

## Job Details

<b>Position:</b>	<b>Lecturer/Senior Lecturer/Reader in Cyber Security</b>
<b>School/Department:</b>	<b>School of Electronics, Electrical Engineering and Computer Science</b>
<b>Reference:</b>	<b>21/109185</b>
<b>Closing Date:</b>	<b>Monday 4 October 2021</b>
<b>Salary:</b>	<b>Lecturer: £37,467 - £51,799 per annum Senior Lecturer: £53,348 - £61,818 per annum Reader: £60,022 - £65,573 per annum</b>
<b>Anticipated Interview Date:</b>	<b>Monday 25 or Tuesday 26 October 2021</b>

### JOB PURPOSE:

You will develop, lead and sustain research of international standard within the Centre for Secure Information Technologies (CSIT) aimed at developing the UK's cyber security capability. Undertaking world class innovative, mission-led research programmes, and complementing your research, you will deliver an excellent student experience via research led teaching and assessment, contributing to innovative curriculum design at undergraduate and postgraduate levels in the School of Electronics, Electrical Engineering and Computer Science (Computer Science modules). You will contribute to administration/outreach activity, specifically developing links with a range of international and local industry partners.

For appointment at Reader you will have an outstanding track record of national and international distinction and leadership in research, including publications, income, and awards, bringing external recognition and distinction to yourself and the University.

### MAJOR DUTIES:

#### Research:

1. To lead and undertake research in one or more of the following research areas: hardware & embedded systems security; applied cryptography; security of artificial Intelligence; industrial control system security; network forensics; security of software defined networks; that is of a quality that is internationally excellent in terms of output, originality, significance, and rigour.
2. Supervise relevant research programmes within CSIT and the School's research structures individually and as part of a team.
3. Regularly publish research in international peer reviewed journals or archival conferences (e.g., IEEE & ACM) in the subject area, with a high majority of publications in the top-quartile of venues in the subject area and a significant number of publications in the top-decile, depending on career stage.
4. Source and secure external funding from the relevant funding bodies to ensure continued growth. Demonstrate a sustained stream of funding from national or international bodies over the career period (Senior Lecturer/Reader), or potential to attract external funding, including individual fellowships (Lecturer).
5. To work as part of a team to undertake innovative, ambitious impactful research programmes.
6. Demonstrate and enhance relevant measures of esteem that will strengthen the international reputation of CSIT and the School.
7. Demonstrate tangible research impact (Senior Lecturer/Reader) or potential for research impact, both within the academic discipline (e.g., citation impact) and beyond the academic discipline (e.g., economic, or societal impact).
8. Where appropriate, explore opportunities to exploit research through the appropriate commercialisation vehicle e.g., spin-out company, licensing deals, knowledge transfer partnership, contract research etc.
9. Build and lead an active team of high-quality post-graduate research students, research assistants and post-docs (Senior Lecturer/Reader) or demonstrate ability to engage, mentor and develop post-graduate or post-doctoral researchers (Lecturer).
10. Develop and maintain an excellent international research profile, evidence by peer reviews of research output quality, impact, conference organisation, engagement with professional bodies (Senior Lecturer/Reader).

#### Teaching:

1. Develop the teaching activities of the School by pursuing new and innovative teaching approaches taking the responsibility for the quality of course units and delivering a range of teaching and assessment activities at undergraduate and/or postgraduate level within computer science, including lectures, setting/markng coursework, and practicals.

2. Supervise undergraduate and postgraduate taught students in practical and project-based work as appropriate to the relevant courses of study.
3. Help to develop and enhance appropriate teaching approaches and contribute to curriculum development, including the development of innovative, relevant, and highly marketable postgraduate teaching programmes.
4. Contribute to student recruitment (including Open Days etc.) and student support mechanisms e.g., Personal Tutor Scheme.
5. Contribute to the School's internationalisation efforts with a view to attract a significantly higher number of international students to the School, across all School programs.
6. Lead major elements of programme development, including new course structures and curricula (Senior Lecturer/Reader).
7. As required manage major teaching administrative functions such as accreditation and quality enhancement (Senior Lecturer/Reader).
8. Deliver more challenging modules e.g., specialist MEng or MSc modules (Senior Lecturer/Reader).

**Citizenship:**

1. Contribute to CSIT, ECIT and the School's outreach and internationalisation strategies by developing external links.
2. Act as internal and external examiner for undergraduate and postgraduate students and programmes (Senior Lecturer/Reader).
3. Carry out designated CSIT, ECIT and School administrative duties including, for example, committee work, working group leadership or course administration.
4. Demonstrate experience in administration and leadership roles.
5. Demonstrate leadership ability via strong contribution to existing School activities or new initiatives that help the School achieve its key objectives.
6. Contribute to the senior management activities of the School by taking on appropriate roles such as Director of Education, Module/Year/Programme Co-ordinator, or other recognised official University roles (Senior Lecturer/Reader).
7. Act as mentor or appraiser to colleagues advising on their personal development and ensuring that they are meeting the standards required (Senior Lecturer/Reader).
8. Contribute to relevant professional bodies; engage in consultancy for industry and community organisations (Senior Lecturer/Reader).
9. Active participation in and support of the Personal Development Review (PDR) process.

**ESSENTIAL CRITERIA:**

1. \* PhD in Computer Science, Computer Engineering, or closely related discipline.
2. \* Three years postdoctoral research experience in cybersecurity.
3. \* High quality research (commensurate with career stage) in hardware & embedded systems security; applied cryptography; security of artificial Intelligence; industrial control system security; network forensics; and/or security of software defined networks, as evidenced by verifiable involvement in the generation of milestone papers in leading conferences and journals, noteworthy demonstrators or internationally leading capability or major funding initiatives.
4. \* Evidence of independent contribution in research projects and outputs and potential to establish an independent sustainable research program.
5. \* Candidates at Reader level are expected to demonstrate an internationally excellent research standing and ability to lead research initiatives.
6. \* A strong track record of research income earned via competitive means of funding as Principal Investigators (for candidates at Senior Lecturer or Reader), or evidence of potential to secure research income (for candidates at the Lecturer grade).
7. \* Ability to form and manage a sizeable research group, including a track record of post-graduate student and post-doctoral staff supervision (for candidates at the Senior Lecturer or, Reader grade).
8. \* Relevant teaching experience (with an ability to teach in computer science) commensurate with career stage, this can include, but is not limited to, undergraduate or postgraduate teaching, assessment, and/or industrial training activities.
9. \* For candidates at the grade of Senior Lecturer, or Reader, a strong track record of leadership, demonstrated as evidence of major initiatives that significantly improved education, research or administrative processes.
10. A record of collaboration with and links to industry, or other activities aiming at achieving broader societal and economic impact, (for Senior Lecturer and Reader Grade).
11. Proven ability to plan and deliver a programme of research and develop techniques, sources of funding and/or proven skills in coaching and developing others in best practice techniques (for Senior Lecturer or Reader grade).
12. Excellent oral communication and presentation skills, with sufficiently developed English Language skills to deliver Undergraduate and Postgraduate education.

13. Ability to provide effective leadership (at a more strategic level (for Senior Lecturer/Reader).
14. Understanding of resource management processes and skills to apply them effectively.
15. Commitment to academic research and high quality teaching that fosters a positive learning environment for students.
16. Commitment to personal and professional development.
17. Please demonstrate (by providing a clear and unambiguous statements) how your qualifications, skills and experience meet the essential and, if appropriate, desirable criteria which are outlined in the Job Details. In particular, should any criteria be marked with an asterisk, you should clearly demonstrate how you meet this criteria as they will be used at shortlisting stage.

#### **DESIRABLE CRITERIA:**

1. \* Completed PGCHET (or equivalent) with HEA membership.
2. \* Significant research expertise in relevant areas depending on academic position, as follows:
  - Hardware & Embedded Systems Security: Hardware cryptographic architectures, physical unclonable function, side channel analysis, security of microprocessor architectures, and/or hardware Trojan detection.
  - Applied Cryptography: hardware and software implementation of advanced cryptographic algorithms (e.g., post-quantum, homomorphic encryption), security protocol design, privacy-preserving cryptographic protocol design and implementation.
  - Security of AI: Adversarial learning and/or testing, mitigations against poisoning, evasion, and backdoor attacks.
  - Network forensics and/or software defined networks: Network intrusion detection, vulnerabilities in SDNFV networks, analytics-based monitoring, and forensics capabilities.
  - Industrial control system security: Resilience in ICS, cyber-physical situation awareness in IT-OT systems, Programmable Logic Controller security.
  - Significant research measures of esteem in relevant areas depending on academic position.
3. \* Strong peer reviews of teaching.
4. \* Teaching awards.
5. \* Demonstrable record of enhancing teaching activities by pursuing new and innovative teaching approaches, in turn enhancing the student experience.
6. \* Contribution to a wider range of community outreach programmes/initiatives in designing and delivering innovative new programmes.
7. Measurable societal and economic impact, in particular contribution to industry roadmaps and technology transfer to industry, with associated evidence. (for Lecturer grade).

#### **Additional Information:**

Do you have Leadership potential in Hardware and Embedded Systems Security; Applied Cryptography; Security of AI; Network Forensics; or ICS Security, capable of developing the UK's cyber security capabilities and developing innovative mission-led research programmes?

You will be based at the Centre for Secure Information Technology (CSIT) which is an Innovation and Knowledge centre in cyber security funded by EPSRC and Innovate UK since 2009. Uniquely for a UK research centre we have grown a significant engineering capability who work alongside commercial, innovation and policy professionals with deep domain expertise to accelerate our research to market.

CSIT staff have received numerous research awards including a Queen's Anniversary Prize in 2015 and a prestigious Regius Professorship in Electronics and Computer Engineering (currently assigned to Professor Maire O'Neill, CSIT's Director). CSIT is host to the UK Research Institute in Hardware Security and Embedded Systems (RISE: [ukrise.org](http://ukrise.org)) and has projects under the Research Institute in Trustworthy Interconnected Cyber-physical Systems (RITICS). It is recognised by NCSC as an Academic Centre of Excellence (ACE) in Cyber Security Research and in Cyber Security Education. This affords staff the opportunity to apply for

studentships and small grants only available to ACE institutions.

Successful candidates will inspire students and facilitate motivational learning. In particular, you will be expected to teach on our undergraduate Computer Science programme or on the MSc in Applied Cyber Security.