

Candidate Information

Position:	Research Fellow - Physical Unclonable Function (PUF)
School/Department:	Centre for Secure Information Technologies
Reference:	19/107982
Closing Date:	Monday 6 January 2020
Salary:	£33,797 to £40,322 per annum.
Anticipated Interview Date:	Tuesday 28 January 2020
Duration:	30 months

JOB PURPOSE:

To conduct research into software-based PUF designs for embedded microprocessors. This research forms part of a £1.3M project, SIPP, to develop a novel secure IoT processor platform with remote attestation implemented on a RISC-V architecture. It brings together the core academic partners of the Research Institute in Secure Hardware and Embedded Systems (RISE), that is, Queen's University Belfast and the Universities of Cambridge, Bristol and Birmingham, with the National University of Singapore and Nanyang Technological University. The successful candidate will be based at the Centre for Secure Information Technology (CSIT), Institute of Electronics Communication and Information Technologies (ECIT), Queen's University Belfast.

MAJOR DUTIES:

1. Conduct research into software-based PUF designs for embedded micro-controllers; conduct a security and performance analysis of the proposed designs and evaluate their entropy.
2. Actively contribute to the general planning and delivery of the overall research project activities.
3. Present progress reports on research to the RISE research community, to CSIT industry advisory board members or to external audiences to disseminate and publicise research findings.
4. Prepare, in consultation with supervisor, material for publication in national and international journals and presentations at international conferences.
5. Assist in the preparation of funding proposals and applications to external bodies.
6. Carry out routine administrative tasks associated with the research project. This might include organisation of project meetings and documentation, financial control, risk assessment of research activities.
7. Carry out occasional undergraduate/postgraduate student project supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
8. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.
9. Any other duties that may reasonably be requested by the programme supervisor.

Planning and Organising:

1. Plan own day-to day activity within framework of the agreed research programme.
2. Plan up to a year in advance to meet deadlines for journal publications and to prepare presentations and papers for conferences.
3. Coordinate and liaise with other members of the SIPP project over work progress.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Provide guidance as required to support staff and any students who may be assisting with research.

Internal and External Relationships:

1. Liaise on a regular basis with SIPP partners to contribute to project work.
2. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.

3. Collaborate with staff in industry, other universities and other research laboratories nationally and internationally as appropriate.
4. Contribute to the School's outreach programme by establishing links with local community groups, industries etc.

ESSENTIAL CRITERIA:

1. 2:1 Honours degree in Electrical and Electronic Engineering/Computer Science/Mathematics (or related discipline).
2. Have or be about to obtain a PhD in a relevant subject.
3. At least 3 years recent relevant research experience in embedded systems design, hardware design and/or hardware/software co-design.
4. Evidence of a strong publication record commensurate with career stage and experience.
5. Ability to contribute to broader management and administrative processes.
6. Ability to contribute to the School's outreach programme by establishing links with industry, community groups etc.
7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
8. Good written and verbal communication skills.
9. Ability to communicate complex information clearly.
10. Demonstrable intellectual ability.
11. Ability to innovate and rapidly contribute to research projects.
12. Willingness to visit collaborative partners and to attend meetings and conferences nationally and internationally as requested.

DESIRABLE CRITERIA:

1. Demonstrable Expertise in PUF design.
2. Ability to build contacts and participate in internal and external networks.
3. Experience of collaborative research or working in a team is desirable.