RESEARCH FELLOW

Job Title:	**Research Fellow in Data Science**
Department:	Infectious Disease Epidemiology
Faculty:	Epidemiology and Population Health
Location:	London
FTE:	1.0 FTE (35 hrs/week)
Grade:	G6
Accountable to:	Head of Department through Co- Principal Investigator (Co-PI) Chris
Job Summary:	We are seeking a data scientist to work on a challenging series of projects in crisis-affected countries. The main project is developing methodologies to estimate and monitor mortality due to famine in the Horn of Africa region, working with researchers in the region, especially Somalia, and mathematical modelers at LSHTM. The work will involve establishing data pipelines, and using big data for mortality estimation. This is an exciting opportunity to become part of a team that work in complex settings developing novel data science methodologies. There will be scope to develop further research ideas and to take the lead in the use of data science in complex setting which is an expanding and challenging area of research. The projects are funded by grants from UNICEF and WHO, and form part of the [Afya Consortium](#), a group of academic and civil society organisations conducting research on public health threats in populations affected by crises. One focus of the consortium's work is building data science capacity in crisis-affected countries; therefore it is expected that the success applicant will be involved in capacity building across the partner institutions and will be a core part of the team on related future projects. The role is available immediately, full time until 30 April 2024, with the expectation of securing further funding during this period.

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.

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 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 Head of Department is Professor Mark Jit

Project Information:

The successful applicant will work within the **Afya Consortium:** a group of institutions who work together collaboratively and equitably to conduct research among crisis-affected and displaced populations in the context of current and emergent epidemics. This programme is a multi-disciplinary partnership, between LSHTM in the UK; the Université Catholique de Bukavu in DRC, SIMAD University in Somalia, the Bridge Network Organisation in South Sudan, and the Youth Peer Education Network (Y-Peer) in Sudan. Our partnership is committed to coproduction principles and will adopt a decolonial approach to research and humanitarian action.

The consortium has been awarded two projects with funding from UNICEF and WHO specifically looking at estimating mortality due to drought and acute food security in the Horn of Africa region, with a focus on Somalia. These projects will use a combination of novel data collection methodologies and modelling to estimate mortality over the next 18 months. This position will initially predominately be working on establishing the data pipelines for the mathematical modelers in partnership with the data science team at SIMAD University is Somalia. It will require excellent R programming skills, with python programming being an advantage. The application will go on to work on developing shiny app and to examine other novel data collection methodologies. Examples of the type of

work can be find in the following papers:

Checchi, F., Testa, A., Gimma, A. et al. <u>A method for small-area estimation of population mortality in settings affected by crises.</u> Popul Health Metrics 20, 4 (2022). https://doi.org/10.1186/s12963-022-00283-6

Koum Besson ES, Norris A, Bin Ghouth AS, et al: <u>Excess mortality during the COVID-19 pandemic: a geospatial and statistical analysis in Aden governorate, Yemen</u>. BMJ Global Health 2021;

Warsame, A., Frison, S., Checchi, F. <u>Drought, armed conflict and population mortality in Somalia, 2014-2018: a statistical analysis</u>. medRxiv (2022);

SIMAD University is a rapidly expanding academic institution in Somalia, with a standing partnership with the LSHTM. SIMAD's Faculty of Medicine and Health Sciences conducts research on various public health problems affecting Somalis and maintains extensive networks with practitioners, civil society and government stakeholders: its involvement in this project will ensure that research is grounded in an appropriate contextual analysis and is presented to Somali government and civil society actors through effective channels and messaging.

The successful applicant will work closely with the SIMAD team, comprising of a part-time epidemiologist/public health scientist and two full-time data scientists, who will progressively take the lead in establishing and maintaining a data pipeline for the proposed analysis, thereby ensuring local ownership of methods and results. As the project progresses it is hoped to examine how Machine learning can be used and also to look at using satellite imagery as one of the novel data sources.

It is expected that over time the applicant would go on develop and lead the data science work in other applications with the Afya consortium and else where. Working with Chris Grundy in building a team of health data scientists working on novel and innovative applications in LMICs.

The portfolio of duties outlined below will vary in accordance with the detailed expectations of the role (attached), which may be varied from time to time, and agreed at your annual Performance and Development Review (PDR).

Job Description

Main Activities and Responsibilities

Knowledge Generation

1. To undertake high quality research & scholarship, including contributing to drafting major grant proposals and/or leading on drafting small grant proposals, and evaluating teaching practice;

2. To contribute to peer-reviewed publications and other outputs, including as lead author;

3. To make a contribution to doctoral student supervision, as appropriate to qualifications and experience;

4. To manage small grants or elements of larger grants, ensuring compliance with good practice in relation to the conduct of research, the ethics policy and other relevant School policies.

5. To contribute to future grant applications

Education

1. To contribute to the delivery of high quality, inclusive, research-informed teaching and assessment in relation to your specific subject and within the broader area covered by your department and disciplinary field;

2. To contribute to the improvement of the quality of the School's education, by participating in the development of new and updated learning and teaching materials or approaches.

3. Develop and deliver both in-person and remote training as part of capacity strengthening in low-income countries

Internal Contribution

1. To undertake activities that support the Department, Faculty, MRC Unit or the School;

2. To reflect LSHTM's EDI goals in your work and behaviour;

3. To participate in the School's PDR process.

External Contribution

1. To demonstrate good external citizenship by contributing to learned society/conference events, journal and grant reviews etc;

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Professional Development and Training

1. To keep up to date with the latest research/thinking in your academic field and with changes to pedagogic practice within the School and more generally;

2. Where the length and nature of the position permits, to apply for and, if accepted, undertake a doctoral degree (if not already acquired);

3. To undertake and successfully complete the mandatory training required by the School appropriate to the role.

General

All academic staff are free within the law to question and test received wisdom, and put forward new ideas and controversial or unpopular opinions, to enable the School to engage in research and promote learning to the highest possible standards.

All staff at LSHTM are also expected to:

1. Act at all times in the School's best interests;

2. Treat School staff, students and visitors with courtesy and respect at all times;

3. Comply fully with School policies, procedures and administrative processes relevant to the role, including when acting as Principal Investigator, accepting academic, managerial, financing and ethical responsibility for a project

4. Uphold and support the School's values (as set out in the School Strategy);

5. Act as ambassadors for the School when hosting visitors or attending external events.

The above list of duties is not exclusive or exhaustive and the role holder will be required to undertake such tasks as may reasonably be expected within the scope and grading of the role.

Role descriptions should be regularly reviewed to ensure they are an accurate representation of the role.

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.

Essential criteria:

1. A postgraduate degree, ideally a doctoral degree, in a relevant topic.
2. Relevant experience in developing novel data methodologies for complex, data poor settings.
3. Relevant experience of working with and analyzing big data, multiple data sources, and establishing data pipelines for cleaning and collating data sets.
4. Excellent programming skills in R.
5. Evidence of familiarity with Git/Github and working collaboratively on codebases (Please ensure your Github appears on your application).
6. Experience with data visualization (ggplot etc) including dashboards.
7. Contributions to written output, preferably peer-reviewed, as expected by the subject area/discipline in terms of types and volume of outputs.
8. Proven ability to work independently, as well as collaboratively as part of a research team, and proven ability to meet research deadlines.
9. Evidence of excellent interpersonal skills, including the ability to communicate effectively both orally and in writing
10. Evidence of good organizational skills, including effective time management.

Desirable Criteria

1. Some experience of contributing to research grant applications.
2. Some experience of teaching and assessment.
3. Some experience of supervising and supporting junior researchers and/or research degree students, and non-academic staff.
4. Willingness to travel to crises-affected countries including Somalia, Sudan, and DRC, for short periods (i.e. 1-2 weeks, 1-2 times per year)
5. Experience of Machine learning.
6. Experience building dashboards and public facing tools using Shiny.
7. Basic knowledge of Python
8. Experience of crowd sourcing and open data
9. Experience or proven ability to learn automated image recognition and working with satellite imagery.
10. Experience of managing ODK data collection.

Salary and Conditions of Appointment

This post is fixed term until 30 April 2024, with the possibility for extension dependent on funding, and is full time (1.0 FTE). The post is funded by UNICEF and WHO and is available immediately. Given the grant funding has commenced, we require the ability to start quickly after appointment due to deliverable deadlines.

The salary will be on the Academic scale, Grade 6 scale in the range £41,829-£47,503 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. Please quote reference EPH-IDE-2022-50-R.

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" or "yes" or "I have experience with R" 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

Date amended: Sept 2022

Academic Expectations: Research Fellow

Examples of expected types of activities are listed; the selection of activities will vary from year to year and not all activities in each category would necessarily be done in any one year. The statement in each shaded heading summarises the general expectations for contributions in each category. Research Fellows employed on research projects will be expected to focus on Knowledge Generation, in accordance with their job description, but some activity in other areas is required and will support career progression. Research Fellows predominantly employed to support Education will be expected to focus on Education, again as reflected in their job description.

Knowledge generation: *Independent contributions and a clear trajectory towards excellence in knowledge generation*

Research and scholarship
- Undertaking research
- Working with PIs to draft grant proposals and/or leading writing of small grants, work packages or sections of larger proposals or personal fellowship applications
- Contributing to peer-reviewed and other research outputs, including as first author, as expected by the subject area/discipline in terms of types of output
- Poster/oral presentations at relevant conferences, translation of research findings into educational materials
- Social media contributions such as twitter, blogs, web-based media or webinars

Reflective practice and critical enquiry (RPaCE)
- Contributing to RPaCE activities
- Designing evaluation studies
- Disseminating learning and experiences through presentations, blogs etc
- Contributing to enhancing teaching practice of others: e.g. mentoring, teaching observation and feedback

Doctoral degree supervision
- For RFs with Doctorate, some contribution to doctoral degree supervision is encouraged (e.g. specialist skills training; ad hoc advice; advisory committees). RFs without a Doctorate may also advise in areas of specialist knowledge

Research management, leadership and support
- Effective management of own time and activities
- Management of small research grants or elements of larger grants, including management of data collection and relationships with research collaborators, supporting/mentoring colleagues, support to grants management

Professional development
- Courses and other professional development activities, referenced to RDF
- Where the length, nature and funding source of the position permit, to apply for and, if accepted, undertake a doctoral degree (if not already acquired)

Education: *Basic competence in teaching and assessment*

Teaching and assessment
- Research-informed teaching and assessment contributions (e.g. contributions to modules, MSc project supervision)

Educational development and innovation
- Contributing to the development of new educational materials, learning opportunities or assessments approaches

Education leadership and management
- None expected

Professional development
- Participation in professional development activities referenced to UKPSF (e.g. HEA, PGCILT, preparation for doctoral degree supervision, shadowing more experienced colleagues); acquiring Associate Fellow HEA

Internal contribution: *Contributions to School functioning and development*

Internal citizenship including contributing to supportive academic environment
- Contributing to at least one Department, Faculty, School, or Centre event or special interest group in any one year, including EDI activities;
- Taking on role as Digital Champion or Decolonising the Curriculum facilitator; Supporting external School collaborations/partnerships (beyond own research or education role) where relevant
- Support to others' success (eg careers advice to students)

School leadership and management roles
- None expected

External contribution: *Contribution beyond the School*

External citizenship
- Contributing to learned society/conference events, journal and grant reviews etc.

Knowledge translation and enterprise: not expected but options include:
- Collecting evidence of research impact for impact case studies (e.g. policy records, correspondence with policy makers, media highlights)
- Engaging with policy/practice/industry/NGO communities and the general public
- Supporting MOOCs/OERs or other (e.g. educational) outreach