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| Last updated: | August 2021 |

**JOB DESCRIPTION**

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| Post title: | **Research Software Engineer / Research Fellow in AI/ML** |
| Academic Unit/Service: | P&A |
| Faculty: | Faculty of Physical Sciences and Engineering |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4 |
| \*ERE category: | Research |
| Posts responsible to: | Prof. D. Altamirano |
| Posts responsible for: | n/a |
| Post base: | Office-based – working from home is also allowed. |

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| Job purpose |
| To develop algorithms for analysing images taken by transmission electron microscopes (TEM) using machine learning and artificial intelligence. |

| Key accountabilities/primary responsibilities | % Time |
| --- | --- |
|  | Design, develop, and refine ML/AI algorithms for the analysis of medical images and optimise existing algorithms for greater accuracy and efficiency. | 60 % |
|  | Implement data augmentation techniques to improve model performance. | 10 % |
|  | Document code, algorithms, and processes thoroughly for future reference and for use by other team members. | 10 % |
|  | Work closely with medical researchers and other team members to understand requirements and translate these into technical specifications. | 10 % |
|  | Any other duties that fall within the scope of the post as allocated by the line manager following consultation with the post holder. | 10 % |

| Internal and external relationships |
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| Special Requirements |
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| * Travel to other universities and research organisations will be required – typically within the UK although.
* Flexible hours of work may be required if appropriate as well as core hours.
* Good communication skills are essential
* The maintenance of confidentiality in information and data management at all times is mandatory
* The post will require the job holder to possess excellent interpersonal and client service skills.
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Person Specification

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | * PhD or an equivalent combination of qualifications and experience in scientific research. This level of knowledge and experience may have been achieved via a postgraduate degree or professional qualifications in a subject area supplemented by demonstrable experience in scientific research.
* Development experience with any two of the following: Python, R, Javascript/Node.js, C, C++
* Ability to deploy software to, and configure, common linux distributions
* Practical experience of version control systems
* Experience with AI, ML, and open computer vision.
 |  | Application/ Interview |
| Planning and organising | * Ability to progress collaborative multi-site activities to meet deadlines and quality standards
* Proven organisational and time management skills
 |  | Application/ Interview |
| Problem solving and initiative | * Able to independently solve a range of problems by responding to varying circumstances
* Ability to apply specialist knowledge to analyse complex problems and recommend solutions
 |  | Application/ Interview |
| Management and teamwork | * Able to contribute to team efficiency through sharing information and constructively supporting others.
* Able to maintain good working relationships across a range of colleagues, clients and stakeholders.
* Able to work effectively independently and identify issues that must be raised with the team
 |  | Application/ Interview |
| Communicating and influencing | * Ability to write clear and concise technical material
* Ability to prepare and deliver presentations to audiences with different levels of technical ability
* Ability to identify and articulate requirements and issues arising from meetings
* Ability to train others and conduct tutorial-style activities
 | * Experience of Software Carpentry instructing or helping
 | Application/ Interview |
| Other skills and behaviours | * Evidence of good interpersonal skills.
* A flexible approach and manner
* A willingness and demonstrable experience of learning new technologies and methods of working
* A passion for research
 |  | Application/ Interview |
| Special requirements | * Proactive in promoting a working environment that is inclusive and engaging; recognising the value diversity brings.
 |  | Application/ Interview |

**JOB HAZARD ANALYSIS**

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

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| [x]  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 |  |  |  |
| Extremes of temperature (eg: fridge/ furnace) |  |  |  |
| ## Potential for exposure to body fluids |  |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) |  |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: |  |  |  |
| Frequent hand washing |  |  |  |
| Ionising radiation |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** |
| ## Food handling |  |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) |  |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) |  |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) |  |  |  |
| **PHYSICAL ABILITIES** |
| Load manual handling |  |  |  |
| Repetitive crouching/kneeling/stooping |  |  |  |
| Repetitive pulling/pushing |  |  |  |
| Repetitive lifting |  |  |  |
| Standing for prolonged periods |  |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) |  |  |  |
| Fine motor grips (eg: 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 |  |  |  |