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| Last updated: | April 2024 |

**JOB DESCRIPTION**

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| Post title: | **Research Fellow** | | |
| School/Department: | School of Electronic and Computer Science | | |
| Faculty: | Faculty of Engineering and Physical Sciences | | |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Professors Thanassis Tiropanis (SOTON), Adriane Chapman (SOTON), Alaxandra Poulovassilis (BIRKBECK), George Roussos (BIRKBECK) | | |
| Posts responsible for: | N/A | | |
| Post base: | Office-based | | |

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| Job purpose |
| The purpose of this post is to cover the requirements for a PDRA in the EPSRC project ESPRESSO - “Efficient Search over Personal Repositories - Secure and Sovereign”.  The project is researching, developing and evaluating decentralised algorithms, meta-information data structures and indexing techniques to enable large-scale data search across Personal Online Datastores (pods) hosted on distributed pod servers, addressing both keyword-based search and SPARQL querying. EPRESSO is building on and extending existing frameworks and systems such as SOLID, NSS, Dataswift/HAT, gtk-gnutella, Gaian DB for this purpose.  The holder of this post will be working with Professors Thanassis Tiropanis and Adriane Chapman (University of Southampton), Professors Alexandra Poulovassilis and George Roussos (Birkbeck, University of London), as well as our partner organisations (Dataswyft and the NExT++ Centre, Singapore), the broader research community, and industry stakeholders and will be responsible for research on distributed query processing and information retrieval for text and RDF files. Experience in Linked Data and Semantic Web technologies is essential, while familiarity with approaches related to redecentralisation of the Web and testbed development is highly desirable. This research will also involve the use of benchmarks and the generation of synthetic datasets for experimentation in the domain on health and wellbeing. In addition, the post will involve administrative tasks associated with the running of the project and the requirements of our funders.  The post does not involve working outside of the UK for over 30 days in a row or over 90 days in a year. |

| Key accountabilities/primary responsibilities | | % Time |
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|  | To develop and carry out an area of personal research. | 30 % |
|  | Regularly disseminate findings by taking the lead in preparing publication materials for refereed journals and conferences, presenting results at conferences, and exhibiting work at other appropriate events. | 15% |
|  | Investigate models and approaches to test and develop them, individually and in collaboration with colleagues. | 30 % |
|  | Collaborate/work on original research tasks with colleagues in other institutions. | 10 % |
|  | 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. | 10 % |
|  | Any other duties as allocated by the line manager following consultation with the post holder. | 5 % |

| Internal and external relationships |
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| Direct responsibility to holder of research award or academic supervisor.  May have additional reporting and liaison responsibilities to external funding bodies or sponsors.  May be asked to serve on a relevant School/Department committee, for example research committee.  Collaborators/colleagues within the project, and in other work areas and institutions. |

| Special Requirements |
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| To be available to participate in fieldwork as required by the specified research project.  To attend national and international conferences for the purpose of disseminating research results.  To understand equal opportunity, ethical and privacy issues and ensure that the research content, data collected and inferred, and methods used are in accordance with these.  To carry out tasks that require the learning of certain skills.  To engage in continuous professional development.  *Applications for Research Fellow positions will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon successful completion of the PhD. Prior to the qualification being awarded the title of* ***Senior Research Assistant*** *will be given.* |

**PERSON SPECIFICATION**

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | PhD or equivalent professional qualifications and experience in Computer Science.  Possess sufficient breadth and depth of specialist knowledge in the discipline to develop research methodologies, conduct research, evaluate research outcomes.  Experience with Web development frameworks, the Unix programming environment, Java, JavaScript and the C programming language.  Experience with Linked Data and Semantic Web technologies (SPARQL RDF, RDFS, OWL, ontology editors).  Hands-on experience of software design, development and performance evaluation.  Experience of production of technical documentation, including architectural and design documents, API descriptions, test plans for executing automated test suites and manual tests, software build and installation instructions.  Experience of using version and source-control software e.g. GitHub  Computer proficiency in standard packages (e.g. word processing, spreadsheets, e-mail and internet use)  Detailed understanding and knowledge of distributed information management, information retrieval, algorithm design, evaluation and optimisation. Familiarity with semantic technologies, metadata schemas, index design and data summarisation. | PhD in distributed database systems, information retrieval, computer networking, or semantic web.  Knowledge of standards and approaches related to the redecentralisation of the Web.  Familiarity with Gaian DB, gtk-gnutella, SOLID, and Dataswift/HAT frameworks.  Ability to carry out test bed development, and measurement and experimentation with systems.  Familiarity with regulatory frameworks for data access and processing. |  |
| Planning and organising | Able to organise own research activities to deadline and quality standards  Initiative and creativity to ensure research is effective  Excellent communication and inter-personal skills, including the ability to collaborate with others within the team and with the project’s range of stakeholders |  |  |
| Problem solving and initiative | Able to develop understanding of complex problems and apply in-depth knowledge to address them  Able to develop original techniques/methods |  |  |
| Management and teamwork | Able to contribute to School/Department management and administrative processes  Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development  Commitment to working with diversity |  |  |
| Communicating and influencing | Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience  Able to present research results at group meetings and conferences  Able to write up research results for publication in leading peer-viewed journals and conferences  Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes |  |  |
| Other skills and behaviours | Understanding of relevant Health & Safety issues  Positive attitude to colleagues and students |  |  |
| Special requirements | Able to attend national and international conferences to present research results. Able to travel within the UK and abroad several times a year, including spending up to 2 weeks each year in Singapore (but not working outside of the UK for over 30 days in a row or over 90 days in a year). |  |  |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| Yes | If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| No | If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work |  |  |  |
| Extremes of temperature (eg: fridge/ furnace) |  |  |  |
| ## Potential for exposure to body fluids |  |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) |  |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: |  |  |  |
| Frequent hand washing |  |  |  |
| Ionising radiation |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling |  |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) |  |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) |  |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) |  |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling |  |  |  |
| Repetitive crouching/kneeling/stooping |  |  |  |
| Repetitive pulling/pushing |  |  |  |
| Repetitive lifting |  |  |  |
| Standing for prolonged periods |  |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) |  |  |  |
| Fine motor grips (eg: pipetting) |  |  |  |
| Gross motor grips |  |  |  |
| Repetitive reaching below shoulder height |  |  |  |
| Repetitive reaching at shoulder height |  |  |  |
| Repetitive reaching above shoulder height |  |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public |  |  |  |
| Lone working |  |  |  |
| ## Shift work/night work/on call duties |  |  |  |