

Candidate Information

Position:	Research Fellow-Edge Software Vulnerability Detection
School/Department:	School of Electronics, Electrical Engineering and Computer Science
Reference:	25/112645
Closing Date:	Monday 21 July 2025
Salary:	£39,922 per annum
Anticipated Interview Date:	Thursday 31 Juy 2025
Duration:	2 Years

JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of National Edge AI Hub (https://edgeaihub.co.uk/) research project/team assisting in the development of research proposals and the planning and delivery of the research activity specifically:

The post is a critical role, and as such, successful applicants will have responsibilities in independent research, supervision, collaborations, and outreach.

MAJOR DUTIES:

- 1. Undertake research, to support the planning and delivery of the research activity, which will include:
 - Understanding Vulnerabilities: Investigate, characterise, and develop ontologies of software vulnerabilities in the edge computing environment.

- Vulnerability Detection: Monitor and/or analyse source code (and data), software behaviours, and software environment (e.g., hardware failure, sensor degradation, etc.) to identify potential vulnerabilities and assess their impacts.

- Remediation and Prevention: Predict or identify vulnerabilities early, to fix them quickly and effectively, preventing potential exploitation. Improve organisations' overall security posture by identifying and mitigating potential weaknesses.

- Anomaly Detection and Malware Detection: Investigate the software quality certification/robustness to cyber disturbances, cyber-attacks, on federated/distributed EC environment.

- Identify quality issues with AI models implementation on edge and on offering mitigation strategies to resolve the challenges.

- 2. Carry out analyses, critical evaluations, and interpretations of experimental data and the literature using methodologies and other techniques appropriate to area of research for example Design of Experiments (DOE), Grounded Theory, etc.
- 3. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team on outputs.
- 4. In consultation with the project team, promote research milestones and outputs at national and international conferences and through social media.
- 5. Assist grant holder in the preparation of funding proposals and applications to external bodies.
- 6. Carry out occasional educational supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
- 7. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

- 1. Have or be about to obtain a PhD degree in Artificial Intelligence, or Software Engineering, or Computer Science with excellent grades.
- 2. Recent relevant research experience to include:
 - Undertaking research in the area Artificial Intelligence, Software Engineering, Edge Computing, and/or Cybersecurity.
 - Hands-on experience with machine learning frameworks, such as PyTorch, Keras, or TensorFlow or others.
 - Solid understanding of edge intelligence and software vulnerabilities.
 - Working effectively as part of a research team in the development and promotion of the research theme.

- 3. Strong publication record commensurate with stage of career.
- 4. Experience of contributing to broader management and administrative processes.
- 5. Evidence of ability to work in a team.
- 6. Demonstrate practical problem solving skills, independence of thought and initiative.
- 7. Proven ability to communicate complex information effectively in oral and written format.
- 8. Proven ability to build relationships/ to develop internal and external networks.
- 9. Ability to assess and organise resources.

DESIRABLE CRITERIA:

1. Experience of translating research findings into educational materials.