

Research Associate in novel refrigeration system for data centres cooling



OPPORTUNITY

Where change gets real.



Reference: 1645-25

Grade: 8

Salary: £38,784 to £41,064, per annum, depending on experience

Contract Type: Fixed Term (until 31st May 2027)

Basis: Full Time

Job description

Job Purpose:

Join Aston University on an Innovate UK–funded project under the Innovate Ukraine programme. EcoVenturi: Sustainable Cooling for Digital Infrastructure is developing and demonstrating a refrigerant-free, air-based cooling and energy-recovery system for Ukrainian data centres and other critical digital infrastructure, targeting significant reductions in cooling-related electricity demand and associated emissions.

We are seeking a well-rounded Post-Doctoral research associate with a strong track record in lifecycle assessment (LCA) and sustainability evaluation to build a rigorous evidence base for the EcoVenturi system. The role will involve developing fit-for-purpose assessment methods and frameworks; collecting high-quality primary data from design, fabrication, laboratory trials and operational deployment; and translating these datasets into robust, defensible environmental benchmarks against conventional cooling approaches.

The post-holder will also contribute directly to the engineering development and validation programme, bringing hands-on capability in 3D CAD and CFD modelling to support design iteration and to undertake aerodynamic and heat-transfer assessments of EcoVenturi components in close collaboration with the industrial partner. In addition, the post-holder will support rigorous full-system laboratory testing of integrated components and subsystems, ensuring modelling assumptions and sustainability conclusions are underpinned by verified performance across component and system levels and aligned with real-world operating conditions.

Main Duties/Responsibilities

- ▶ Collaborate with UK and Ukrainian industrial partners to translate system requirements into engineering deliverables, supporting iterative component and system development through structured design reviews and technical decision-making.
- ▶ Contribute to CAD development for EcoVenturi and associated components/subsystems, producing and maintaining manufacturable models in line with agreed standards.
- ▶ Undertake CFD modelling and analysis to evaluate aerodynamic and coupled heat-transfer performance, including mesh development, boundary-condition definition, solver setup, verification checks, and post-processing to generate design-relevant insights.
- ▶ Plan and execute rigorous laboratory testing of components and integrated assemblies, including test specification, instrumentation selection and calibration support, experimental procedure development, and quality assurance of measured data.
- ▶ Validate and refine modelling using experimental evidence, ensuring high-fidelity modelling and simulation assumptions; quantify uncertainty and sensitivity where appropriate to support defensible performance claims.
- ▶ Develop and implement lifecycle assessment and sustainability evaluation for the EcoVenturi system, defining goal and scope, functional unit, system boundaries, inventory requirements, and impact assessment approach consistent with recognised standards and project needs.
- ▶ Collect, curate, and quality-check primary data from design, fabrication, laboratory trials, and operational deployment; translate these datasets into robust environmental performance indicators and comparative benchmarks against conventional cooling approaches.
- ▶ Maintain high-quality technical documentation and records, including modelling reports, experimental protocols, datasets, design files, and decision logs; ensure version control, metadata completeness, and auditable traceability within the shared project workspace.
- ▶ Prepare project deliverables and stakeholder-ready outputs, such as technical summaries, briefing notes, workshop materials, and partner-facing recommendations, tailored to academic, industrial, and policy audiences.

- ▶ Disseminate research outcomes through peer-reviewed journal publications, conference papers/presentations, and other appropriate knowledge-exchange channels, in line with consortium dissemination plans and IP constraints.
- ▶ Support project management and governance, contributing to milestone planning, progress tracking, risk and issue management, and participation in regular consortium meetings and technical reviews.
- ▶ Uphold research integrity, safety, and compliance, including adherence to laboratory H&S requirements, data management and confidentiality obligations, ethical standards, and responsible research and innovation practices throughout all project activities.

Additional responsibilities

- ▶ Engage in continuous personal and professional development in line with the demands of the role, including undertaking relevant training and development activities.
- ▶ Ensure and promote the personal health, safety and wellbeing of staff and students.
- ▶ Carry out duties in a way which promotes fairness in all matters and which engenders trust.
- ▶ Promote equality of opportunity and support diversity and inclusion as well as working to support the University's environmental sustainability agenda and practices.

Person specification

	Essential	Method of assessment
Education and qualifications	PhD in mechanical - thermal sciences or related field	Application form and interview
Experience	<p>Research experience in thermal/fluid systems and sustainable energy technologies.</p> <p>Practical/research lifecycle assessment (LCA) and sustainability evaluation experience for engineered systems.</p> <p>Experience collecting and quality-checking primary data from design, build, and testing activities.</p> <p>Hands-on CAD modelling experience of mechanical components.</p> <p>Hands-on experience in CFD modelling for aerodynamic and heat-transfer analysis.</p> <p>Laboratory testing experience: test planning, instrumentation, data acquisition and quantifying uncertainty/sensitivity.</p> <p>Experience working in multidisciplinary teams.</p> <p>Experience in producing professional technical reports, datasets, and controlled documentation.</p> <p>Experience in publishing and presenting research outputs: papers, conferences, workshops.</p> <p>Experience working to milestones and contributing to project governance and risk reviews.</p>	Application form and interview

	Essential	Method of assessment
Aptitude and skills	<p>Self-directed and accountable: plans and delivers assigned technical activities with minimal supervision; proactively identifies risks, dependencies, and mitigation actions.</p> <p>Analytical and methodical problem-solver: applies sound engineering judgement, verification thinking, and structured root-cause analysis to modelling and test results.</p> <p>Strong technical communicator: produces clear, audience-appropriate outputs (technical reports, test protocols, LCA framework, documentation, partner briefs, journal papers) and concise visual summaries.</p> <p>High-quality documentation and a traceability mindset: maintains version-controlled models, datasets, and decision logs; ensures reproducibility, metadata completeness, and audit-ready records.</p> <p>Digital working practices: strong Microsoft 365 skills and effective use of collaborative platforms (e.g., SharePoint/Teams/cloud storage), including file governance and access control.</p> <p>Partner-facing professionalism: works effectively with industrial stakeholders across UK/Ukraine, supports technical discussions, and translates requirements into actionable engineering tasks.</p> <p>Team-working and mentoring: collaborates across disciplines and locations, contributes constructively to meetings, and supports the development of others earlier-career researchers.</p> <p>Approachable and collaborative: builds trust quickly, is easy to work with, and</p>	Application form and interview

	Essential	Method of assessment
	<p>supports an inclusive, respectful team environment.</p> <p>“Do first, then discuss” mindset: takes initiative to progress tasks, produce first-pass analyses/prototypes, and bring evidence-based options to the team for decision-making.</p> <p>Constructive challenge and diplomacy: raises concerns early, provides solutions rather than problems, and manages technical disagreement professionally and calmly.</p> <p>Adaptive and resilient: responds positively to evolving priorities, ambiguity, and tight deadlines while maintaining quality and safety standards.</p>	

University values

All staff are expected to demonstrate/promote the University's values and expectations, which are an integral part of our strategy and underpin the culture of the University. In addition, our leaders are expected to be accountable, help to execute strategic visions of the University and share and set clear expectations that inspire those around them.

Values + Behaviours



Innovation

We strive for excellence within ourselves and others, providing solutions to new and existing challenges.



Collaboration

We work best when we are collaborative, working together to contribute to the Aston community.



Ambition

We strive together for improvement and innovation looking ahead to see the bigger picture.



Inclusion

We treat everyone in our community equally and how they would like to be treated.



Integrity

We are open, honest and fair. We take ownership of the way we work and how we treat each other.

How to apply

You can apply for this role online via our website <https://www2.aston.ac.uk/staff-public/hr/jobs>.

Applications should be submitted by 23.59 on the advertised closing date.

All applicants must complete an application form, along with your CV.

Any CV sent direct to the Recruitment Team and Recruiting Manager will not be accepted.

If you require a manual application form, then please contact the Recruitment Team via recruitment@aston.ac.uk.

Contact information

Enquiries about the vacancy:

Name: Dr Ahmed Rezk

Job Title: Reader

Email: a.rezk@aston.ac.uk

Enquiries about the application process, shortlisting or interviews:

Recruitment Team via recruitment@aston.ac.uk or 0121 204 4500.

Additional information

Visit our website <https://www2.aston.ac.uk/staff-public/hr> for full details of our salary scales and benefits Aston University staff enjoy.

Salary scales: <https://www2.aston.ac.uk/staff-public/hr/payroll-and-pensions/salary-scales/index>

Benefits: [Benefits and Rewards | Aston University](#)

Working in Birmingham: <https://www2.aston.ac.uk/birmingham>

Employment of Ex-Offenders: Under the Rehabilitation of Offenders Act 1974, a person with a criminal record is not required to disclose any spent convictions unless the positions they applying for is listed an exception under the act.

Eligibility to work in the UK: Where an individual is subject to UK immigration control, they will require a visa to work in the UK.

The following individuals do not need a visa for the UK, but do still have to prove their right to work before employment can commence:

- **British Citizens or Irish Nationals**
- **EU/EEA/Swiss nationals with Settled or Pre-settled status under the EU Settlement Scheme**
- **Non-EEA nationals with Indefinite Leave to Remain/Settlement in the UK**

The main routes available for those who need a visa to work in the UK are **Skilled Worker**, **Global Talent** and the **Graduate Route**.

Please see UKVI guidance for further information on eligibility, knowledge of English requirements and approved test centres <https://www.gov.uk/skilled-worker-visa> You can also find further information on our candidate immigration [web page](#).

If you will conduct research in your role, you may need to apply for and obtain ATAS clearance before Aston can issue a Certificate of Sponsorship for your visa application. Please see our candidate immigration [web page](#) for further details.

Before you start and Right to Work

Right to Work Check

All employees must complete a Right to Work check before they commence work at Aston. HR will contact you during the onboarding process to arrange your check.

Cost of Living - Estate and Letting Agents

There are numerous Estate and Letting Agents that can help you find suitable accommodation. Useful websites for support and guidance

<https://www.gov.uk/government/publications/how-to-rent/how-to-rent-the-checklist-for-renting-in-england> and <https://www.citizensadvice.org.uk/housing/>

You can also use property search websites such as Rightmove or Zoopla.

Equal Opportunities

Aston University promotes equality and diversity in all aspects of its work. We aim to ensure, through our admissions policies for students, and our staff recruitment and selection processes that we encourage applications from all groups represented in the wider community at a local, national and international level.

The University will endeavour not to discriminate unfairly or illegally, directly or indirectly, against student or potential students, staff or potential staff. This commitment applies to all functions of the University and to any stage of an individual's career.

An Equal Opportunities Monitoring Form is included within the application form. Data you provide on the Equal Opportunities Monitoring Form will be included in a general database, for statistical monitoring purposes, enabling the University to monitor the effectiveness of its Policy, Codes of Practice and Guidelines on Equal Opportunities in Employment. Individuals will not be identified by name.

Data Protection

Your personal data will be processed in compliance with the Data Protection Act 2018 and the General Data Protection Regulation ((EU) 2016/679) ("GDPR"). The University's Data Protection Policy and Privacy Notices, including the Job Applicant Privacy Notice can be found at <https://www2.aston.ac.uk/data-protection>. Your application will only be used to inform the selection process, unless you are successful, in which case it will form the basis of your personal record with the University which will be stored in manual and/or electronic files. Information in statistical form on present and former employees is given to appropriate outside bodies.

Full details of our terms and conditions of service and associated policies and procedures are available online at <https://www2.aston.ac.uk/staff-public/hr/policies>

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