Job Related Information

This document includes information about the role for which you are applying and the information you will need to provide with your application.

1. Role Details

<table>
<thead>
<tr>
<th>Vacancy reference</th>
<th>13785</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job title:</td>
<td>Post Doctoral Research Associate</td>
</tr>
<tr>
<td>Reports to:</td>
<td>Bashar Nuseibeh, Professor of Computing</td>
</tr>
<tr>
<td>Salary:</td>
<td>£29,799 - £38,833</td>
</tr>
<tr>
<td>Terms and conditions:</td>
<td>Research</td>
</tr>
<tr>
<td>Grade</td>
<td>AC1/2</td>
</tr>
<tr>
<td>Duration of post:</td>
<td>24 months</td>
</tr>
<tr>
<td>Working hours:</td>
<td>Full Time</td>
</tr>
<tr>
<td>Location:</td>
<td>Walton Hall, Milton Keynes</td>
</tr>
<tr>
<td>Closing date:</td>
<td>Noon on 23 March 2018</td>
</tr>
<tr>
<td>Type of application form accepted:</td>
<td>Short</td>
</tr>
<tr>
<td>Number of referees required:</td>
<td>Three</td>
</tr>
<tr>
<td>Unit recruitment contact:</td>
<td>Mary Dahunsi</td>
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</tbody>
</table>
2. Summary of duties

**Overall Purpose**
This position involves investigating and developing human-centred technical interventions to support secure software development. The research will be carried out as part of the EPSRC-funded “Johnny” project, which involves a multi-disciplinary team that spans software engineering, security engineering, and psychology.

**The Project**
The research project is entitled “Why Johnny doesn’t Write Secure Software: Secure Software Development by the Masses” (https://writingsecsuresoftware.org).

Developing software is no longer the domain of the select few with deep technical skills, training and knowledge. Mobile and web app development and easy-to-program hardware devices, such as Arduino and Raspberry Pi, have resulted in a wide range of people from diverse backgrounds developing software. This diversity of developers is at the heart of a range of innovations in the digital economy. The software they produce can be, and is, deployed across systems pervasive in many aspects of human activity and is used by a global user base. However, little is currently understood about the security behaviours and decision-making processes of ‘the masses’ engaged in software development. In this project (“Why Johnny doesn’t write secure software?”), we aim to develop a deep foundational understanding of these issues. Following Whitten and Tygar’s archetypal user, in this case Johnny’s are the variety of people with diverse backgrounds, know-how and cyber security expertise who can, and are, developing software used, potentially, by millions worldwide.

The project is already conducting research into understanding developers’ awareness and planning with respect to security; their security decision strategies and processes and the cognitive biases that shape their programming choices and actions; and effectiveness of interventions to support/improve their security behaviours. You will contribute innovative research that puts you at the forefront of work into humans dimensions of cyber security. The project offers an exciting opportunity to combine research concepts and ideas with real world problems and their solutions.

**Main Duties**
- Conducting research on innovative human-centred technical interventions to support secure software developers practices, based on empirically informed understanding and awareness of and planning with respect to security (such as software developers’ security decision strategies and processes and the cognitive biases that shape their programming choices and actions; and effectiveness of interventions to support/improve their security behaviours).
- Co-ordinating research activity with other project members
- Working collaboratively with members of the research team to produce a series of high quality academic publications and to disseminate the results to user groups
- Contributing to the research culture and activities of the Software Engineering and Design (SEAD) Group and School of Computing and Communications.
- Joining a thriving inter-disciplinary research team at The Open University’s SEAD Group (http://sead1.open.ac.uk), in collaboration with research colleague at the University of Bristol, (Prof. Awais Rashid), University of Exeter (Prof. Mark Levine), the University of Lancaster (Dr John Towse), and a range of international collaborators. There is a strong expectation that you will actively contribute to the strong profile of the Centre and its inter-disciplinary ethos through participation in the development and publication of research results

**All Staff are expected to:**
- Undertake any other duties which may reasonably be required
- Take reasonable care of the Health and Safety of themselves and that of any other person who may be affected by your acts or omissions at work
- To demonstrate a strong commitment to the principles and practice of equality and diversity.

3. Person specification
Requirements  (E = Essential/ D = Desirable)

Education, qualifications and training

Successful completion (or near completion) of a PhD in a relevant subject area

Knowledge, work and other relevant experience

**Essential:**
- Knowledge and experience of undertaking innovative research in software engineering, including experience of design and implementation of software engineering tools
- Knowledge and Experience of conducting empirical studies of software developers and/or software systems
- Experience of publishing in international venues

**Desirable:**
- Experience working in interdisciplinary teams
- Knowledge and experience of secure programming practices and tools
- Knowledge and experience of mobile software security (e.g. for Android platforms)

Personal abilities and qualities

**Essential:**
- Excellent communication and interpersonal skills
- Ability to work independently

**Desirable:**

4. Role specific requirements e.g. Shift working

5. About the unit/department

The Open University

The Open University’s mission is to be open to people, places, methods and ideas. We promote educational opportunity and social justice by providing high quality university education to all who wish to realise their ambitions and fulfil their potential. Through academic research, pedagogic innovation and collaborative partnership we seek to be a world leader in the design, content and delivery of open supported learning.

**Our Values**

In achieving our vision, we remain committed to, and are guided by, the enduring Open University values of inclusivity, innovation and responsiveness.

**Our Students**

Most courses are available to students throughout Europe and some are available worldwide directly from the OU. Many more courses are available through partnerships and accredited institutions. There are currently around 3,500 students in the Republic of Ireland, 9,000 students elsewhere in Europe, 7,500 outside the European Union and another 46,000 students on OU-validated programmes.
- 76% of directly-registered OU students work full or part-time during their studies;
- 23% of OU UK undergraduates live in the 25% most deprived areas;
- 31% of new OU undergraduates are under 25;
- The OU is the largest provider of higher education for people with disabilities, educating 22,000 people with disabilities in 2015/16;
- Of the University’s student population starting undergraduate study, over one third had one A level or lower qualification and 3 per cent had no formal qualifications;
- Approximately 70 per cent of OU students are studying while in employment: thousands of people, who might not have been able to study because of work or family commitments, are able to study part-time with the OU.

**Our Faculties**
There are four academic faculties:
- Science, Technology, Engineering and Mathematics
- Well-being, Education and Language Studies
- Arts Social Science
- Business and Law

**Faculty of Science, Technology, Engineering & Mathematics**
The Faculty of Science, Technology, Engineering and Mathematics (STEM) is comprised:

- School of Computing & Communications
- School of Environment, Earth & Ecosystem Sciences
- School of Engineering & Innovation
- School of Life, Health & Chemical Sciences
- School of Mathematics & Statistics
- School of Physical Sciences
- Knowledge Media Institute
- Deanery including teams supporting Curriculum, Research and Enterprise, Laboratory Infrastructure and Faculty Administration

“We aspire to be world leaders in inclusive, innovative and high impact STEM teaching and research, equipping learners, employers and society with the capabilities to meet tomorrow’s challenges”

The Faculty of STEM consists of 700 staff and 1,800 Associate Lecturers. The Faculty delivers over 185 modules across undergraduate and postgraduate curriculum, supporting nearly 19,000 students (full time equivalents) which is 29% of the OU total.

The Faculty generates more research income (circa £17M) than any other Faculty in the University, supported by a comprehensive laboratory infrastructure.

We are proud of our distinctive values and capabilities underpinning our aspiration:

**We are inclusive:**
- We transform people’s lives, ensuring STEM education is openly accessible to many thousands of students from diverse backgrounds – our students express high satisfaction with their study experience
- We engage the public in exciting citizen science and engineering, including through free open educational resources, multi-platform broadcasting, outreach to inspire the next generation and with programmes to encourage more women into STEM

**We are highly innovative:**
- We are at the forefront of innovative developments in teaching practical science and engineering at a distance, through simulated and remote access laboratories and practical experimentation
- Our high quality teaching and curriculum are informed by world-leading research, strong links with professional bodies and communities of practitioners, as well as by scholarship focused on continuously improving our STEM pedagogy
We deliver significant social and economic impact:

- We provide STEM higher education at a scale and reach unsurpassed in the UK, with a sizeable international reach and further growth potential.
- We inject transferable STEM skills and knowledge direct into the workplace for immediate employee and employer benefit, as students combine study while working.
- The employability value of our courses is underpinned by accreditation from leading STEM Professional Bodies and Learned Societies, as well as partnerships and sponsorship with leading employers.
- Our high quality, applied and academically relevant teaching and research addresses real-world issues, delivering impact for industry and society, including addressing pressing STEM skill-shortages across the UK.

School of Computing & Communications

The School of Computing and Communications has around 80 academic and research staff, and is home for a number of visiting researchers and full-time and part-time research students.

Our objectives are:

- Transforming students’ lives through innovative and dynamic teaching enriched by world-class research and scholarship.
- Developing graduates with technical, analytical and creative skills who meet the highest expectations of employers and who can make a difference in their workplaces.
- Leading and shaping the digital revolution through people-centred, inter-disciplinary, collaborative research and scholarship that transforms society.
- Looking outwards to engage with individuals and external bodies, sharing our knowledge and developing mutually beneficial partnerships, so together we can create a more technically and socially aware digital society.
- Being a vibrant, agile and inclusive academic community that promotes academic excellence in all areas of teaching, research and external engagement.

Our strong sense of collegiality and community continues to shape and direct the interdisciplinary approaches used throughout our work.

The School of Computing and Communications holds the Athena SWAN Bronze Award and is committed to transforming gender equality. One aspect of our success in this area is that the School has more female professors than male, which is unusual for the discipline.

We teach a comprehensive range of undergraduate and postgraduate qualifications. Our students are nearly all part-time and are studying at different rates. We have the equivalent of 4772 full-time students registered for our undergraduate BSc degree across the UK and Europe, mostly studying at home. We have also just launched a degree apprenticeship in Digital Technology Solutions, one of three apprenticeships forming a pilot across the University.

We pioneered an online Introduction to Cyber Security MOOC (http://bit.ly/1pMMKhk), hosted on Futurelearn, which has been studied by over 140,000 learners worldwide. We are currently developing a further six MOOCs in cyber security. We also have extensive Open Educational Resources hosted by OpenLearn, run a distance ‘boot camp’ in programming, and have a robotics lab funded by HEFCE which we are working to make accessible to students from their homes.

Our main research interests lie in the areas of security/privacy, software engineering, communication technology, human-computer interaction, ubiquitous computing, Computer Science education, technology enhanced learning, computational linguistics, the history of technology, and critical information studies. We aim for, and achieve, international excellence in research and teaching, leading on many projects including smart cities development. The OU’s Computing research performed strongly in the Research Excellence Framework (REF 2014) assessment, with 77% of outputs rated world-leading or internationally-excellent (up from 70% in 2008), and an excellent research environment (100% rated world-leading or internationally-excellent).
The Software Engineering and Design (SEAD) group ([http://sead1.open.ac.uk](http://sead1.open.ac.uk)) is the largest research group in the School and consists of a team of multidisciplinary researchers with a shared goal of making software more dependable, usable and useful with a particular interest in security and privacy. Group members have a track record of collaborative research in human-centred computing, which has translated into the development of techniques and tools that focus on a variety of stakeholders in the software development process, and the software artefacts these stakeholders design, build, and use. Current and recent large funded projects focus on secure software, healthcare and forensics. Current external funding is diverse and exceeds £7M with total funding in the last 7 years of over £15M.

Complementing this, members of the Technology and Education Research (TERG) group carry out practically-oriented research into: the use of technology for learning; the teaching and learning of technology. This research draws on the School’s strong record of teaching innovation, and the substantial expertise that we have established in online and distance learning. The increasing prevalence of eLearning, virtual learning environments and social approaches to learning mean that this work is central to current educational debates. Members have a strong record of publishing on educational technology and computing education. The TERG members have strong links with eSTeM, the OU centre for STEM pedagogy ([http://www.open.ac.uk/about/teaching-and-learning/esteem/](http://www.open.ac.uk/about/teaching-and-learning/esteem/)). eSTeM brings together academics in Science, Technology, Engineering and Mathematics (STEM) to promote innovation, scholarship and enterprise in open and distance learning. Much of eSTeM’s work centres on the effective use of learning technologies at scale. The portfolio of projects includes work on innovative assessment, technologies for STEM learning, supporting students and STEM engagement. eSTeM also works with universities and other agencies both within and outside the UK.

### 6. How to obtain more information about the role or application process

If you would like to discuss the particulars of this role before making an application please contact Prof Bashar Nuseibeh on +44 (0)1908 655185 or email: Bashar.Nuseibeh@open.ac.uk.

If you have any questions regarding the application process please contact Mary Dahunsi on +44 (0)1908 659573 or email: STEM-Recruitment@open.ac.uk.

### 7. The application process and where to send completed applications

| Your application should contain:                              | • Completed short application form |
|                                                               | • Covering letter detailing how your research experience and skills could contribute to the JOHNNY project |
|                                                               | • CV, including a list of publications |
| Please ensure that your application reaches the University by: | Noon on 23 March 2018 |
| E-mail your application to:                                   | STEM-Recruitment@open.ac.uk |
| Or post it to Name/Job title:                                 | Mary Dahunsi, Staffing Adviser |
| Department/Unit:                                              | Deanery, Faculty of Science, Technology, Engineering & Mathematics |
| Address:                                                      | The Open University, Walton Hall, Milton Keynes, MK7 6AA |
## 8. Selection process and date of interview

<table>
<thead>
<tr>
<th>The interview panel will be chaired by:</th>
<th>Prof Bashar Nuseibeh, Professor in Computing</th>
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</thead>
<tbody>
<tr>
<td>The other members of the interview panel will be:</td>
<td>Prof Marian Petre, Dr Thein Tun</td>
</tr>
<tr>
<td>The interviews will take place on:</td>
<td>23/24 April 2018 To be confirmed</td>
</tr>
<tr>
<td>The selection process for this post will include</td>
<td>(To be confirmed)</td>
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</tbody>
</table>

*We will let you know as soon as possible after the closing date whether you have been shortlisted for interview. Further details on the selection process will also be sent to shortlisted candidates.*

Applications received after the closing date will not be accepted.