

JOB DESCRIPTION

Job Title: Research Software Engineer	
Department /Division/Unit: Infectious Disease Epidemiology	
Faculty/Professional Service: Epidemiology and Population Health	
Location: London	
Reports to: Sebastian Funk	
Responsible for: N/A	
Full Time/Part Time/Casual: Full-time	Hours (if less than full time):
Grade: 6	
Overall Purpose of the job	
<p>The purpose of this job is to lead and contribute to the development of free, open-source software for outbreak analytics, to support national and international preparedness and response. All software developed will need to implement modern good practices including the use of version control systems, automatic/unit testing, code coverage assessment, and the use of continuous integration services. The main programming language used will be R. Beyond contributions to code, documentation, testing, code reviews, and training, the post holder will ensure that new tools are fully integrated in the current software ecosystem and build, when possible, on the existing code base. They will be responsible for implementing the general software engineering vision and strategies outlined by the project's leadership, and for releasing and maintaining software packages. The post holder is also expected to be able to implement Lean and Agile frameworks as needed, and to abide by the code of conduct of the project.</p>	

General Information

The London School of Hygiene & Tropical Medicine

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.

History

Founded in 1899 at the London Docks, LSHTM is now based in Bloomsbury, where it has two main sites at Keppel Street and Tavistock Place, and additional sites in The Gambia and Uganda. Today, our staff, students and alumni work in government, academia, international agencies and health services across the world.

Research

Research income has grown to more than £180 million per year from national and international funding sources including UK government and research councils, the European Union, the Wellcome Trust, Gates Foundation and other philanthropic sources.

Our diverse research talents, skills and experience underpin our position as a leader in public and global health. These range from the molecular to the global, the theoretical to the applied, the analytical to the political. Our staff are conducting research in more than 100 countries.

Staff community

We have 3,300 staff based all around the world with core hubs in London and at the MRC Units in The Gambia and Uganda, which joined LSHTM in February 2018. Our outstanding, diverse and committed staff make an impact where it is most needed - deploying research in real time in response to crises, developing innovative programmes for major health threats, or training the next generations of public and global health leaders and researchers.

Partnerships

Working in partnership is central to achieving our mission. Our strategic collaborations in the UK and across high-, middle- and low-income countries deliver health and socioeconomic benefits across the world, especially in the most disadvantaged communities.

LSHTM is also a member of the M8 Alliance of Academic Health Centers, Universities and National Academies, the Association of Schools of Public Health in the European Region, and the Consortium of Universities for Global Health.

Education

We deliver research-led educational programmes to future health leaders, managers and researchers across the world. We have more than 1,200 face-to-face Master's and Doctoral students, 3,000 studying by distance learning, and 1,000 each year on short courses and continuous professional development. Our free online courses are studied by more than 270,000 participants globally.

Excellence in research and education

We perform strongly in various global university league tables. In the ShanghaiRanking's Global Ranking of Academic Subjects 2020 we placed 3rd in public health (1st in the UK). In the 2020 CWTS Leiden Ranking LSHTM is ranked the UK's top university for the proportion of academic research with women listed as authors, and third in Europe for publishing open access research.

In the US News Best Global Universities Ranking 2021, we ranked 3rd in the world for public, environmental & occupational health, 4th in the world for infectious diseases, 11th in the world for social sciences & public health, and 12th best University in the UK overall. We ranked 27th for medicine in the 2019 QS World University Rankings.

In 2017, the inaugural Center for World University Rankings by Subject placed LSHTM first in the world for tropical medicine research, second for parasitology and seventh for infectious diseases, public, environment and occupational health, and social sciences and biomedical.

LSHTM was named University of the Year 2016 by Times Higher Education and awarded a Queen's Anniversary Prize for Higher and Further Education in 2017 in recognition of our response to the 2014 Ebola epidemic in West Africa. LSHTM does not appear in the Times Higher Education World University Rankings as universities are excluded if they do not teach undergraduates.

We seek to foster and sustain a creative and supportive working environment based upon an ethos of respect and rigorous scientific enquiry. We embrace and value the diversity of our staff and student population and seek to promote equality as an essential element in contribution to improving health worldwide.

LSHTM is one of around 20 specialist institutions that receive institution specific funding from the Office for Students (OfS). This funding recognises the additional costs that LSHTM incurs because of its unique range of teaching, specialist facilities, and the scale of its contributions to national and international agencies.

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 in Developing Countries (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 and Clinical Trials. The Faculty also has approximately 120 research students studying for an MPhil, PhD or DrPH degree. The Dean of Faculty is Professor Elizabeth Allen.

DEPARTMENT INFORMATION

The Department of Infectious Disease Epidemiology (IDE) hosts a diverse range of researchers primarily in the field of infectious diseases. The department's original focus on epidemiology of infectious disease has evolved to include areas of statistical analysis, disease modelling, maternal and neonatal health, mental health and humanitarian crises. Our research activities are carried out in low, middle and high income regions and countries. IDE 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 randomised controlled trials to test the impact of specific preventive and curative interventions. Much of our work is used to provide evidence to support policy decision making. The Head of Department is Prof Mark Jit.

Main Duties and Responsibilities

- Write and maintain modular, maintainable and testable code, predominantly in R.
- Develop documentation for software packages and data resources.
- Implement visual representations of quantitative data.
- Lead authorship on research papers, technical reports, journal articles, blog posts and other dissemination materials.
- Contribute to the development of educational and related materials (package documentation, cheat sheets, webinars) and learning opportunities in collaboration with the Community Manager and Teaching Fellow.
- Routinely develop and deliver presentations or classes on technical subjects to internal and external audiences.
- Support MOOCs or other (e.g. educational) outreach.
- Work as a proactive and collaborative member of a wider team, providing informal mentorship to junior team members, students and members of the wider community.
- Routinely provide technical advice to junior academic staff, as well as occasional advice to mid-career academic staff.



- Liaising 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 'mission critical' work within a project.
- Make contributions to collaborative decisions about fundamental aspects of the project as a whole through active participation in project meetings and discussions.
- Identify and anticipate technical problems that may arise within the scope of work and develop innovative and practical solutions.
- Keep up to date with relevant developments in the field, including initiating collaborative discussions with internal and external partners.
- Prioritise and schedule work to achieve individual and team goals.
- Contribute to the design and generation of new software development research ideas and grants
- Identify and generate evidence of research impact for impact case studies.
- Undertake overseas travel for project summits and collaborator meetings.

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: Research Software Engineer
Faculty/Central Service & Department:

Competency	Evidence	E/D
<i>Education, Qualifications and Training</i>	<ul style="list-style-type: none"> • MSc degree or equivalent in a relevant discipline (computer science, engineering, data science, statistics, a natural science, etc) • Excellent programming skills in at least one commonly used programming language (R, python, Julia etc.) • Experience with developing or contributing to R packages 	<p>E</p> <p>E</p> <p>E</p>
Experience	<ul style="list-style-type: none"> • Experience developing software projects involving multiple developers, automated testing, and continuous integration/delivery • Experience making major contributions to software development teams working on projects with high impact applications. • 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, 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 contributing to securing external funding for software projects or programmes 	<p>E</p> <p>E</p> <p>D</p> <p>E</p> <p>E</p> <p>E</p> <p>D</p> <p>D</p> <p>D</p>

Knowledge	<ul style="list-style-type: none"> • Knowledge of commonly used infectious disease analytics methods and software tools 	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 • 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. • Willingness to travel overseas for meetings and events 	E E E E E D E 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 August, 2024. The salary will be on the Academic scale, Grade 6 scale in the range £41,829 - £45,417 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.

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" will not be considered acceptable.

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>