

Research Role Profile

Job Title:	Research Fellow A
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Responsible to:	Head of research group, or principal investigator
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Responsible for:	Not applicable
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Job Summary and Purpose:
To undertake research in accordance with the specified research project(s) under the supervision of the principal investigator.

Main Responsibilities/Activities
<p>To undertake a range of research activities within a specified research area, assuming responsibility for specific areas of projects and making use of new research techniques and methods, in consultation with the research award holder or supervisor. This may include fieldwork, interviews, laboratory experimentation, critical evaluation and interpretation, computer-based data analysis and evaluation or library research.</p> <p>Using initiative and creativity to identify areas for research develop new research methods and extend the research portfolio. Analysing and interpreting results of own research. Write up results and prepare papers for submission to appropriate journals and conferences, and other outputs as required and/or appropriate. Attend appropriate conferences for the purpose of disseminating research results of personal development. The post holder may also contribute to writing bids for research grants and will contribute to collaborative decision making with colleagues in areas of research.</p> <p>Continually to update knowledge and develop skills, and translate knowledge of advances in the area into research activity.</p> <p>To plan and manage own research activity in collaboration with others. To carry out administrative tasks associated with specified research funding, for example risk assessment of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control.</p> <p>To contribute to teaching in the Faculty by carrying out student supervision and/or demonstrating within the post holder's area of expertise and under the direct guidance of a member of departmental academic staff, as appropriate.</p> <p>The post holder may occasionally be required to supervise more junior research staff.</p>

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Person Specification

The post holder must have:

A doctoral degree in a relevant discipline (although individuals who have almost completed a doctoral degree may be appointed). Consideration may also be given to individuals who do not hold a doctoral degree but have required skills based on a number of years experience in specified / relevant fields

The post holder will have authority over some aspects of project work and must be capable of providing academic judgement, offering original and creative thoughts and be able to interpret and analyse results.

Relationships and Contacts

Direct responsibility to the principal investigator or academic supervisor. The post holder may be asked to serve on a relevant Faculty committee. There may be additional reporting and liaison responsibilities to external funding bodies or sponsors. The post holder may work on original research tasks with colleagues in other institutions.

Special Requirements

To be available to participate in fieldwork as required by the specified research project

All staff are expected to:

- Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities policy.
- Help maintain a safe working environment by:
 - Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand
 - Following local codes of safe working practices and the University of Surrey Health and Safety Policy
- Undertake such other duties within the scope of the post as may be requested by your Manager.

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Addendum to Role Profile

Job Title:	Research Fellow in the Security Analysis of Classical and Post-Quantum Public Key Cryptography Assumptions
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Job Summary and Purpose:

This information sheet should be read in conjunction with the accompanying generic Research RA1A Role Profile and will be used for shortlisting processes. More specifically the post holder will be expected to:

- (i) Carry out research into the computational problems specified in the project, with a view to understanding their complexity, their connections with other problems, and their strengths and possible weaknesses.
- (ii) Design and develop proof-of-concept algorithms based on insights derived from the research and analyse the resulting complexities of the problems.
- (iii) Work with representatives from the industrial project partners, the Ethereum Foundation and PQShield, both during and between project meetings, and collaborate on an ongoing basis with members of academic project partner K.U. Leuven, namely, Prof. Vercauteren and his group within COSIC.
- (iv) Publish and present research in high-quality international conferences and/or journals.
- (v) Contribute to participative research engagement events and activities with stakeholders.
- (vi) Meet on a weekly basis with the Principal Investigator and attend project meetings, collaboration visits and relevant conferences and workshops.
- (vii) Pro-actively organise and manage own time and research-related activities.
- (viii) Report orally and prepare papers reporting progress and delivery of project outcomes and be able to communicate at both technical and high-level, for example with project partners and at other sites as required.
- (ix) Perform any other duties associated with the project, as deemed appropriate to the grade by the Principal Investigator.
- (x) Promote the research and activities of the project and the Surrey Centre for Cyber Security (SCCS) in national and international forums.

Main Responsibilities/Activities

- (i) Work with the Principal Investigator and collaborate with the project partners, on the work packages listed in the Job Advert. A public summary of the project is available here:
<https://gow.epsrc.ukri.org/NGBOViewGrant.aspx?GrantRef=EP/W021633/1>
- (ii) Meet on a weekly basis on campus with the Principal Investigator and wider research group (SCCS).
- (iii) Attend project meetings and present results at other sites as required.

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- (iv) Give oral and written reports on project progress and outcomes. Be able to report at both a technical low-level and conceptual high-level to a range of audiences including the public and industry.
- (v) Continually update knowledge and develop skills.
- (vi) Plan own day-to-day research activity within the framework of the project, dealing with problems that may affect the achievement of research objectives and implementing procedures required to ensure accurate and timely delivery.

Person Specification

The post holder must have:

- (i) Doctoral level research experience in computer science, computational number theory, or a related field.
- (ii) Significant research experience in Mathematical Cryptography, as demonstrated by publications in excellent relevant conferences and/or journals.
- (iii) Software development experience relevant to the computational problems to be researched.
- (iv) Ability to work independently, with strong organisational and time management skills.

The post holder would ideally have:

- (i) A track record of developing efficient algorithms and/or cryptanalysis results.
- (ii) Strong writing and verbal skills across different levels of technical audience are desirable.

Relationships and Contacts

Direct responsibility to Principal Investigator Dr. Robert Granger

Informal enquiries are welcome and should be directed to Dr. Robert Granger,
r.granger@surrey.ac.uk