Aston University
BIRMINGHAM UK

Research Assistant

Reference: 0563-26

Grade: 8

Salary: £38,784 to £46,069 per annum (pro-rata)

Contract Type: Fixed Term until 31/12/2028

Basis: Part Time (20 hours per week)

Job description

Job Purpose:

Aston University's Centre for Cybersecurity, Privacy and Trust (CyberHub) is seeking a Research Associate to contribute to cutting-edge research in Internet of Things (IoT), Edge AI, and Tiny Machine Learning (TinyML).

The role will focus on the design and development of battery-less ultra-low-power IoT systems capable of executing secure TinyML visual perception algorithms directly at the edge. The research will investigate novel hardware–software co-design approaches that enable energy-harvesting IoT devices to run AI pipelines for video-based perception under extreme power constraints.

The project aims to build prototype IoT devices operating below 100mW, capable of running TinyML models for object detection and visual analytics using video streams. These systems will support next-generation applications in areas such as security surveillance, smart infrastructure, supply-chain monitoring, and autonomous sensing environments.

The research will be aligned with the UK national flagship £12M EPSRC Edge AI Hub initiative, in which Aston University plays a key role.

The successful applicant will join a rapidly growing research environment within the School of Computer Science and Digital Technologies and will collaborate with leading academic and industry partners working in Edge AI, IoT architectures, embedded systems, and cybersecurity.

The role will also involve supporting graduate students and research activities, contributing to scientific publications, and assisting with project dissemination and collaborative research initiatives. Contributing to teaching activities and student supervision will also be encouraged.

This is an exciting opportunity to contribute to world-leading research on sustainable AI and next-generation intelligent IoT systems.

Main Duties/Responsibilities

- Conduct research on battery-less ultra-low-power IoT architectures capable of running TinyML models for visual perception.
- Design and develop energy-efficient AI pipelines for deployment on constrained embedded devices and microcontrollers.
- Investigate energy harvesting techniques and ultra-low-power computing architectures to enable continuous operation of IoT devices without batteries.
- Develop and implement TinyML algorithms for real-time object detection and visual analytics on video streams under strict resource constraints.
- Design and implement secure IoT frameworks that enable privacy-preserving edge inference.
- Build and evaluate prototype IoT systems integrating sensors, embedded processors, and TinyML inference pipelines.
- Conduct experiments and performance evaluations measuring metrics such as energy consumption, inference latency, and model accuracy.

- Develop proof-of-concept demonstrators for real-world use cases such as surveillance, environmental monitoring, or smart infrastructure.
- Collaborate with project partners and represent the research team at project meetings, workshops, and conferences.
- Contribute to research publications in leading journals and international conferences.
- Assist with project deliverables, technical documentation, and grant applications.
- Support graduate students and contribute to the broader research activities of CyberHub and Aston University.

Person specification

	Essential	Method of assessment
Education and qualifications	• Bachelor's degree in computer science, Electronic Engineering, Artificial Intelligence, Embedded Systems, or a related discipline.	Application form and interview
Experience	• Experience in embedded systems development or IoT platforms. • Experience working with Python, C/C++, or embedded AI frameworks.	Application form and interview
Aptitude and skills	• Ability to deliver complex technical research within an interdisciplinary research team. • Ability to design, implement, and evaluate AI systems on resource-constrained hardware. • Strong analytical and problem-solving skills. • Ability to produce technical documentation, research reports, and scientific publications. • Ability to present research results in meetings, workshops, and conferences.	Application form and interview

	Desirable	Method of assessment
Experience	• Experience developing machine learning or TinyML models. • Experience with TinyML frameworks (TensorFlow Lite Micro, Edge Impulse, TinyML toolchains). • Experience with low-power embedded processors or microcontrollers (ESP32, RISC-V, etc.). • Experience with computer vision or video-based machine learning models. • Experience with energy harvesting technologies or ultra-low-power hardware design.	Application form and interview
Aptitude and Skills	Knowledge of any of the following areas: • IoT architectures and communication protocols • Edge AI and distributed machine learning • Embedded computer vision • Cybersecurity for IoT systems • Energy-efficient AI computing • Hardware–software co-design for AI systems	Application form and interview

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.

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: Prof Jose Maria Alcaraz Calero
Job Title: Director of Aston Research Centre for Cyber Security, Privacy and Trust
Email: j.alcarazcalero@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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