THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF BIOLOGY, MEDICINE & HEALTH

FACULTY OFFICE BIOLOGY, MEDICINE & HEALTH

FBMH RESEARCH & INNOVATION

SENIOR EXPERIMENTAL OFFICER (BIOIMAGING / IMAGE ANALYSIS)

VACANCY REF: BM&H-14959

Salary:	Grade 7 £41,526 to £51,034 per annum according to relevant experience.
Hours:	Full time
Duration:	Fixed term from January 2020 until 31 December 2022
Location:	Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:
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Faculty of Biology, Medicine and Health

Introduction to the University of Manchester and the Faculty of Biology, Medicine and Health

The University of Manchester is the largest single-site university in the UK with around 38,000 students and more than 11,000 staff. We aim to become one of the top 25 research universities in the world by 2020 and are committed to delivering an outstanding teaching and learning experience; contributing to the social and economic success of local, national and international communities; producing the highest calibre graduates; and developing our staff to be amongst the very best of their peers.

To achieve our ambitious goals we aim to attract and retain the very best people to work across a range of academic disciplines and support functions.

The Faculty of Biology, Medicine and Health (FBMH)
The Faculty of Biology, Medicine and Health was created on 1 August 2016 when the Faculty of Life Sciences and the Faculty of Medical and Human Sciences will be brought together in a new, integrated structure to deliver a truly translational approach to the life sciences, ensuring smooth research pathways - from pure discovery science through to clinical application and patient care.

With a total annual income of over £300 million, and over 3,000 members of staff, the new Faculty is comparable in size to a medium-sized UK university. Thirty undergraduate and 90 postgraduate programmes offer our 11,000 students opportunities to develop the skills and knowledge they need for a successful career.

The Faculty's matrix structure facilitates interdisciplinary working and enables us to learn from each other and share best practice; and our eight, strategic Research Domains help to articulate our research strengths, drive large-scale, collaborative research activities and strengthen relationships with our research and healthcare partners.

The integration of discovery biology, clinical application and patient care within a single Faculty, particularly in a region with notable health inequality, provides us with a real opportunity to have a very significant and positive impact on people's lives.

Our strategic partnerships

The new Faculty inherited a number of key strategic partnerships that underpin its ambitions to develop ground-breaking research.

Working alongside six local NHS Trusts, the Faculty is a key member of the Manchester Academic Health Science Centre (MAHSC) - a federation of equal partners that unites leading healthcare providers with world-class academics and researchers. It aims to be a global centre for the delivery of applied health research and education and provide leadership for our local and regional health systems.

The Faculty also play a leading role in Health Innovation Manchester (HInM), which was launched in September 2015, as part of the UK Government's decision to devolve health and social care responsibilities to Greater Manchester. HInM offers a unique opportunity to bring together health and social care, academic and life science related business resources across the region to deliver an innovative health ecosystem that can help accelerate innovation into our local health and social care systems, enhance our global scientific standing and act as a magnet for inward investment.

Key partnerships in the charitable sector include Cancer Research UK; Diabetes UK; and the Wellcome Trust; and the Faculty will also have research and funding links to a number of commercial organisations including Unilever, AstraZeneca, GlaxoSmithKline and Boots, who will help us to bring new drugs and products to the market.

Working for the University of Manchester

The University of Manchester strives to make our community a welcoming, caring and enthusiastic one, fuelling ambition with opportunities and support to help us all achieve our personal and professional goals.

Our diverse job opportunities include an attractive benefits package with family-friendly policies that provide for flexible working. We care deeply about career and personal development, offering a structured induction programme for new staff, an annual performance and development review, staff training for all career stages and mentoring opportunities to support your career development.

We have a genuine commitment to equality of opportunity for our staff and students, and are proud to employ a workforce that reflects the diverse community we serve.

As a global institution, situated at the heart of a lively, culturally diverse city, we welcome applicants of all nationalities. To help international job applicants plan for life in the UK, we have put together

some useful information on passports and visas, travel to the UK, accommodation and a number of other practical considerations.

Bioimaging/Image Analysis Experimental Officer

The successful applicant will work within the Faculty of Biology, Medicine and Health (FBMH) Bioimaging Core Facility. The candidate will be expected to:

- Establish an Image Processing Suite and lead image processing and data analysis for Bioimaging Facility users and the wider Faculty
- Be the primary point of call for all users of the Facility with help and advice in image processing.
- Have an proven track record in writting image processing software tools.
- Demonstrate the ability to link multiple image processing tools into a scripted pipeline.
- Demonstrate the ability to solve complex image processing problems using a range of different techniques including the use of custom scripts rather than just commercial software.
- Design, plan and project manage image processing streams to enable multiple projects to run simultaneously.
- Script, develop and implement bespoke progammes and image processing tools that will allow image processing to be streamlined.
- Forcast demand for image processing techniques as new developments occur to ensure that the appropriate image processing tools are available to the users.
- Work alongside PIs and researchers to design and plan imaging experiments to produce appropriate data for downstream analysis and processing.
- Supervise Bioimaging Facility technician to perform computer maintenance and train the Facility staff to use the imaging programmes written by them.
- Develop novel imaging techniques that will aid data analysis including large data sets and multi-parameter data sets.
- Write and develop scripts to batch process these large multi-dimensional image sets.
- Publish high quality papers (first author) on image processing and analysis techniques developed within the Facility.
- Supervise and train users in the use of advanced image processing software.
- Design, produce and present image processing techniques and methods to the wider scientific community through workshops and online tutorials.

Overall Purpose of the Job

The Bioimaging Facility provides users from across the Faculty, and wider University, with access to a wide range of microscopes systems which produce large multidimensional datasets. However, the ability to perform high quality image processing and data analysis on these datasets is crucial for publication in high impact journals and the demand for such support has resulted in Faculty wishing to establish an image processing data analysis suite within the Bioimaging Facility.

The successful candidate will work alongside the existing Bioimaging Facility staff, but they will be the primary point of contact for all data analysis projects and will be expected to fulfil the following roles:

Development of image analysis pipelines so that large data sets can be processed automatically using a multi-step batch processing technique. This will require a candiadate with a strong and proven track record in programming, algorithm development and image processing skills that will facilitate and improve the analysis of large image data sets.

Development of imaging techniques and experiments to produce high quality data for downstream analysis. For this an excellent understanding in cell biology and imaging will be essential. The candidate will work in a team together with senior experimental officers and technical staff.

Key Responsibilities, Accountabilities or Duties

- Image processing and data analysis on a range of projects using a wide number of different software packages including IMARIS, Cell Profiler, Image Pro-Permier, ImageJ and MatLab.

- Scripting and development of new image processing and hardware control tools that will enhance the ability of the Facility to generate high quality, publishable data.

You will also be expected to:

- Deign and advise experimental design.
- Training of users on Bioimaging Facility systems.
- Write and present seminars/workshops on image processing techniques.
- Produce progress reports on the respective projects to the PIs. This will include aims of the image processing pipeline, reports on techniques used, necessary modifications to future experimental design, milestones for the image processing and ultimately contribute to the writing of the papers involving the processed data.

Ensure that the computing capabilities of the Bioimaging Facility are optimal and to achieve this

- Supervise the Bioimaging Technician in the maintance and updating of imaging software on the Bioimaging computers.
- Help in the software/hardware integration of Bioimaging microscope systems.
- Be responsible for the maintenance of the Bioimaging data processing server.

You will be required to adhere to all policies and procedures of the University including those relating to Equal Opportunities, Harassment, Health and Safety, and Smoking at Work.

PERSON SPECIFICATION

Essential Knowledge, Skills and Experience

It is **essential** that candidates have:

- Completed a PhD in science, mathematics, computer science or a relevant discipline, or equivalent experience.
- Proven track record in writing scripts/macros for data acquisition and batch processing of data.
- Demonstrate an advanced knowledge of image processing and data analysis techniques and software packages.

- Demonstrate an ability to integrate hardware control into software applications.
- Broad interests in science and computing.
- Demonstrable ability to communicate with a wide range of researchers in mathematics, computer science, life sciences and physics as it may be required to pursue an interdisciplinary research project.
- Excellent communication skills with a demonstrable ability to effectively communicate research results.
- Excellent time management skills as several projects will run concurrently.
- Ability to work independently but also as part of the Bioimaging Facility team.
- Ability to work closely with PIs, postdocs and postgrads in the design and implementation of bioimaging experiments.

Desirable Knowledge, Skills and Experience:

It is **desirable** that candidates have:

- Experience in a wide range of imaging packages including some of the following ImageJ, Matlab, Imaris, ImagePro, MetaMorph, Huygens and Cell Profiler.