> <li>▪ Regular formal and informal liaison will be required with stakeholders, internal and external</li> <li>▪ Responsible handling of commercially confidential data will be required, including managing the secure electronic storage of this data</li> <li>▪ Liaison and monitoring of project milestones/deliverables</li> </ul>	
3	<p><b>Reporting</b></p> <ul style="list-style-type: none"> <li>▪ Attendance at meetings with presentation to internal and external stakeholders</li> <li>▪ Creation of written reports for internal and external stakeholders</li> <li>▪ Dissemination activities, paper publication</li> </ul>	15%
4	<p><b>Group Collaboration</b></p> <ul style="list-style-type: none"> <li>▪ Researchers within the group are expected to contribute to internal seminar and training activities, by attending and where appropriate presenting.</li> <li>▪ Participation in collaborative activities to further enhance group cohesion and development of new proposals/publications</li> </ul>	5%

## Person specification

	<b>Essential</b>	<b>Desirable</b>
<b>Skills</b>	<ul style="list-style-type: none"> <li>▪ Ability to independently manage workload, proactively alerting line manager of issues, with suggestion of potential resolution routes</li> <li>▪ Organisation of meetings, recording of meeting information and creation of actions from meetings</li> <li>▪ Ability to liaise with a wide range of internal and external stakeholders including, but not limited to, industrial technical specialists, sponsors, experimental researchers, engineering and technicians, project managers, academic staff</li> <li>▪ Presentation of complex data to a wide audience to provide a clear analysis and outcomes</li> <li>▪ Technical report writing for a specialist audience</li> <li>▪ Ability to work in a team, lead both internally and externally, and interact/collaborate actively and professionally with industrial partners</li> <li>▪ Ability to support knowledge exchange and transfer activities between companies</li> <li>▪ Excellent oral and written communication skills, including the</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project management skills</li> <li>▪ Experience of report writing and publication of research results in journals and conferences</li> </ul>

	ability to communicate with clarity on complex information	
<b>Knowledge and experience</b>	<ul style="list-style-type: none"> <li>▪ Thermofluids heat exchanger knowledge, including Gas/Liquid and Liquid/Liquid Heat Exchange design understanding</li> <li>▪ Heat Transfer analysis and modelling experience including gas/liquid or liquid/liquid heat exchange</li> <li>▪ Thermal management knowledge and experience, including the creation and application of fluid/heat transfer analysis models</li> <li>▪ Flow analysis for 1D and 2D networks for single phase flow</li> <li>▪ Understanding of transient and steady state analysis in a thermal circuit</li> <li>▪ Knowledge of gas/liquid flows Thermal/Heat Transfer modelling</li> <li>▪ Single and Two phase (gas-liquid) flows in fluid/heat transfer design and analysis</li> <li>▪ Lumped parameter thermal network modelling</li> </ul>	<ul style="list-style-type: none"> <li>▪ Experience with Matlab, Simulink &amp; Simscape</li> <li>▪ Knowledge of gas/liquid two phase flows through pipes, valves, pumps and tanks, including transient characteristics</li> <li>▪ Modelling/analysis of two phase flow (gas/liquid)</li> <li>▪ Computational Fluid Dynamics modelling of flow and heat processes</li> <li>▪ A consistent track record of published research in peer reviewed journals</li> <li>▪ Relevant post-doctoral research or industrial experience</li> </ul>
<b>Qualifications, certification and training (relevant to role)</b>	<ul style="list-style-type: none"> <li>▪ Degree in relevant subject to include thermofluids/heat transfer</li> <li>▪ PhD (or close to completion) or equivalent in engineering, applied mathematics or a related subject area, with a major component in thermofluid and/or heat transfer modelling</li> </ul>	<ul style="list-style-type: none"> <li>▪ Training in Mathworks family in particular either Simulink or SimScape</li> </ul>



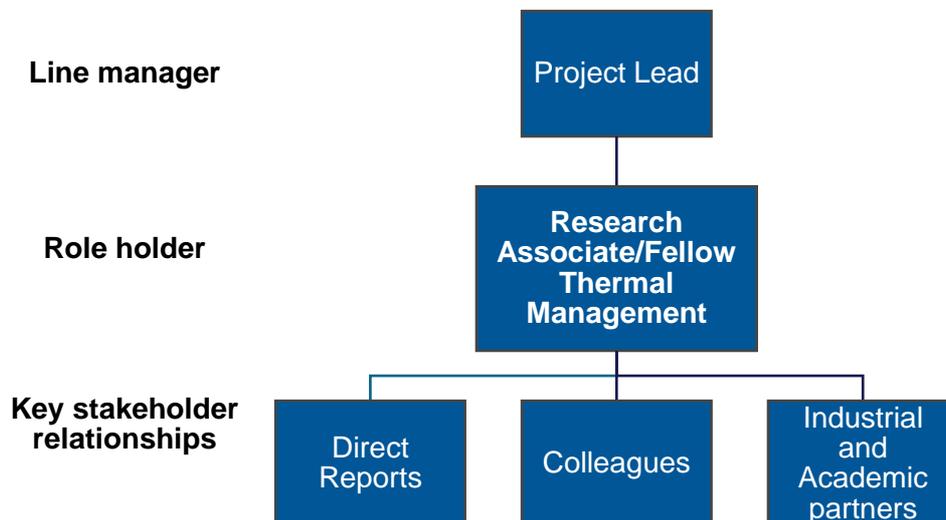
The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality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



<b>Job title</b>	Senior Research Fellow Thermal Management	<b>Job family and level</b>	Research & Teaching Level 5
<b>School/ Department</b>	Faculty of Engineering, G2TRC	<b>Location</b>	Jubilee Campus, Energy Technologies Building

## Purpose of role

The Gas Turbine Transmission Research Centre (G2TRC) requires a Senior Research Fellow for a new project investigating thermal management issues in future propulsion systems. G2TRC has a large intra-disciplinary team of researchers, engineers, technicians, support staff and academics who work together to deliver research from fundamental to high level TRL.

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	<b>Main responsibilities</b> (Primary accountabilities and responsibilities expected to fulfil the role)	<b>% time per year</b>
1	<p><b>Research Activities - Creation and Validation of Transient Thermal Management Tool</b></p> <ul style="list-style-type: none"> <li>▪ Lead and perform high quality research as part of a collaborative team that contributes to the achievements of the research objectives of G2TRC.</li> <li>▪ Manage the application of a range of robust and rigorous methodologies, analysis and models appropriate to the type of research being pursued. Where appropriate investigate and devise research methods, approaches and models.</li> <li>▪ Acquire, analyse, interpret and evaluate research findings/data using approaches, techniques, models and methods selected or developed for the purpose.</li> <li>▪ Collect and analyse modelling requirements from stakeholders – both internal and external – and define detailed research objectives in collaboration with and under guidance of senior colleagues.</li> <li>▪ Select modelling/tool architecture in liaison with stakeholders – both internal and external</li> <li>▪ Creation &amp; validation of model utilising data and information from stakeholders – both internal and external</li> <li>▪ Resolve problems for self and others to meet research objective and deadlines, escalating any issues effectively to senior colleagues.</li> </ul>	60%
2	<p><b>Stakeholder Liaison</b></p> <ul style="list-style-type: none"> <li>▪ Regular formal and informal liaison will be required with stakeholders, internal and external</li> </ul>	20%

	<ul style="list-style-type: none"> <li>▪ Responsible handling of commercially confidential data will be required, including managing the secure electronic storage of this data</li> <li>▪ Liaison and monitoring of project milestones/deliverables</li> </ul>	
3	<p><b>Reporting</b></p> <ul style="list-style-type: none"> <li>▪ Attendance at meetings with presentation to internal and external stakeholders</li> <li>▪ Creation of written reports for internal and external stakeholders</li> <li>▪ Dissemination activities, paper publication</li> </ul>	15%
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## Person specification

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	<ul style="list-style-type: none"> <li>▪ Excellent oral and written communication skills, including the ability to communicate with clarity on complex information</li> </ul>	
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## Key relationships with others

