Candidate Information

Position:	Research Fellow in Post-Quantum Cryptography
School/Department:	Centre for Secure Information Technologies
Reference:	19/107970
Closing Date:	Monday 6 January 2020
Salary:	£33,797 per annum
Anticipated Interview Date:	Thursday 23 January 2020 or Monday 27 January 2020
Duration:	Three years

JOB PURPOSE:

To conduct research into the design and implementation of practical, robust and physically secure post-quantum cryptographic architectures at the Centre for Secure Information Technology (CSIT), at the Institute of Electronics Communication and Information Technologies (ECIT), Queen's University Belfast. This research is part of the £24M Quantum Communications Hub project.

MAJOR DUTIES:

1. Conduct research into the design and implementation of practical, robust and physically secure post-quantum cryptographic (PQC) architectures and to investigate the integration of PQC with QKD systems.
2. Actively contribute to the general planning and delivery of the overall research project activities.
3. Present regular progress reports on research to external audiences to disseminate and publicise research findings.
4. Represent CSIT at standardisation activities related to post-quantum cryptography.
5. Prepare, in consultation with supervisor, material for publication in national and international journals and presentations at international conferences.
6. Assist in the preparation of funding proposals and applications to external bodies.
7. 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.
8. Carry out occasional undergraduate supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
9. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.
10. 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 collaborative 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 collaborative partners, if any, 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 one or more of the following:
   - embedded systems design
   - FPGA or ASIC hardware 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 hardware/software design and implementation of cryptographic architectures.
2. Demonstrable Expertise in post-quantum cryptography (eg lattice-based cryptography).
3. Demonstrable Experience in standardisation initiatives.
4. Ability to build contacts and participate in internal and external networks.
5. Experience of collaborative research or working in a team is desirable.