



Job Title: Research Software Engineer

Grade: 7

Salary: £39,105 to £45,163 per annum, pro-rata if part-time

Department: Genetics & Genome Biology

Hours/Contract: Full-time, fixed term contract until 31 July 2025

Job Family: Teaching and Research

Reference: 11103

Role Purpose

You will work in a team to develop, implement, and maintain software within UK and EU-wide information-management projects, leveraging federated architectures and global data standards, to promote data sharing and reuse. Active participation in the development of these standards as part of international teams, is also required of this position.

The general domain focus relates to health-related data exploitation in dementia, rare disease and genetics. This will involve innovative, professional software development practices to facilitate technically safe, ethically responsible, and computationally efficient handling of diverse datasets that often include sensitive, personal information. Activities will take place within the Professor Brookes research team, contributing to the Health Data Research UK (HDR-UK) mission, and as a driving force in large European consortia (e.g., EPND, ERDERA, AD-RIDDLE).

You will take a leading role in shaping such programs in the group, in line with agreed general goals, by taking forward sub-projects sometimes on your own, and also as part of multi-disciplinary, inter-group teams and international consortia. This will include providing guidance, support and training to other members of Prof Brookes team and to collaborators.

Main Duties and Responsibilities

- Innovate, build and deploy informatics solutions compatible with sensitive health-related data, to facilitate processes such as data and metadata management, transformation, interrogation and visualisation, via online interfaces and backend data processing systems.
- Understand, contribute to, and utilise the latest programming and biomedical data standards to enable responsible discovery, sharing and reuse of health-related datasets, typically in the context of web applications.
- Provide general informatics technology training and support for data science researchers (Brookes lab members and collaborators), in their need for modern bioinformatics tools/processes and AI Solutions that can extract, transform, curate, catalog, make discoverable and make accessible various forms of data using a range of database systems.
- Create and maintain professional code repositories, and take a leading role in writing up progress reports for dissemination within projects and to the broader international community. This includes scientific publications, and presentation and participation in UK and international workshops and conferences.
- Meet requirements for post-recruitment education in terms of continued professional development, and seek out and undertake additional training as appropriate.





- Develop and carry out a plan to extend an area of personal research, or contribute as a team member to the development of a broader programme, this may include contributing to the writing of research bids/grants.
- Develop and maintain high-quality software solutions using Python, Flask, and backend technologies. Ensure smooth integration of various system components, focusing on both functionality and performance. You will be responsible for the entire development process, from planning to implementation.
- Troubleshoot and resolve technical issues promptly, ensuring the software is scalable and optimised for performance. This includes identifying and solving problems in real-time and improving system reliability.
- Ensure software quality through rigorous testing as part of the development process. This includes writing and executing test cases, performing manual and automated tests, and verifying that the software meets both functional and non-functional requirements. You will be responsible for ensuring that the final product is reliable and ready for deployment.

Professional Development:

- Prioritise duties and engage in work that will support your own professional development, including participation in courses and qualifications relevant to the Brookes lab mission.
- Actively seek opportunities to learn by conducting multi-disciplinary research with other research groups within or external to the University of Leicester.

Impact and Knowledge Exchange:

- Network and contribute to maintaining and furthering of the wider domain of health data science, spanning innovation, engineering and applications.
- Contribute your specific knowledge to existing project collaborations, and seek out new capabilities and ideas that will advance these collaborations.
- Engage positively and pro-actively in identifying and assessing research impact

Leadership and Citizenship:

- Provide day to day guidance, as needed, to other team members (research staff and students)
- Pro-actively build networks and collaborations, potentially even leading on new funding applications.
- Providing mentoring and coaching to junior and new members of the team

Internal and External Relationships

Supervision and advice will be provided by the supervisors.

Close collaboration with other bio-medical researchers, health scientists, maths and computer scientists in the University of Leicester. Including contributions to departmental, university-wide, and external seminar programs and training courses.

Liaising (by email, web-conferences, and face-to-face meetings) with collaborators at various academic and healthcare sites across the UK, research networks across the EU, and standards bodies across the globe. Including dissemination of scientific results to national and international conferences.





Planning and Organising

You will be required to effectively manage your time to plan your research activity and to deliver on the priorities of the project:

- Plan and prioritise your own workload considering current, short term and long term responsibilities and achievability of project objectives.
- Work as necessary with minimal supervision, whilst providing supervision to others, and maintaining professional levels of support for adopters of developed software.
- Ensure that you manage your own workload within agreed work schedules as discussed with and agreed by supervisors. This includes preparing project and deliverable reports.

Qualifications, Knowledge and Experience

Essential

- In possession of a Computer Science degree* (or near completion)
- In possession of a PhD in Computer Science (or near completion) OR have equivalent experience demonstrating ability, good judgement and independence*
- Documented contribution to informatics/IT projects, including evidence of actual source code creation and support*
- Solid understanding of software development life cycles, including hands-on experience with version control systems, particularly Git.*
- Experience with MongoDB for NoSQL database management and MySQL for relational database management.*
- Experience in quality assurance testing or a role with a significant QA focus, with a track record of ensuring the reliability of the software.*
- Experience with RESTful APIs and web services to build and integrate scalable back-end systems.*
- Good background in large-scale web-based system designing.
- Experience in languages used for designated projects (specifically, Java, Python, Dart)*
- Knowledge and experience of using databases, specifically MySQL, MongoDB, Elasticsearch (Candidates should be comfortable working with both SQL and NoSQL databases)
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- Experience working with frameworks such as Flutter, Quart and Flask*
- Experience working with Python-based multiprocessing, multithreading, and asynchronous system designs, including AI applications
- Ability to work productively with minimal supervision

Desirable

- Knowledge of software security principles, including authentication mechanisms, encryption standards, and data protection protocols.
- Evidence of productive research activity (e.g publication record, technical reports on utilised software, involvement in successful grant applications)
- Experience in health-related data and/or IT standards development activities





- Experience working in quality assurance field, and adequate ability to design, review and perform tests on the frameworks and languages mentioned above*

Skills, Abilities and Competencies

Essential

- Willingness and ability to work with internal and external stakeholders*
- Evidence of continued development of subject expertise*
- Ability to work independently but also as part of a research team*
- Good interpersonal skills (including written and verbal communication)*
- Proven analytical and technical/scientific problem solving
- Strong problem-solving skills, with a focus on writing clean, efficient, and maintainable code.
- Software development experience using professional development techniques (e.g. documentation, version control)
- Adaptability in learning new technologies and frameworks quickly as the project evolves.

Desirable

- Potential to visit collaborator sites
- Effective planning and organisational skills
- A good understanding of cybersecurity practices, such as authentication mechanisms and encryption standards, would be advantageous.

****Criteria to be used in shortlisting candidates for interview***

Reason for Fixed Term Contract

The reason for the fixed term contract is stated in section 1.9 in the summary of contractual terms in your contract of employment.

Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

Supporting University Activities

As a University of Leicester citizen, you are expected to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We expect all staff as citizens to work flexibly across the University if required.

University Values





Inclusive - We are diverse in our makeup and united in ambition. Our diversity is our strength and makes our community stronger.

Inspiring - We are passionate about inspiring individuals to succeed and realise their ambitions. We challenge our community to think differently, to get involved, and to constantly embrace new ideas.

Impactful - As Citizens of Change we will generate new ideas which deliver impact and empower our community

Equity and Diversity

We believe that equity, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equity support our efforts to attract a diverse range of high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equity, diversity and inclusion.

