

Job Description

Post title: **Senior Research Fellow**

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Author: Andrew Tatem

Standard Occupation Code:	2119 – Natural and social science professionals
School / Department:	School of Geography and Environmental Sciences
Faculty / Directorate:	Faculty of Environmental and Life Sciences
Job Family:	Education, Research and Enterprise (ERE)
Grade:	Level 5
ERE Pathway (if applicable):	Research
Post reporting to:	Maksym Bondarenko/Chris Nnanatu
Post line report(s):	N/A
Post base location:	Hybrid: Campus / Home : Highfield B39

Job purpose: **Research:** To support WorldPop in leading the development and implementation of geospatial methods to produce small area modelled human population estimates, primarily focused on resource-poor settings. These may include geostatistical, machine learning, or other methods.

Exploring and testing novel AI-derived datasets in population modelling efforts, working with partners from big tech and satellite imagery companies. The post holder will be expected to work within a team of researchers and partner organizations to lead and contribute to the development and implementation of methods and impactful applications of the results, including potential collaborations with international agencies and governments.

Knowledge Exchange and Enterprise: Work in some cases will involve co-development of outputs with decision-makers in government and UN agencies and the running of training. Development of open outputs, methods documentation and academic publications will be expected, and opportunities to present outputs and research findings locally and internationally will be available.

Leadership, Management and Engagement: Postholder will plan their own work and contribute effectively to leadership, management and engagement activities, with appropriate guidance, support and supervision. The post holder will be expected to familiarise themselves with the latest WorldPop population estimation methods and lead the development of population models and their applications. This may be under the supervision of project and team leads, but the candidate is also expected to supervise and line manage more junior colleagues.

Opportunities to engage with and lead projects across the WorldPop portfolio will be available.

Education: not applicable to the role.

All contributions build on ERE Level 4.

Key accountabilities and indicative time allocation:

1.	Research contribution	60%
	<ul style="list-style-type: none">• Sustain a personal programme of research which contributes to or complements wider research programmes or strategies.• Develop and deliver independent, rigorous and original research that leads to the discovery of new knowledge, insight and/or understanding.• Lead the development and implementation of methods to produce gridded human population estimates, including demographic breakdowns and measures of uncertainty.• Designing geostatistical, machine learning or other approaches to process and utilise geospatial datasets in small area population modelling, including exploration and testing of novel AI-derived datasets and methods, working with partners from big tech and satellite imagery companies. These may include satellite imagery and datasets derived from them, such as building footprints or geo-embeddings, or datasets derived from mobile phones and social media. Work will also involve exploration of urban characteristics and dynamics.• Regularly produce a range of high-quality research outputs that: underpin an established and growing reputation within the research community for the originality, significance and rigour of research; and demonstrably contribute to debate, knowledge, understanding and impact within and/or beyond academia.• Plan and develop innovative new research proposals, either as self-contained items or as part of wider programmes, identifying potential funding sources and lead, co-lead or contribute to income proposals.• Project manage research activity, manage the application of a range of research methodologies and manage or supervise other members of a research team, as appropriate.• Co-supervise or contribute to the supervision of postgraduate students and/or research assistants.	
2.	Knowledge Exchange and Enterprise Contribution	25%
	<ul style="list-style-type: none">• Design, develop and deliver high-quality knowledge exchange and/or enterprise activities and outputs that meet stakeholder requirements and complement wider knowledge exchange and enterprise programmes or strategies, individually or as part of a wider project, team or unit.• Lead or contribute to the development of training materials and the delivery of training workshops internally or externally for international agencies, government and donor staff in the methods developed.• Apply in-depth specialist knowledge to provide expert advice, generate ideas and design products or solutions that meet stakeholder requirements, where precedents may not exist.• Support external partners in operationalizing the research outputs, and/or responding to ad-hoc analysis and modelling requests.• Regularly disseminate findings by contributing to the preparation of publication materials for refereed journals, presenting results at conferences, or exhibiting work at other appropriate events.	
3.	Leadership, Management and Engagement Contribution	10%
	<p>Building on the Leadership, Management and Engagement contributions inherent in other Level 5 activities:</p> <ul style="list-style-type: none">• Manage processes and co-ordinate the work of others as required. Help determine priorities and allocate resources to meet planned objectives and requirements.• Line manage or supervise staff, as appropriate.	

- Effectively conduct and engage in appraisal, career development and continuing professional development activities; formulate development plans to meet current and future skill needs.
- Allocate 10 days a year (pro rata if part-time) to undertake training and continuing professional development (CPD), develop research identity and leadership skills in line with the Researcher Development Concordat.

4. Other duties**5%**

Any other duties as allocated by the line manager following consultation with the post holder.

Internal and external relationships:

The role-holder will be required to support several different projects at WorldPop under the supervision of the relevant project lead(s). The role-holder may be expected to line manage junior WorldPop staff and contribute to the running of the WorldPop spatial statistical modelling group or spatial data infrastructure team.

They are expected to engage and support external partner and client organisations such as the Gates Foundation, UNICEF, UNFPA and National Statistical Offices.

They will get additional support from WorldPop's Portfolio Management Office (PMO), Faculty Operating Services (FOS) for SoGES and FELS, University Professional Services.

Special requirements:

The post holder will need to be able to operate confidently and productively with minimal supervision; a high degree of independence is required.

The post requires flexible working patterns to manage and respond effectively and professionally to deadlines.

You may be required to support in-country engagements (planning meetings, research work, fieldwork, conferences) and therefore must be willing to travel.

Person Specification – Skills and Competencies

All essential and desirable criteria outlined in this Person Specification will be assessed through a combination of recruitment application and CV, and where applicable numerical or written assessment.

Knowledge, Experience and Qualifications

Essential

- PhD in a mathematical/statistical/computational/quantitative discipline, ideally with a focus on the quantitative social sciences, such as demography, public health, epidemiology, data science, or a related discipline.
- Detailed knowledge, understanding and experience of methods for analysing, processing and obtaining insights from large geospatial datasets.
- Strong computer programming skills – e.g. R, Python, etc.
- Detailed knowledge and experience with machine learning and/or Bayesian geostatistical methods.
- Familiarity with platforms such as Google Earth Engine, Microsoft Planetary Computer.

Desirable

- Familiarity and experience with GeoAI methods and applications.
- Experience of working with satellite imagery and/or datasets derived from them, e.g. building footprints.
- Experience of working with big spatial datasets derived from various sources including social media, mobile phones.
- Experience with census, household survey data and related demographic methods.
- Strong knowledge of survey sampling methods.
- Familiarity with spatial visualization tools and methods
- Experience with line management/supervision of junior colleagues

Teamwork and Communication

Essential

- Delegates and/or collaborates effectively, understanding the strengths and weaknesses of colleagues.
- Works proactively with colleagues and other stakeholders, within and beyond the University, to achieve outcomes.
- Communicates effectively to develop understanding and achieve cooperation.
- Provides clear advice, guidance and recommendations on novel or complex concepts and issues.
- Demonstrates high-level of written and verbal communication skills including the ability to present complex information in a concise and user-friendly manner.
- Track record of presenting research results at group meetings and international conferences.

Planning, Organisation and Resource Management

Essential

- Proven ability to organise a range of high-quality research activities to deadline and quality standards, ensuring plans complement broader research strategy.

Desirable

- Experience cooperatively building and sustaining a research team
- Proven ability to develop innovative research proposals and attract research funding.

Problem Solving and Initiative

Essential

- Develops detailed understanding of long-standing and/or complex problems and applies accumulated knowledge and experience to understand and/or resolve them.
 - Able to identify broad trends to assess deep-rooted and complex issues.
 - Able to apply originality in modifying existing approaches to solve problems.
 - Applies project management, technical experience and awareness to drive project delivery.
 - Demonstrates professional, calm and clear-thinking under pressure.
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Job Hazard Assessment

A full health clearance is required for this role where any hazards marked “^”, using the agreed Occupational Health referral template [available from here](#). Where a full health clearance is required, this will apply to all role holders, including existing members of staff.

Physical Environment

Working outside ^	Not applicable
Exposure to noise levels >80dbA ^	Not applicable
Working with dust or fumes ^	Not applicable
Working with skin irritants ^	Not applicable
Working with chemicals (industrial or cleaning) ^	Not applicable
Working in a confined space ^	Not applicable
Working at height ^	Not applicable
Working with sewage ^	Not applicable
Contact with cytotoxins ^	Not applicable
Exposure Prone Procedure (EPP) work ^	Not applicable
Contact with clinical specimens or pathology work ^	Not applicable
Direct patient care or patient contact	Not applicable
Exposure to temperature extremes	Not applicable
Frequent hand washing	Not applicable
Ionising radiation	Not applicable

Psychological and Social Environment

Working shifts ^	Not applicable
Working nights ^	Not applicable
Lone working	Not applicable
Working with children	Not applicable
Exposure to persons with challenging behaviour	Not applicable
Working with larger groups	Occasionally <30% Time

Equipment, Tools and Machines

Working with vibrating machinery or tools ^	Not applicable
Driving duties e.g. LGV, PCVs, forklift trucks ^	Not applicable
Food handling	Not applicable
Contact with latex	Not applicable

Physical Abilities

Prolonged physical movements or actions e.g. walking ^	Not applicable
Prolonged Standing or Sitting ^	Constantly >60% Time
Moving or handling heavy loads ^	Not applicable
Repetitive pulling or pushing ^	Not applicable

Repetitive climbing (steps, stools, ladders, stairs) ^	Not applicable
Repetitive crouching, kneeling or stooping	Not applicable
Repetitive lifting	Not applicable
Fine motor grips (e.g. pipetting)	Not applicable
Repetitive reaching below shoulder height	Not applicable
Repetitive reaching at shoulder height	Not applicable
Repetitive reaching above shoulder height	Not applicable

Behaviours

Our [Inclusion and Respectful Behaviour Policy](#) describes the expectations of everyone who is a part of our community.

Our **Southampton Behaviours** (below) outline the responsibilities we each have in working collaboratively to achieve our University strategy.

Personal Leadership

- I take personal responsibility for my own actions and an active approach towards my development.
- I reflect on my own behaviour, actively seek feedback and adapt my behaviour accordingly.
- I demonstrate pride, passion and enthusiasm for our University community.
- I demonstrate respect and build trust with an open and honest approach.

Working Together

- I work collaboratively and build productive relationships across our University and beyond.
- I actively listen to others and communicate clearly and appropriately with everyone.
- I take an inclusive approach, value the differences that people bring and encourage others to contribute and flourish.
- I proactively work through challenge and conflict, considering others' views to achieve positive and productive outcomes.

Developing Others

- I help to create an environment that engages and motivates others.
- I take time to support and enable people to be the best they can be.
- I recognise and value others' achievements, give praise and celebrate their success.
- I deliver balanced feedback to enable others to improve their contribution.

Delivering Quality

- I identify opportunities and take action to make improvements.
- I plan and prioritise efficiently and effectively, taking account of people, processes and resources.
- I am accountable for tackling issues, making difficult decisions and seeing them through to their conclusion.
- I encourage creativity and innovation in others, to deliver workable solutions.

Driving Sustainability

- I consider the impact on people before taking decisions or actions that may affect them.
- I embrace, enable and embed change effectively.
- I regularly take account of external and internal factors, assessing the need for change, and gaining support to move forward.
- I take time to understand our University strategy and communicate this to others.