



<b>Job title</b>	Research Assistant	<b>Job family and level</b>	Research and Teaching Level 4a
<b>School/ Department</b>	Faculty of Engineering – Department of Mechanical, Materials and Manufacturing Engineering	<b>Location</b>	University Park Campus

## Purpose of role

The successful candidate will develop physical and numerical models for the direct numerical simulation of boiling flows in small and microchannels using the opensource package OpenFOAM. These efforts will be pursued in the framework of the EPSRC-funded project “BOiliNg flows in SmAll and mIcrochannels (BONSAI)” which involves also Imperial College, Brunel University London, and 14 industrial and academic partners. It is expected that the role-holder will undertake supervision of students, promote and engage in network-wide training events, public engagement activities and international collaboration with industrial or academic partner institutions within the UK and EU.

	<b>Main responsibilities</b> (Primary accountabilities and responsibilities expected to fulfil the role)	<b>% time per year</b>
1	Conduct high-level research on numerical and theoretical aspects of modelling boiling two-phase flows in microgeometries, implementing novel algorithms within OpenFOAM, perform analyses to elucidate fluid dynamics and heat transfer mechanisms, liaise with experimentalists at Brunel and Imperial to compare and validate results, maintain an organised Github repository of the solver and project results.	60%
2	Supporting the line manager within the project. This will consist in: preparing plans, deliverables, templates, keeping risk and change register, organising meetings, keeping communication with the project partners and funding body, contributing to the intellectual life of the BONSAI project, including interaction with other early stage researchers, participation in network meetings, and in discussions and online activity.	10%
3	Production of reports and publications, dissemination of results - presentations and travel to conferences, meetings and/or outreach to the industry, scientific community and general public	10%
4	Research Supervision. As a member of the research group, supervise undergraduate students, regularly liaising with researchers and other students in the team. Responsible for training of new researchers and support in ensuring that project objectives are achieved.	10%

5	Any other duties appropriate to this post as required by their line manager	10%
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## Person specification

	Essential	Desirable
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Programming in C++, C or Fortran applied to CFD</li> <li>• Use of Microsoft Office or latex for preparing documents and presentations</li> <li>• Commercial/opensource CFD software</li> <li>• Self-motivating and ability to take the initiative and work with minimum supervision</li> <li>• Good interpersonal communication skills (written and verbal)</li> </ul>	<ul style="list-style-type: none"> <li>• C++ programming for fluid mechanics</li> <li>• Strong organisational skills and project management</li> </ul>
<b>Knowledge and experience</b>	<ul style="list-style-type: none"> <li>• Knowledge of multiphase fluid mechanics, heat transfer, phase change</li> <li>• Extensive knowledge and expertise in OpenFOAM, including code development or equivalent opensource simulation tool</li> <li>• Significant demonstrated ability of team work and supervision of others</li> </ul>	<ul style="list-style-type: none"> <li>• Code development in OpenFOAM</li> <li>• Experience with numerical methods for multiphase fluid mechanics, heat transfer, phase change</li> <li>• Use of HPC</li> <li>• Experience of publication of academic journal papers</li> </ul>
<b>Qualifications, certification and training (relevant to role)</b>	<p>A Master Degree, or equivalent in engineering, applied mathematics or a related subject area, with a major component in fluid modelling or using and/or developing Computational Fluid Dynamics (CFD).</p>	<ul style="list-style-type: none"> <li>• Training in multiphase flow modelling and simulations               <ul style="list-style-type: none"> <li>• Training in computer programming</li> </ul> </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.



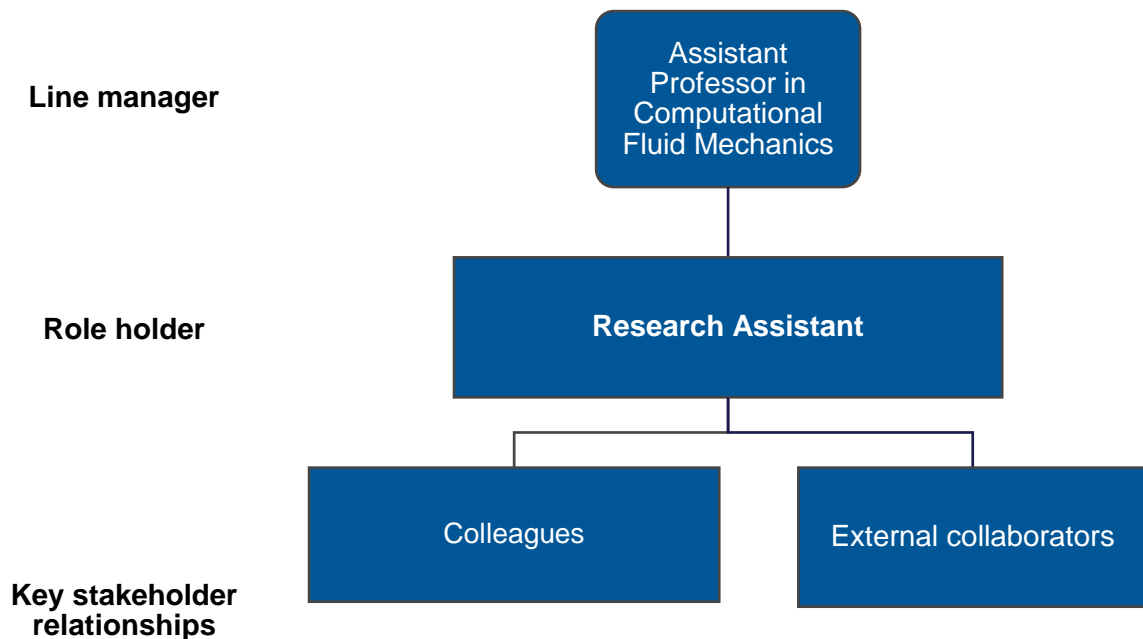
The University is a signatory of the Declaration on Research Assessment (DORA). As such we commit to focus on the scientific content of publications (where requested or provided as part of the recruitment and selection process) as a basis for review of quality, and consideration of value and impact of research conducted, rather than any proxy measures such as Journal Impact Factor.

## 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 friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
- Taking ownership** Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
- Forward thinking** Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
- Professional pride** Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
- Always inclusive** Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

## Key relationships with others







<b>Job title</b>	Research Associate/Fellow	<b>Job family and level</b>	Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
<b>School/ Department</b>	Faculty of Engineering – Department of Mechanical, Materials and Manufacturing Engineering	<b>Location</b>	University Park

## Purpose of role

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	<b>Main responsibilities</b> (Primary accountabilities and responsibilities expected to fulfil the role)	<b>% time per year</b>
1	Conduct high-level research on numerical and theoretical aspects of modelling boiling two-phase flows in microgeometries, implementing novel algorithms within OpenFOAM, perform analyses to elucidate fluid dynamics and heat transfer mechanisms, liaise with experimentalists at Brunel and Imperial to compare and validate results, maintain an organised Github repository of the solver and project results.	60%
2	Supporting the line manager within the project. This will consist in: preparing plans, deliverables, templates, keeping risk and change register, organising meetings, keeping communication with the project partners and funding body, contributing to the intellectual life of the BONSAI project, including interaction with other early stage researchers, participation in network meetings, and in discussions and online activity.	10%
3	Supporting the line manager with writing new research proposals	10%
4	Production of reports and publications, dissemination of results - presentations and travel to conferences, meetings and/or outreach to the industry, scientific community and general public	10%
5	Research Supervision. As a member of the research group, supervise postgraduate students, regularly liaising with researchers and other students in the team. Responsible for training of new researchers and support in ensuring that project objectives are achieved.	5%

6	Any other duties appropriate to this post as required by their line manager	5%
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## Person specification

	Essential	Desirable
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Programming in C++, C or Fortran applied to CFD</li> <li>• Use of Microsoft Office or latex for preparing documents and presentations</li> <li>• Commercial/opensource CFD software</li> <li>• Self-motivating and ability to take the initiative and work with minimum supervision</li> <li>• Good interpersonal communication skills (written and verbal)</li> </ul>	<ul style="list-style-type: none"> <li>• C++ programming for fluid mechanics</li> <li>• Strong organisational skills and project management</li> <li>• Research proposal writing</li> </ul>
<b>Knowledge and experience</b>	<ul style="list-style-type: none"> <li>• Knowledge of multiphase fluid mechanics, heat transfer, phase change</li> <li>• Extensive knowledge and expertise in OpenFOAM including code development or equivalent opensource simulation tool</li> <li>• Experience of publication of academic journal papers</li> <li>• Significant demonstrated ability of team work and supervision of others</li> </ul>	<ul style="list-style-type: none"> <li>• Code development in OpenFOAM</li> <li>• Experience with numerical methods for multiphase fluid mechanics, heat transfer, phase change</li> <li>• Use of HPC</li> <li>• Research proposal writing</li> <li>• Relevant post-doctoral research experience</li> <li>• Experience of publication of academic journal papers</li> </ul>
<b>Qualifications, certification and training (relevant to role)</b>	<ul style="list-style-type: none"> <li>• Degree, or equivalent in a relevant area</li> </ul> <p>and</p> <ul style="list-style-type: none"> <li>• A PhD or equivalent, (or shortly to be completed) in engineering, applied mathematics or a related subject area, with a major component in fluid modelling or using and/or developing Computational Fluid Dynamics (CFD).</li> </ul>	<ul style="list-style-type: none"> <li>• Training in multiphase flow modelling and simulations</li> <li>• Training in computer programming</li> </ul>



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

