

**Job Description**

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| **Job Title:** | **Post-Doctoral Research Fellow** |
| **Department / School:** | Centre for Medical Informatics, Usher Institute, Molecular, Genetic and Population Health Sciences |
| **Reports To:** | Dr Luciana D’Adderio, Chancellor’s Fellow |

**Job Purpose**

The post holder will work on a research project examining the implications of artificial intelligence (AI) for healthcare. The project focuses on the real-world effects of AI on clinicians, healthcare practices, and the healthcare system. The post holder will be involved in the design, implementation and support collaboration on research outputs.

**Main responsibilities**

The post-holder will develop and deliver research in collaboration with the project team and project partners (including AI vendors, regulators, and the NHS).

**1. Design and implementation of qualitative research (approx. 60%)**

* Lead in designing and executing the qualitative research elements of the project including: desk-based literature reviews, focus groups, ethnographic observations, interviews and stakeholder workshops.
* Lead the analysis and interpretation of the data arising from the research.
* Play an active role in monitoring and reviewing relevant literature and policy developments for the project which will support the research team in publishing high quality research outputs.

**2. Publication of research outputs and dissemination for academic and non-academic audiences (approx. 30%).**

* Co-author and where appropriate, lead in authoring high-quality social science and other interdisciplinary research outputs including scholarly publications, workshop reports for academic and non-academic audiences and directed policy briefs.
* Present research findings at seminars, workshops, conferences and other events.

**3. Support and contribute towards the activities of the research project (approx. 10%).**

* Support the PI (D’Adderio) in managing the project in addition to working closely with the PI and Co-Is (including across Edinburgh University and the NHS) to deliver on the research.
* Engage with our project’s industry and public sector partners, our advisory board, researchers in related projects, as well as help organise joint research, dissemination and impact activities.

**Key contacts/ relationships**

* Dr Luciana D’Adderio (PI on the project) will act as line manager and will have formal responsibility for supporting and managing performance within the University of Edinburgh’s management and employment policies.
* The job holder will be located in the Centre for Medical Informatics, Usher Institute. The Usher Institute is a multidisciplinary research centre focusing on Health and Social Care related research.

**Planning & Organising**

* Plan and organise your workload independently on a day-to-day basis, in collaboration with the project team and under the supervision of PI D’Adderio, to meet the strategic aims of the project and ensure successful delivery of the research programme.
* Ensure the research is conducted in accordance with ethical guidelines, keeping to the research timetable, and applying the appropriate qualitative methodologies.
* Maintain appropriate systems for organising, preparing, managing and analysing all data and ensure analysis is documented regularly and made accessible to team members at all times.
* Contribute to requests for information on research, dissemination, knowledge exchange, engagement and impact activities for reporting to funders and other stakeholders.
* Prepare interim progress reports and presentations for research meetings, as required.
* Manage effectively the balance between research, writing and other activities.
* Regularly liaise and maintain good levels of communication with project colleagues.

**Problem Solving**

* Use initiative to respond to most day-to-day problems within your research area.
* Gather, analyse and interpret research data and draw conclusions from it, and help other researchers in the team to resolve problems and develop new insights, as appropriate.
* Respond quickly and appropriately to requests for advice or information from partner stakeholders or the media, referring to your line manager where necessary.

**Decision Making**

* **Taken independently:** Developing independent research agenda in alignment with the project, organise own workload according to priority and adapt as necessary; setting of short-term timelines.
* **In collaboration with others:** Co-designing research study with the project team; engage collaboratively in problem solving; data interpretation; knowledge exchange, dissemination and impact planning, and delivery.
* **Referred to manager (D’Adderio):** Overall timelines; changes of direction; response to serious and unexpected events; identification of the best way forward.
* **Level of Direction Given:** The postholder will be managed by PI (D’Adderio) who will offer general orientation and advice and collaborate in development and support the implementation of the research strategy.

**Knowledge Skills and Experience**

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| **Attribute** | **Essential** | **Desirable** |
| **Education, Qualifications & Training** | 1. A completed PhD (or near completion) in a relevant social science discipline e.g., business and management studies, organization studies, information systems, innovation, science and technology studies (applications from other disciplines are welcomed if they have a strong background in conducting qualitative research) 2. Research project experience e.g., as a research associate or assistant (this can include time spent on PhD) | 1. Experience of having worked on a research project after completion of PhD or equivalent experience |
| **Knowledge & Experience** | 1. Designing and conducting empirical qualitative research including organising, conducting, collecting, managing and analysing data from ethnographic observations, interviews, focus groups, surveys, and other forms of data collection. 2. Ability to work independently, under supervision and as part of a team 3. Ability to communicate complex information clearly to expert and non-expert audiences 4. Excellent project management, organisational and administrative skills, and the ability to take forward a strategically focused programme of research work independently and with minimal supervision. 5. Experience of or willingness to engage in interdisciplinary academic activities 6. Excellent personal, written and verbal communication skills 7. Excellent academic record and work ethic. | 1. Experience of conducting research in digital healthcare. 2. Knowledge of Qualitative methodologies including Routines Dynamics 3. Demonstrated ability to publish in peer-reviewed academic journals 4. Experience in knowledge exchange and public engagement 5. Conducting desk-based research across different disciplines 6. Knowledge of the management and organizational   issues arising from AI and autonomous systems   1. Experience of interdisciplinary collaboration in terms of research analysis, writing and/or other academic engagement. |

**Dimensions**

The job does not involve direct line management of staff, but the job holder will be expected to liaise with academic and administrative staff across the CMI/Usher Institute and beyond.

**Additional Information**

Decision-support Artificial intelligence (AI) systems are being deployed into healthcare which are aimed at interpreting patient scans rapidly and accurately therefore reportedly reducing the critical time disease onset and treatment. There is, however, an ‘AI chasm’ between the performance and effects of AI in laboratory and the clinical setting. This means that we do not understand the real-world impacts of AI on clinicians (e.g., their tasks, roles, skills, expertise) and the healthcare system (e.g., diagnostic workflows, care delivery pathways). The project will systematically assess the deployment of decision support AI systems across Scotland over two years with the aim to: 1- accurately map how AI shapes diagnostic practices and care delivery pathways. 2- highlight gaps and suggest remedies to improve both clinical work performance (e.g., knowledge/skills/roles augmentation, task/decision automation) and healthcare system effectiveness (e.g., clinical teamwork coordination, imaging pathways reconfiguration and optimisation). 3- construct a comprehensive, real-world AI deployment framework which addresses its technological, social and organisational impacts and which can be used by practitioners and policy makers to inform all future AI-driven healthcare implementations in Scotland and beyond.

To explore these and similar issues, the post-holder will lead on the qualitative research component of this project. They will conduct in depth ethnographic observations of AI adoption and use at major Scottish hospitals, complemented by a series of stakeholder interviews to map the consequences of AI implementation on healthcare practitioners and practices. They will also gather additional data by organising focus groups, workshops and performing desk-based literature reviews. The post-holder will synthesise these findings and work with PI D’Adderio to perform data analysis and synthesis, leading to the production of new theory. They will additionally contribute to the presentation and writing of research outputs. Please note that experience in qualitative is essential for this post, whilst familiarity with healthcare or AI and related technologies would be preferred, but not essential.

The qualitative research findings will inform policy and legislative proposals, but they will also crucially serve as an input for the other workstreams of the project, For example, the findings will be key for the development of a theoretical framework synthesizing the effects of AI on people and practices. As a team, our research outputs and activities will produce a mix of academic, industry and public-facing resources for designing, deploying and governing effective and responsible AI systems.

FURTHER DETAILS:

The Edinburgh University’s Usher Institute will provide an ideal setting to undertake the proposed research as an academic innovation hub combining an established interdisciplinary research culture together with an unrivalled focus on AI and data-driven technologies for medicine and healthcare. The institute’s close links with the NHS will provide both support for fieldwork access across the 3 NHS hubs as well as for the development, validation and consolidation of project outcomes. The Centre for Medical Informatics (Edinburgh University’s Bioquarter) hosts several leading AI-related medical and healthcare projects and will provide state-of-the-art research space for the researcher. CMI will also offer invaluable scientific and practical support for the project by drawing on solid collaborations both with colleagues focusing on algorithms/AI design and deployment and with those focusing on AI adoption and evaluation aspects. The Usher Institute is currently undergoing a significant expansion phase following the 1.3bn ‘City Region Deal’ award, including the creation of a brand new £94m building. This will see the Usher become (together with Bayes and Edinburgh Futures Institutes with which it holds strong collaborations) one of the leading Data Driven/AI Innovation Hubs in Scotland, the UK and beyond. In addition, candidates will benefit from input on funding applications, publication development and academic portfolio development. They will also be joining a vibrant cohort of postdocs and doctoral students within Usher and will have access to training offered across the University of Edinburgh, including by the Institute for Academic Development.