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| Last updated: | 02 Feb 2023 |

**JOB DESCRIPTION**

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| Post title: | **Research Fellow / Senior Research Fellow** | | |
| Standard Occupation Code: (UKVI SOC CODE) | 2119 – Natural and social science professionals (dependant on %split of key accountabilities) | | |
| School/Department: | Geography and Environmental Sciences (SoGES)/WorldPop | | |
| Faculty: | Environmental and Life Sciences (FELS) | | |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4/5 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Dr Sarchil Qader, project leads | | |
| Posts responsible for: |  | | |
| Post base: | Office-based, University of Southampton, Highfield Campus | | |

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| Job purpose |
| To undertake satellite image and spatial data analyses in accordance with awarded projects (e.g., for GRID3, [www.grid3.org](http://www.grid3.org)) focussed on measuring temporary and mobile populations at different geographical scales in several low and middle-income countries. The post holder will be expected to work within a team of researchers and partner organizations to contribute to the development of methods and impactful applications of the results. |

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| Key accountabilities/primary responsibilities | | % Time |
|  | Lead the development and implementation of advanced algorithms and models to extract meaningful information from various types of high-resolution satellite imagery to contribute towards the production of high-resolution population, nomadic and seasonal migrant population, and community displacement maps. | 75 % |
|  | Supporting external partners in operationalizing the research outputs, and/or responding to ad-hoc analysis and modelling requests. | 5 % |
|  | Lead/contribute to the development of training materials and the deliveries of training workshops of international agencies, government and donor staff in the methods developed. | 5 % |
|  | 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. | 5 % |
|  | Any other duties as allocated by the line manager following consultation with the post holder. | 5 % |
| 6. | To develop and carry out an area of personal research, and/or contribute to activities with the School of Geography and Environmental Science. | 5 % |
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| Internal and external relationships |
| You will join WorldPop’s Geospatial Data and Analysis (GDAT) team, which is led by Dr Natalia Tejedor Garavito. The post-holder will be line managed by Dr Sarchil Qader and will be required to support several different projects at WorldPop under the supervision of the relevant project lead(s).  You are expected to engage and support external partner and client organisations such as Google, Planet, Microsoft, UNICEF and UNFPA.  You will get additional support from WorldPop’s Portfolio Management Office (PMO), Faculty Operating Services (FOS) for SoGES (School of Geography & Environmental Science) and FELS, University Professional Services. |

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| Special Requirements |
| The role-holder is likely to be expected to travel internationally occasionally during the period of employment to attend research meetings, contribute to running workshops/training and attend national and international conferences for the purpose of disseminating outputs and sharing knowledge.  *Applications for Research Fellow positions will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon successful completion of the PhD. Prior to the qualification being awarded the title of* ***Senior Research Assistant*** *will be given.* |

**PERSON SPECIFICATION**

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | PhD or equivalent professional qualifications in a computer science/electrical engineering/quantitative discipline, ideally with a focus on computer vision, machine learning, time series image analyses, and/or AI, and use these to extract features from satellite imagery.  Proficiency in programming languages such as Python, C++ or Java and familiarity with deep learning.  Knowledge of optimization techniques, parallel computing and GPU programming for efficient model training and deployment.  Familiarity and knowledge of coding in cloud-based platforms such as Google Earth engine or similar environments. | Detailed knowledge, understanding and experience of spatial analytical methods  Familiarity with spatial visualization tools and methods | Application documents, interview |
| Expected Behaviours | Able to apply and actively promote equality, diversity and inclusion principles to the responsibilities of the role.  Demonstrate the [Southampton Behaviours](https://www.southampton.ac.uk/~assets/doc/hr/Southampton%20Behaviours.pdf) and work with colleagues to embed them – as a way of working within the team. |  |  |
| Planning and organising | Able to organise own research activities to deadline and quality standards  Able to plan and organise own workload in the absence of supervision |  | Application documents, interview |
| Problem solving and initiative | Proven ability to manage research projects, meeting defined milestones on time  Able to develop understanding of complex problems and apply in-depth knowledge to address them |  | Application documents, interview |
| Management and teamwork | Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development |  | Application documents, interview |
| Communicating and influencing | Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience  Able to present research results at group meetings and conferences  Able to write up research results for publication in leading peer-viewed journals  Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes |  | Application documents, interview |
| Other skills and behaviours | Understanding of relevant Health & Safety issues  Positive attitude to colleagues and students |  | Application documents, interview |
| Special requirements | Able to attend national and international conferences to present research results  Able to travel to visit national Ministries of Health and partner agencies in low-income countries |  | Application documents, interview |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| Yes | If this post is an office-based job with routine office hazards (e.g.: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| No | If this post is not office-based or has some hazards other than routine office (e.g.: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work |  |  |  |
| Extremes of temperature (e.g.: fridge/ furnace) |  |  |  |
| ## Potential for exposure to body fluids |  |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) |  |  |  |
| ## Exposure to hazardous substances (e.g.: solvents, liquids, dust, fumes, biohazards). Specify below: |  |  |  |
| Frequent hand washing |  |  |  |
| Ionising radiation |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling |  |  |  |
| ## Driving university vehicles (e.g.: car/van/LGV/PCV) |  |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) |  |  |  |
| ## Vibrating tools (e.g.: strimmers, hammer drill, lawnmowers) |  |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling |  |  |  |
| Repetitive crouching/kneeling/stooping |  |  |  |
| Repetitive pulling/pushing |  |  |  |
| Repetitive lifting |  |  |  |
| Standing for prolonged periods |  |  |  |
| Repetitive climbing (i.e.: steps, stools, ladders, stairs) |  |  |  |
| Fine motor grips (e.g.: pipetting) |  |  |  |
| Gross motor grips |  |  |  |
| Repetitive reaching below shoulder height |  |  |  |
| Repetitive reaching at shoulder height |  |  |  |
| Repetitive reaching above shoulder height |  |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public |  |  |  |
| Lone working |  |  |  |
| ## Shift work/night work/on call duties |  |  |  |