

## RESOURCING/

## JOB DESCRIPTION:

### Research Associate



<b>Ref Number:</b>	<b>CEMS-014-20-R</b>
<b>Salary Scale:</b>	<b>Grade 7: £34,804 to £39,152 per annum</b>
<b>Contract:</b>	<b>For a fixed term period of 2 years AND Full-time</b>
<b>School/Department:</b>	<b>School of Computing</b>
<b>Location:</b>	<b>University of Kent, Canterbury Campus</b>
<b>Responsible to<sup>1</sup>:</b>	<b>Prof Julio Hernandez-Castro</b>
<b>Expected start date:</b>	<b>As soon as possible</b>

The School of Computing is a welcoming and diverse environment that has been recognised with a Bronze Athena SWAN award. Our staff and students come from all over the world, and we are proud of our friendly and inclusive culture. We support colleagues through a number of family-friendly policies, including a core hours policy and the right to apply for flexible working, and support for staff returning from periods of extended absence (for example, parental leave).

### The Role

The School of Computing wishes to appoint a highly qualified and motivated research associate to work in a project funded by the Quantum Communications Hub v2. You will work with Professor Julio Hernandez-Castro and Dr. Carlos Perez-Delgado on the analysis and testing of random number generators, including Quantum Random Number Generators. The main objective of such a research would be to improve on existing generation and testing methodologies, and also to critically evaluate current certification schemes with the objective of devising new certification paths that would be more adept to TRNGs and QRNGs.

Full details about teaching and research in the School can be found on our website:

[www.kent.ac.uk/computing](http://www.kent.ac.uk/computing)

<sup>1</sup> Line Manager may be subject to change and will be confirmed in the employment contract issued to the successful candidate.



## Key Accountabilities / Primary Responsibilities

The advertised position is for a duration of 24 months (full time) and will provide the successful candidate with a rich collaborative environment: it is positioned within the vibrant and expanding Cybersecurity Research Group at University of Kent's School of Computing Canterbury campus.

You will have a sound background in programming, particularly in python, with good statistical abilities and familiarity with randomness tests and hardware analysis. You will have excellent analytical and writing skills. This role includes the collection and processing of output for a variety of hardware devices. You would be responsible for employing existing randomness tests and developing new ones. The ability to work independently and also as part of a team is essential, along with strong organisational skills and the ability to work on a variety of tasks with deadlines. The post could involve some travel between the University campus in Canterbury and York, in addition to some international travel for presenting at conferences.

## Key Duties

- To develop new randomness tests that outperform existing ones
- To contribute in the collection of randomness data from a variety of hardware devices, including QRNGs
- To implement efficient variants of existing and new randomness tests
- To assist in the development, integration, analysis and visualisation methods for analysing supposedly random data
- Assist in the writing up of results for publication in leading academic journals as well as contributing to patent write up
- Present research outcomes from the project at academic venues
- Assist in the writing up of results for dissemination to a general audience and relevant user-groups
- Participate in engagement with academics, industry partners and policy makers
- Travel occasionally between University campuses and other places as necessary (notably York) to conduct the research and engage with interested parties
- Work (if required) on preparing and submitting grant applications
- Keeping abreast of academic literature in neighbouring research areas
- Other general duties commensurate with a postdoc or RA position

Such other duties, commensurate with the grading of the post that may be assigned by the Head of Department or their nominee.

## Health, Safety & Wellbeing Considerations

This role involves undertaking duties which include the Health, Safety and wellbeing issues outlined below. Please be aware of these, when considering your suitability for the role.

- Regular use of Screen Display Equipment

## Internal & External Relationships

**Internal:** Prof Julio Hernandez-Castro and Dr Carlos Perez Delgado. Other relevant UoK colleagues and PhD students as necessary to carry out the project.

**External:** York's Department of Mathematics and the NPL (National Physics Laboratory)

## Person Specification

The Person Specification details the necessary skills, qualifications, experience or other attributes needed to carry out the job. Please be aware that your application will be measured against the criteria published below.

Selection panels will be looking for clear evidence and examples in your application, or in your cover letter where applicable, which back-up any assertions you make in relation to each criterion.

Qualifications / Training	Essential	Desirable	Assessed via*
Completed M.Sc in Computer Science, Cyber Security or Statistics	✓		A
PhD (or nearing completion of study for one) or equivalent, in Computer Science, Engineering, Mathematics, or a closely related discipline, especially with research interests in practical applications of cybersecurity or statistics.		✓	A, I

Experience / Knowledge	Essential	Desirable	Assessed via*
In-depth knowledge and hands-on experience with programming in python or a similar quick prototyping language	✓		A, I
Basic knowledge on Statistics	✓		A, I
Basic hardware programming and interaction via APIs and other means of hardware communication (JTAG, etc.)	✓		A, I
Good familiarity with existing computer security certification standards (Common Criteria, etc.)		✓	A, I
Experience of presenting to professional and/or academic audiences		✓	A, I

A good record of peer-review publications on scientific journals and conferences in relevant discipline(s)		✓	A, I
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Skills / Abilities	Essential	Desirable	Assessed via*
Excellent analytical and problem solving skills	✓		A, I
High level interpersonal and communication skills, and ability to communicate effectively with a wide range of stakeholders	✓		A, I
Excellent skills in planning and prioritisation, and ability to meet deadlines	✓		A, I
Ability to act on own initiative within the framework of the aims and methods of the project	✓		I
Experience of assisting project management such as networking building and stakeholder engagement		✓	A, I

Additional Attributes	Essential	Desirable	Assessed via*
Ability to work independently on own initiative, but also successfully as a team member	✓		I

**\*Criterion to be assessed via:**

**A = application form or CV/cover letter**

**I = interview questions**

**T = test or presentation at interview**