# Post-Doctoral Data Scientist / Bioinformatician
# Leeds Institute of Medical Research

## Supplementary information about the role

The postholder will be a University employee and be provided with an Honorary contract with Leeds Teaching Hospitals (LTHT) NHS Trust as an Honorary Bioinformatician. The successful candidate will be hosted in an NHS-side Clinical Scientific Computing team providing bioinformatics services that enable and support operational services and research & development activity at LTHT working in close collaboration with University colleagues. This will allow them to work effectively on clinical datasets within the NHS firewall. This post will also help bolster NHS-University side collaboration with computer science academics.

Please note: **University of Leeds terms and conditions of employment will apply.**

### 1. JOB DETAILS

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| **Job Title:** | Honorary Bioinformatician - Medical Physics |
| **Reports to:** | Principal Bioinformatician - Medical Physics |
| **Band:** | 7 |
| **Department:** | Department of Medical Physics and Engineering |
| **Location**[1] | St. James's University Hospital |

### 2. JOB PURPOSE/SUMMARY

The jobholder provides bioinformatics services for medical physics and clinical engineering that enable and support operational services and research & development activity.

Specific roles include:

- Development and implementation of novel clinical computer software devices, applications and models within relevant quality and legislative frameworks.

[1] The Trust reserves the right to require employees to work either temporarily or permanently at or from any other of the Trust's establishments at any time

- Application of data science methods for the orchestration and analysis of clinical datasets, medical images and the results of computer simulations.
- Evaluation, configuration and commissioning of computerised healthcare technology.
- Working with academics, other scientists and clinicians, participating in multi-disciplinary research activity.
- Training others in the field of bioinformatics.

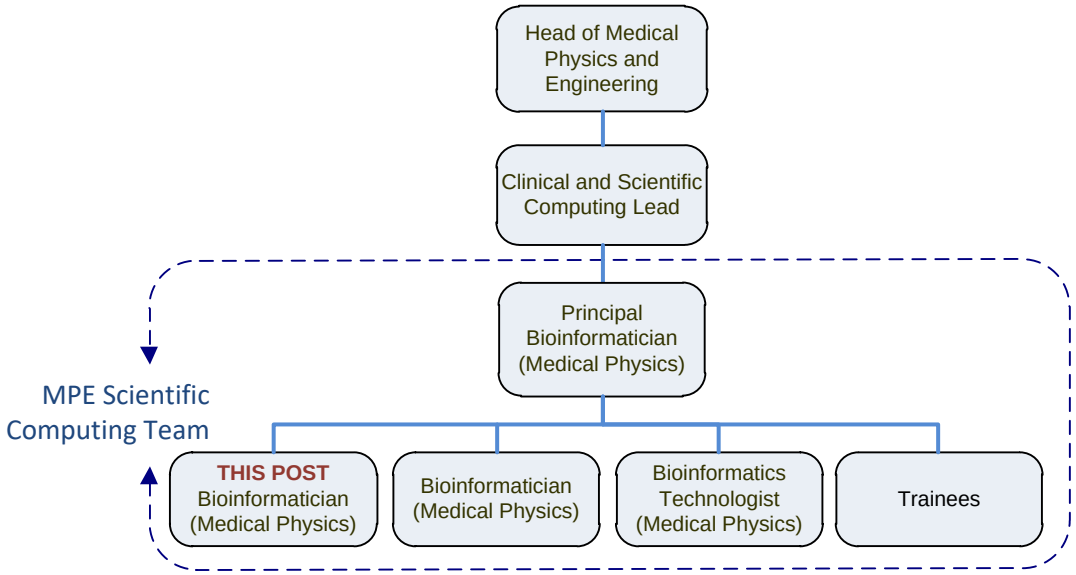
The jobholder takes a leading bioinformatics role within medical physics and clinical engineering and works on projects that might relate to radiotherapy, radiation protection, CT and X-Ray based radiology, nuclear medicine, MRI, renal technology, rehabilitation engineering or the deployment and management of biomedical equipment.

The Department of Medical Physics and Engineering in Leeds Teaching Hospitals NHS Trust provides a wide range of scientific and para-clinical services that entail the application of physics and engineering to healthcare. As well as serving Leeds Teaching Hospitals Trust, services are also provided to other Trusts in the Northern and Yorkshire region, and to some non-NHS customers. The NHS department is organised under six main functions:

- Business management and administration
- Clinical engineering and rehabilitation engineering
- Radiological physics & radiation protection
- Radionuclide and MR physics
- Radiotherapy physics
- Scientific computing

Scientific computing in the Department of Medical Physics and Engineering supports and advances patient care by applying scientific and computing principles to computerised healthcare technology within the clinical bioinformatics field. Computerised healthcare technology is defined as computerised medical devices and clinical computer systems that are used either in isolation or interconnected for direct patient care.

## 3. ORGANISATIONAL CHART




## 4. PRINCIPAL DUTIES & AREAS OF RESPONSIBILITY

Management and Leadership

- Lead multi-disciplinary projects that relate to the design and development of clinical computer software; the implementation of tools that analyse clinical information; and the implementation of computerised healthcare technology.
- Adopt the role of key trainer for specified systems or models of healthcare technology and as such provide training that includes giving presentations and organising structured, in-house training sessions for staff both within and outside of the department.
- Carry out and, where appropriate, organise internal resource management tasks that will facilitate the effective running of the group. Such tasks may include work equipment maintenance, store area management, controlled documentation management and controlled software management.

Science and Technology

- Work with clinicians and other scientists in the healthcare environment providing specialist physical sciences bioinformatics services to patient care.
- Develop and implement novel clinical computer software devices, applications and software models utilising the department's quality management design and development framework.
- Orchestrate and analyse clinical data including medical images for operational purposes, for clinical audit, and for service development activity.

- Employ data science methods and tools to analyse tabulated data, image-based datasets and the output of computer simulations, presenting the resulting information in multiple formats.
- Evaluate, configure and commission computerised healthcare technology.
- Carry out routine application maintenance procedures and controlled system changes on computerised healthcare technology and related systems.

Research and Innovation

- Take a leading bioinformatics role working with academics, clinicians and other scientists as part of formal research & development projects.
- Work in multi-disciplinary teams, optimising and advancing computerised healthcare technology and the use of clinical data to advance patient care.

Quality Management

- Fully participate in the department's ISO 9001:2015 quality management system.
- Develop and perform quality assurance and quality control procedures on computerised healthcare technology.
- Develop quality management system processes and related documentation.
- Carry out medical device software development in accordance with local policy, national guidelines and in compliance with Medical Device Regulations.
- Perform quality system administrative tasks such as recording non-conformity, performing corrective and preventive action, internal auditing, and management of quality management system documents.

Risk Management

- Understand and apply clinical risk management principles to computerised healthcare technology and related systems.
- Understand specific procedures and regulations applicable to medical devices, computing and the use of clinical data within the healthcare environment.
- Understand and fully comply with local policy, governance structures, national guidelines and legislation for physical sciences computing and related bioinformatics matters.
- Provide advice and guidance to others on bioinformatics aspects of clinical risk management.
- Working with others, investigate incidents, identify root causes and rectify problems on computerised healthcare technology and related systems.

Information Management

- Maintain accurate records in appropriate records systems.
- Accurately interpret and communicate complex results derived from highly specialised technical and scientific information from multiple sources, in multiple formats and through a variety of methods to staff both within and outside of the department.
- Ensure data and records are maintained in accordance with the requirements of local policy, governance structures, national guidelines and legislation.
- Provide advice and guidance on information governance, data protection legislation and bioinformatics aspects to research governance.

Training and Professional Development

- Teach and train members of staff including clinical technologists, clinical scientists and other users of healthcare technology in the jobholder's own area of expertise.
- Supervise and mentor students and trainees.
- Give presentations at scientific meetings (local, national, international) and also provide lectures and seminars.

## 5. *THE LEEDS WAY VALUES*

Our values are part of what make us different from other trusts, so we see this as a strength, as well as a responsibility. They have been developed by our staff and set out what they see as important to how we work. Our five values are:

- Patient-centred
- Collaborative
- Fair
- Accountable
- Empowered

All our actions and endeavours will be guided and evaluated through these values

Additionally, the following are core values which relate specifically to this post:

- Clinical outcome focused
- Emphasis on safe practice
- Commitment to quality and continuous improvement, learning from mistakes
- Commitment to multi-disciplinary working for best patient benefit

- Value integrity and honesty; ensuring patient diagnosis and treatments are given accurately and that any problems are addressed at the earliest opportunity.
- Value patient dignity and confidentiality; caring for patients and their families.
- Commitment to research, education and innovation.

## 6. WEST YORKSHIRE ASSOCIATION OF ACUTE TRUSTS (WYAAT)

Leeds Teaching Hospitals NHS Trust is part of the West Yorkshire Association of Acute Trusts (WYAAT), a collaborative of the NHS hospital trusts from across West Yorkshire and Harrogate working together to provide the best possible care for our patients.

By bringing together the wide range of skills and expertise across West Yorkshire and Harrogate we are working differently, innovating and driving forward change to deliver the highest quality care. By working for Leeds Teaching Hospitals NHS Trust this is your opportunity to be a part of that change.

WYAAT is the acute sector arm of the West Yorkshire and Harrogate Health and Care Partnership, one of the largest integrated care systems in the country. The Partnership's ambition is for everyone to have the best possible health and wellbeing, and the work of WYAAT, and each individual trust, supports that ambition.

## 7. INFECTION CONTROL

The jobholder must comply at all times with the Leeds Teaching Hospitals NHS Trust Infection Control policies, in particular by practising Universal Infection Control Precautions. Hand hygiene must be performed before and after contact with patients and their environment.

## 8. HEALTH AND SAFETY / RISK MANAGEMENT

All staff are responsible for working with their colleagues to maintain and improve the quality of services provided to our patients and other service users. This includes complying at all times with the Leeds Teaching Hospitals NHS Trust Policies, including Health and Safety policies, in particular by following agreed security and safer working procedures, and reporting incidents using the Trust Incident Reporting system

## 9. EQUALITY AND DIVERSITY

The jobholder must comply with all policies and procedures designed to ensure equality of employment and that services are delivered in ways that

meet the individual needs of patients and their families. No person whether they are staff, patient or visitor should receive less favourable treatment because of their gender, ethnic origin, age, disability, sexual orientation, religion etc.

## 10. TRAINING AND PERSONAL DEVELOPMENT – CONTINUOUS PROFESSIONAL DEVELOPMENT

The jobholder must take responsibility in agreement with his/her line manager for his/her own personal development by ensuring that Continuous Professional Development remains a priority. The jobholder will undertake all mandatory training required for the role.

## 11. COMMUNICATION & WORKING RELATIONSHIPS

The jobholder works alongside other users of computerised healthcare technology and clinical data, including clinical service managers, clinicians, Clinical Scientists, clinical engineers, clinical technologists, AHP's and nurses. There is frequent liaison with clinicians and other Clinical Scientists ensuring that services are consistent with clinical, scientific, technical, legislative and quality requirements. It is necessary to interpret and translate highly specialised technical and scientific data into complex information that is then communicated on a daily basis, for example describing the methods and output of data analysis or explaining computer programme code during project meetings.

The jobholder liaises with academics, clinicians, other scientists, etc. to support and participate in the research and development programmes.

The jobholder gives presentations at scientific meetings (local, national, international) and also provides teaching session, lectures and seminars.

The jobholder collaborates with external NHS organisations, the University of Leeds, other hospitals, professional and scientific bodies, and external companies such as equipment manufacturers.

## 12. SPECIAL WORKING CONDITIONS

**i) PHYSICAL EFFORT:** Requirement to move equipment weighing in the order of 10-20Kg such as large pieces of computer equipment, sub-assemblies or test equipment, typically once or twice each week.

**ii) MENTAL EFFORT:** Prolonged concentration, for many hours on most days when working at computer workstations developing software and carrying out data analysis.

**iii) EMOTIONAL EFFORT:** Requirement to work in clinical areas when developing applications and exposure to clinical data and images that could cause distress.

**iv) WORKING CONDITIONS:** Requirement to use computer workstations for many hours on most days. Occasional work is required in dusty, dirty environments when installing or maintaining computer hardware.