JOB DESCRIPTION

London School of Hygiene & Tropical Medicine

Job Title: Senior Research Software Engineer	
Department: Infectious Disease Epidemiology & Dynamics	
Faculty: Epidemiology and Population Health	
Location: Keppel Street, London	
Reports to: Professor Sebastian Funk	
Responsible for: Research Software Engineers	
Full Time/Part Time/Casual: Full Time	
Grade: Grade 7	
Overall Purpose of the job: The purpose of this position is to lead the development of free, open-source software for outbreak analytics, predominantly using the programming language R. The post-holder will be responsible for software engineering in a suite of software packages that can be used for real-time modelling, nowcasting and forecasting. They will support other members of the team and ensure that all software developed will follows 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 tools are well-written and documented, quality-controlled, and easily maintainable.	

General Information

The London School of Hygiene & Tropical Medicine (LSHTM) is one of the world's leading public health universities.

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.

Staff and students are committed to helping create a more healthy, sustainable and equitable world for everyone, because we believe our shared future depends on our shared health.

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 find out more please visit our Introducing LSHTM page.
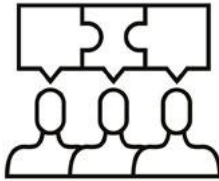
Our Values

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. Please visit our [LSHTM Values page](#) for further information.

Act with integrity   Embrace difference   Work together   Create impact

FACULTY/DEPARTMENT INFORMATION

The Faculty of Epidemiology & Population Health (EPH) houses a large group of epidemiologists, demographers, statisticians and nutritionists working on major issues of importance to public health provision in the UK and globally. EPH employs approximately 560 people in five research departments.

- Department of Infectious Disease Epidemiology & Dynamics
- Department of Infectious Disease Epidemiology & International Health
- Department of Medical Statistics, which includes the Clinical Trials Unit
- Department of Non-communicable Disease Epidemiology
- Department of Population Health

The Faculty has a postgraduate teaching programme including eleven intensive MSc courses: Epidemiology, Demography and Health, Medical Statistics, Health Data Science, Public Health for Development (jointly with Faculties of Infectious & Tropical Diseases and Public Health & Policy), Nutrition for Global Health, Global Mental Health (jointly with Kings College London, Institute of Psychiatry), Reproductive & Sexual Health Research, Sexual & Reproductive Health Policy and Practice (online), Veterinary Epidemiology (run jointly with the Royal Veterinary College) and Climate Change and Planetary Health. There are also three distance Learning MSc courses: Epidemiology, Clinical Trials and Demography in Health. The Faculty also has approximately 240 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 & Dynamics conducts research on the epidemiology and control of infectious diseases of public health importance. Work is carried out in low-, middle- and high-income countries, including the United Kingdom, in close collaboration with partners in each country. The Department has three groups:

- The infectious disease modelling group, which is linked to the [Centre for Mathematical Modelling of Infectious Diseases (CMMID)](#).
- The [UK Public Health Rapid Support Team](#), a specialist multidisciplinary team across LSHTM and the UK Health Security Agency (UKHSA) that offers low and middle income countries around the world support to prepare for and respond to disease outbreaks, through field collaboration, research and capacity-strengthening activities.
- The [Vaccine Confidence Project](#), which conducts global research, investigating the roots, trends over time and impacts of vaccine confidence at regional, national and sub-national levels.

Main Duties and Responsibilities

- Write and maintain modular, maintainable and testable code, predominantly in R.
- Develop documentation for software packages and data resources. Draft 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.
- 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.
- Supporting the career development of direct reports and others at RSE level (e.g., informal mentoring, reviewing draft papers, reports and other outputs, advising on specific issues e.g. methodology, initiating follow-up projects and collaborations).
- Support others to provide excellent service delivery and solve significant problems and to develop the strategic direction of projects.
- Deliver presentations on technical elements of the research project.
- Liaising between internal and external groups across multiple research sites in-country and internationally.
- 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.
- 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 all projects within the grant
- Identify and anticipate technical and strategic problems that may arise within the scope of work and develop innovative and practical solutions.
- 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.
- 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).
- Collect evidence of research impact for impact case studies.
- Prioritise and schedule work to achieve individual and team goals.
- 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 Head of Professional Service.

The post holder will be responsible and accountable for ensuring all LSHTM 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 and Development Review (PDR).

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.

Competency	Evidence	E / D
Education, Qualifications and Training	• PhD degree or equivalent experience in leading research software development in an academic environment	E
	• Excellent programming skills in at least one commonly used programming language (R, python, Julia etc.)	E
	• Experience with developing, maintaining or contributing to open-source R packages (please provide link(s))	E
	• Professional project management qualification, e.g. Agile/SCRUM or equivalent	D
Experience	• Experience developing software projects involving multiple developers, automated testing, and continuous integration/delivery	E
	• Experience in leading software development teams working on projects with high impact applications.	E
	• Experience in using and developing research software to produce research outputs	D
	• Knowledge of and commitment to using best practices in software development, including documentation, issue tracking, unit testing, and version control	E
	• 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)	E

	• 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.	E
	• Experience contributing to open source communities.	D
	• Experience coordinating open-source development projects involving internal and external contributors	D
	• Experience securing external funding for software projects or programmes	D
	• Knowledge of and experience in building automation and continuous integration	D
	• Experience in designing and the delivery of training courses	D
	• Previous experience with large projects in the Higher Education sector	E
	• Experience in leading software development teams	E
Knowledge	• Knowledge of commonly used infectious disease analytics methods and software tools	D
General	• Proven ability to develop and maintain working relationships and actively collaborate with other technical and non-technical staff, teams and groups	E
	• Ability to rapidly learn and adapt to new technologies and quantitative concepts	E
	• Ability to train, support and motivate multiple team members	E
	• Excellent organisational skills and proven project management skills	E
	• Proven project leadership skills	E
	• An ability to write and maintain modular, maintainable and testable code	E
	• Demonstrable interest in infectious disease epidemiology	D
	• Reflects LSHTM's EDI goals in their work and behaviour.	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 fixed term until 29 September 2025 and full-time, 35 hours per week, 1.0 FTE. The post is funded by the Wellcome Trust and the US CDC/CFA and is available immediately. The salary will be on the Professional Services salary scale, Grade 7 scale in the range £51,299 - £58,723 per annum pro rata (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 jobs website. 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. We regret that late applications cannot be accepted. 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

LSHTM 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 on the government immigration rules page.

Last Updated: August 2024