

JOB DESCRIPTION

Job Title: Senior Research Software Engineer	
Department /Division/Unit: Infectious Disease Epidemiology	
Faculty/Professional Service: Epidemiology and Population Health	
Location: London	
Reports to: Richard White	
Responsible for: Research Software Engineers, Junior Research Software Engineers	
Full Time/Part Time/Casual: Full Time	Hours (if less than full time):
Grade: 7	
Overall Purpose of the job	
<p>The purpose of this position is to lead the development of free, open-source software for tuberculosis disease analytics. The post holder will contribute the general software engineering vision of the project and will be responsible for its implementation. They will provide supervision for other members of the team and ensure that all software developed will follow modern good practices including the use of version control systems, automatic/unit testing, code coverage assessment, and the use of continuous integration services. They will ensure that newly developed tools are fully integrated in the current software ecosystem, well-written and documented, quality-controlled, and easily maintainable. They will implement a release schedule using Lean and Agile principles, and ensure that all contributions and community interactions abide by the code of conduct of the project. This position sits in the world renowned LSHTM TB Modeling Group in the LSHTM Centre for the Mathematical Modelling of Infectious Diseases.</p>	

General Information

The London School of Hygiene & Tropical Medicine (LSHTM) is renowned for its research, postgraduate studies and continuing education in public and global health.

[Our mission](#) is to improve health and health equity in the UK and worldwide; working in partnership to achieve excellence in public and global health research, education and translation of knowledge into policy and practice.

We embrace and value the diversity of our staff and student population and seek to promote equity, diversity and inclusion as essential elements in contribution to improving health worldwide. We believe that when people feel respected and

included, they can be more creative, successful, and happier at work. While we have more work to do, we are committed to building an inclusive workplace, a community that everyone feels a part of, which is safe, respectful, supportive and enables all to reach their full potential.

To discover more about LSHTM please click [here](#).

Our Values

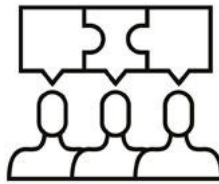
Our values establish how we aspire to achieve our mission both now and in the future - demonstrating what it means to work and study at LSHTM. To find out more please click [here](#).



**Act with
integrity**



**Embrace
difference**



**Work
together**



**Create
impact**

FACULTY INFORMATION

The Faculty of Epidemiology & Population Health (EPH) houses a large group of epidemiologists, demographers, statisticians and nutritionists working on issues of major public health importance in the UK and globally. EPH has approximately 400 staff members organised into four research departments.

- Department of Infectious Disease Epidemiology
- Department of Medical Statistics
- Department of Non-communicable Disease Epidemiology
- Department of Population Health

The Faculty has a teaching programme consisting of ten MSc courses: Epidemiology, Demography and Health, Medical Statistics, Public Health for Development (run jointly with the Faculties of Infectious & Tropical Diseases and Public Health & Policy), Nutrition for Global Health, Reproductive & Sexual Health Research, Veterinary Epidemiology (run jointly with the Royal Veterinary College), Global Mental Health (run jointly with Kings College London - Institute of Psychiatry) and the Distance Learning courses in Epidemiology, Clinical Trials and Demography in Health. The Faculty also has approximately 120 research students studying for an MPhil, PhD or DrPH degree.

The Dean of Faculty is Professor Elizabeth Allen.

THE DEPARTMENT

The Department of Infectious Disease Epidemiology conducts research on the epidemiology and control of infectious diseases of public health importance. It also conducts research on maternal and neonatal health. Work is carried out in low-, middle- and high-income countries, including the United Kingdom. Research ranges from ecological studies of variations in disease frequency in different populations, through observational case-control and cohort studies to define risk factors for disease, to randomized controlled trials to test the impact of specific preventive and curative interventions.

The Department Head is Prof Mark Jit.

Main Duties and Responsibilities

- Write and maintain modular, maintainable and testable code.
- Design and structure the visual representation of quantitative data, documentation of software packages and data resources.
- Line manage up to 4 members of staff
- Initiating, authoring and overseeing research papers, technical reports and other dissemination materials.
- Contribute to the development of educational and related materials (package documentation, cheat sheets, webinars) and learning opportunities
- Develop and deliver training courses to internal and external audiences.
- Support MOOCs or other (e.g. educational) outreach.
- Train, support and motivate multiple team members.
- Provide effective line management and leadership to RSEs within the group.
- Work as a proactive and collaborative senior member of a wider team, providing informal mentorship, advice and training to other team members, students and members of the wider LSHTM community
- Supporting the career development of direct reports and others (e.g. informal mentoring, reviewing draft papers, reports and other outputs, advising on specific issues e.g. methodology).
- Support others to provide excellent service delivery and solve significant problems and to develop the strategic direction of projects.
- Routinely deliver presentations or classes on technical subjects to a wide range of audience competency and knowledge levels.
- Regularly communicate both orally and in writing on a range of topics to stakeholders at multiple levels – including very senior levels – from different cultural backgrounds, both internal and external to the organisation in both formal and informal contexts.
- Routinely make major contributions to collaborative decisions about fundamental aspects of the project as a whole through regular active participation in project meetings and discussions.
- Liaise between internal and external groups across multiple research sites in-country and internationally.
- Use and develop research software to produce research outputs.
- Implement rigorous testing to ensure software can produce reliable, robust intel for informing public health policies.
- Take strategic decisions on software design and formulate development guidelines which will impact multiple aspects of 'mission-critical' work within a project.
- Identify and anticipate technical and strategic problems that may arise within the scope of work and develop innovative and practical solutions.
- Creatively identify and solve more unusual problems, including in line managed work, and use this experience to further enhance existing measures.
- Proactively identify external factors which may impact on the delivery of project milestones, and lead development of contingency plans.
- Keep up to date with relevant developments in the field, including initiating collaborative projects with external partners.
- Use existing tools and lead the development of new research software to produce research outputs.
- Take a leading role in the design and generation of new software development research ideas and grants (commensurate with generation of scientific ideas and grants expected of an Assistant Professor).
- Regularly report findings to internal and external stakeholders – including senior levels – and withstand challenge by relying on evidence gathered and processes used for analysis.
- Identify and generate evidence of research impact for impact case studies.
- Identify and mitigate risks to team welfare (e.g. by ensuring appropriate well being support for remote teams).

- Routinely provide technical advice to junior academic staff (i.e. PhD, Research Assistant and Research Fellow level) as well as strategic and technical advice to mid-career academic staff (i.e. Assistant and Associate Professor level).
- Prioritise and schedule work to achieve individual and team goals.
- Undertake overseas travel for project summits and collaborator meetings
- Develop documentation for software packages and data resources.
- Draft technical reports, journal articles, blog posts and other dissemination materials.
- Deliver presentations on technical elements of the research project.
- Collect evidence of research impact for impact case studies.

Generic duties and responsibilities of all LSHTM employees

This job description reflects the present requirements of the post but may be altered at any time in the future as duties and responsibilities change and/or develop providing there is consultation with the post-holder.

The post-holder will carry out any other duties, tasks or responsibilities as reasonably requested by the line manager, Dean of Faculty, Head of Department or Director of Professional Service.

The post holder will be responsible and accountable for ensuring all School policies, procedures, Regulations and employment legislative requirements are adhered to including equality and diversity and health and safety.

This job description is not a definitive or exhaustive list of responsibilities but identifies the key responsibilities and tasks of the post holder. The specific objectives of the post holder will be subject to review as part of the individual performance review (appraisal) process.

PERSON SPECIFICATION



This form lists the essential and desirable requirements needed by the post holder to be able to perform the job effectively.

Applicants will be shortlisted solely on the extent to which they meet these requirements.

Job Title: Senior Research Software Engineer
Faculty/Central Service & Department:

Competency	Evidence	E/D
Education, Qualifications and Training	<ul style="list-style-type: none"> PhD degree or equivalent experience in leading research software development Excellent programming skills in at least two commonly used programming language (R, C, python, Julia etc.) Professional project management qualification, e.g. Agile/SCRUM or equivalent 	E E D
Experience	<ul style="list-style-type: none"> Experience developing software projects involving multiple developers, automated testing, and continuous integration/delivery Experience in using and developing research software to produce research outputs Knowledge of and commitment to using best practices in software development, including documentation, issue tracking, unit testing, and version control An understanding of the importance of good practices for producing reliable software and reproducible analyses (e.g., version control (Github), issue tracking, automated testing, package management, literate programming tools such as Jupyter and Rmarkdown) Excellent written and verbal communication skills, including experience in the visual representation of quantitative data, documentation of software packages or data resources, the authoring of research papers or technical reports, and giving presentations or classes on technical subjects. Experience contributing to open source communities. Experience coordinating open-source development projects involving internal and external contributors Experience securing external funding for software projects or programmes Knowledge of and experience in building automation and continuous integration Experience in designing and the delivery of training courses Previous experience with large projects 	E D E E E D D D D D D E

	<ul style="list-style-type: none"> • Experience in leading software development teams • Experience in using and configuring high performance computing clusters 	E D
Knowledge	<ul style="list-style-type: none"> • Knowledge of commonly used infectious disease analytics methods and software tools • Knowledge of mathematics of dynamical systems (ODEs) • Knowledge of Bayesian parameter estimation 	D E D
Personal Qualities	<ul style="list-style-type: none"> • Proven ability to develop and maintain working relationships and actively collaborate with other technical and non-technical staff, teams and groups • Ability to rapidly learn and adapt to new technologies and quantitative concepts • Ability to train, support and motivate multiple team members • Excellent organisational skills and proven project management skills • Proven project leadership skills • An ability to write and maintain modular, maintainable and testable code • Demonstrable interest in infectious disease epidemiology • Reflects LSHTM's EDI goals in their work and behaviour. 	E E E E E E D E

E-Essential: Requirement without which the job could not be done

D-Desirable: Requirements that would enable the candidate to perform the job well

Salary and Conditions of Appointment

The post is funded until 31 December 2024. The salary will be on the Professional Services scale, Grade 7 scale in the range £50,048 - £57,013 per annum (inclusive of London Weighting). The post will be subject to the LSHTM terms and conditions of service. Annual leave entitlement is 30 working days per year, pro rata for part time staff. In addition to this there are discretionary "Wellbeing Days". Membership of the Pension Scheme is available.

LSHTM has a Hybrid Working Framework, which alongside agreed service requirements, enables teams to work more flexibly (if the role allows), promoting a greater wellbeing and work/life balance.

Application Process

Applications should be made on-line via our website at <http://jobs.lshtm.ac.uk>. Applications should also include the names and email contacts of 2 referees who can be contacted immediately if appointed. Online applications will be accepted by

the automated system until 10pm of the closing date. Any queries regarding the application process may be addressed to jobs@lshtm.ac.uk.

The supporting statement section should set out how your qualifications, experience and training meet each of the selection criteria. Please provide one or more paragraphs addressing each criterion. The supporting statement is an essential part of the selection process and thus a failure to provide this information will mean that the application will not be considered. An answer to any of the criteria such as "Please see attached CV", "Yes" or "No" will not be considered acceptable and will not be scored.

Please note that if you are shortlisted and are unable to attend on the interview date it may not be possible to offer you an alternative date.

ASYLUM AND IMMIGRATION STATEMENT

The School will comply with current UKVI legislation, which requires all employees to provide documentary evidence of their legal right to work in this country prior to commencing employment. Candidates will be required to email a copy of their passport (and visa if applicable) to HR prior to their interview and if appointed will be asked to bring the original documents in to be copied and verified before their start date.

Applications from candidates who require sponsorship to work in the UK will be considered alongside other applications. Applicants who do not currently have the right to work in the UK will have to satisfy UK Visas & Immigration regulations before they can be appointed.

Further information about Sponsorship and eligibility to work in the UK, can be found at: <https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-skilled-worker>