UNIVERSITY OF WARWICK

Job Description

Job title	Research Fellow
Department	School of Engineering
Grade	FA6

Job purpose (a brief summary of the role)	Undertake research in order to support the work of the School and develop and enhance its reputation, both internally and externally. Assist the Principal Investigator and, where appropriate, project collaborators in the successful execution of an industrial innovation project titled 'Hybrid Cyber Range for Cyber-Physical Energy Systems'
Duties and responsibilities	**Research and Scholarship:** 1. Formulate and develop novel mathematical risk analysis, threat modelling, and resilience enhancement methods for cyber-physical energy systems. 2. Translate theoretical risk and resilience frameworks into practical proof-of-concept software tools, algorithms, and prototype implementations. 3. Integrate and evaluate software prototypes and mitigation strategies within the hybrid cyber range environment to validate energy infrastructure security against evolving cyber threats. 4. Conduct high-quality independent and collaborative research as part of a dynamic research team 5. Publish research findings in top-tier, international peer-reviewed journals and present at leading conferences in cyber security and energy systems. 6. Help establish a sound research base within the department in order to assist the development of research objectives and proposals for own or joint research. 7. Translate knowledge of advances in the subject area into research activity. 8. May contribute to preparing proposals and applications to external bodies, e.g. for funding and contractual purposes, to support a developing research agenda. 9. Continually update own knowledge and understanding in field or specialism. **Project Delivery & Management** 1. Ensure project objectives, deliverables, and milestones are achieved within agreed timeframes. 2. Produce and present regular project progress reports for project steering groups, funding bodies, and industrial project partners across the UK. **Teaching and Learning Support** 1. Assist in the supervision of student projects and the development of student research skills. 3. May be involved in the assessment of student knowledge and supervision of projects. **Administration and Other Activities** 1. To contribute to School of Engineering committees and administrative duties and tasks. 2. Work within budget constraints. 3. To ensure compliance with Health and Safety, and other University regulations and good working practices in all aspects of work. The duties and responsibilities outlined are not intended to be an exhaustive list but provide guidance on the main aspects of the job. The post holder will be required to be flexible in their duties, and to ensure compliance with health and safety and equal opportunities in all aspects of work. Occasional weekend, evening and overseas working may be required, in turn the School offers flexible working where possible.

Person Specification

The Person Specification focuses on the essential and desirable knowledge, skills, experience and qualifications required to undertake the role effectively. This is measured by (a) Application Form, (b) Test/Exercise, (c) Interview, (d) Presentation.

Essential Criterion No.	Essential Criterion Description	Measured by
E1	Good honours degree (2.1 minimum) or equivalent in a relevant subject.	A
E2	A PhD or equivalent in a relevant discipline (or nearing completion).	A
E3	Strong background at the intersection between power grids, information technology, communications, and cyber security.	A,C & D
E4	Knowledge and experience in machine learning and programming.	A,C & D
E5	Knowledge of power grid communication protocols such as IEC 61850 and experience of working with power grid simulators such as Digsilent, PSCAD or ETAP.	A,C & D
E6	Prior experience of working with real-time cyber-physical simulators such as RTDS or OPAL-RT will be a strong plus.	A,C & D
E7	Proven ability in research and evidence of quality research output in relevant field.	A,C & D
E8	A developing research profile with the ability to publish and/or produce high quality research output.	A,C & D
E9	Sufficient breadth or depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.	A & C
E10	Ability or potential to contribute to the development of funding proposals in order to generate external funding to support research projects.	A,C & D
E11	Demonstrable ability to work collaboratively and effectively with academic and administrative colleagues, both within and outside the University, to promote a collegial environment, while contributing to the life and community of the School through various duties, such as supporting offer holder days and outreach activities, which may occasionally require weekend work.	A & C
E12	Good IT skills including Microsoft Office and proven ability to use IT to write technical research papers and presentations.	A,C & D
E13	Able to evidence excellent interpersonal skills with relevant experience of working independently and as part of a team. Able to evidence strong time management and organisational skills.	A,C & D
E14	Strong communication skills including the ability to communicate effectively in English, both verbally and in writing.	A,C & D
E15	Understanding of equal opportunity, safeguarding and prevent as they may impact on areas of research content.	C

Desirable Criterion No.	Desirable Criterion Description	*Measured by*
D1	Knowledge of computer networking and cyber security including cyber security standards for OT operations (IEC 62351/ IEC 62443).	A,C & D
D2	Knowledge of cryptographic techniques for message authentication, integrity, and confidentiality check.	A,C & D
D3	Experience with computer networking (or software-defined networking) and penetration testing (network or device level), including experience with collaborative software development (e.g. open source).	A,C & D
D4	Experience with Python and machine learning libraries.	A,C & D