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| Last updated: | <date> |

**JOB DESCRIPTION**

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| Post title: | **Research Fellow** | | |
| Standard Occupation Code: (UKVI SOC CODE) | 2119 - Natural and social science professionals | | |
| School/Department: | Clinical and Experimental Sciences | | |
| Faculty: | Medicine | | |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Prof Tom Wilkinson and Dr Michael Bennett | | |
| Posts responsible for: |  | | |
| Post base: | Office-based (see job hazard analysis) | | |

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| Job purpose |
| To undertake theoretical and numerical research in accordance with the specified research project “Automated and AI-driven analysis of pulmonary vascular morphology from CT as a biomarker in COPD”, under the supervision of Prof Tom Wilkinson and Dr Michael Bennett. The post will be based in the Clinical and Experimental Sciences department of the Faculty of Medicine at University of Southampton, in collaboration with University Hospitals Southampton NHS Foundation Trust. |

| Key accountabilities/primary responsibilities | | % Time |
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|  | To undertake a range of research activities within the Asthma + Lung UK funded project “Automated and AI-driven analysis of pulmonary vascular morphology from CT as a biomarker in COPD” included (but not limited to):   * Development of algorithms in MATLAB and/or Python. * Research and development of new measurements of pulmonary blood vessels. | 35 % |
|  | Developing machine learning models for segmentation and/or prediction, including data labelling, training, and testing. | 20 % |
|  | Collaborate/work on original research tasks with colleagues in other institutions, particularly University Hospital Southampton NHS Foundation Trust. | 15 % |
|  | Regularly disseminate findings by taking the lead in preparing publication materials for referred journals, presenting results at conferences, or exhibiting work at other appropriate events. | 5 % |
|  | Contribute to the writing of bids for research funding | 5 % |
|  | Carry out administrative tasks associated with specified research funding, for example risk assessment of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control. | 5 % |
|  | Supervise work of junior research staff. | 5 % |
|  | Carry out occasional undergraduate supervision, demonstrating or lecturing duties within own area of expertise, under the direct guidance of a member of departmental academic staff. | 5 % |
|  | Any other duties as allocated by the line manager following consultation with the post holder. | 5 % |

| Internal and external relationships |
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| Direct responsibility to academic primary line-manager (UoS, Prof Tom Wilkinson) as well as secondary line-manager (UHS, Dr Michael Bennett).  May have additional reporting and liaison responsibilities to external funding bodies or sponsors.  May be asked to serve on a relevant School/Department committee, for example research committee.  Collaborators/colleagues in other work areas and institutions. |

| Special Requirements |
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| To be available to participate in collaborative work within the aforementioned institutions.  To attend national and international conferences for the purpose of disseminating research results.  *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 and experience in scientific computing.  Experience of algorithm development in MATLAB and/or Python. | PhD in scientific computing applied to medical imaging.  Detailed understanding and knowledge of applied mathematics.  Experience of developing and implementing machine learning models. | Certificates, interview, or references |
| Planning and organising | Able to organise own research activities to deadline and quality standards |  | Interview and references |
| Problem solving and initiative | Able to develop understanding of complex problems and apply in-depth knowledge to address them.  Able to develop original techniques/methods |  | Interview and references |
| Management and teamwork | Able to supervise work of junior research staff, delegating effectively.  Able to contribute to School/Department management and administrative processes.  Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development |  | Interview and references |
| 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 and interview |
| Other skills and behaviours | Understanding of relevant Health & Safety issues  Positive attitude to colleagues and students |  | Application and interview |
| Special requirements | Able to attend national and international conferences to present research results |  | Application and 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 (eg: 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 (eg: 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 | N/A |  |  |
| Extremes of temperature (eg: fridge/ furnace) | N/A |  |  |
| ## Potential for exposure to body fluids | N/A |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) | N/A |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: | N/A |  |  |
| Frequent hand washing | N/A |  |  |
| Ionising radiation | N/A |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling | N/A |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) | N/A |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) | N/A |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) | N/A |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling | N/A |  |  |
| Repetitive crouching/kneeling/stooping | N/A |  |  |
| Repetitive pulling/pushing | N/A |  |  |
| Repetitive lifting | N/A |  |  |
| Standing for prolonged periods | N/A |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) | N/A |  |  |
| Fine motor grips (eg: pipetting) | N/A |  |  |
| Gross motor grips | N/A |  |  |
| Repetitive reaching below shoulder height | N/A |  |  |
| Repetitive reaching at shoulder height | N/A |  |  |
| Repetitive reaching above shoulder height | N/A |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public | N/A |  |  |
| Lone working | N/A |  |  |
| ## Shift work/night work/on call duties | N/A |  |  |