Candidate Information

Position:	Image Analyst (Digital Pathology)
School/Department:	Centre for Cancer Research and Cell Biology
Reference:	19/107601
Closing Date:	Tuesday 30 July 2019
Salary:	£27,831 to £32,236 per annum (potential to progress to £35,210 per annum through sustained exceptional contribution).
Anticipated Interview Date:	13 August 2019
Duration:	Available until 31 December 2021

JOB PURPOSE:

The postholder will develop innovative approaches to image analysis (including algorithm application and design, along with automated detection and grading of cancer from microscopic images) as part of the Tissue Hybridisation and Digital Pathology (TH & DP) section of the Precision Medicine Centre of Excellence (PMC). The role will require a level of independent and creative effort in their approach to these problems, and to work closely with the Clinical lead for TH & DP and supported by the Scientific lead for TH & DP.

MAJOR DUTIES:

1. Design, develop, and validate new algorithms in the domain of Image Analysis for Computational Pathology.
2. Develop prototypes and Proofs of Concept of algorithms and workflows.
3. Assist with the development of these algorithms and proofs of concept.
4. Analyse data and produce reports regarding performance parameters of the algorithms in development.
5. Support staff in the TH & DP section to ensure all work is carried out to the required standard and timescales.
6. Ensure up to date knowledge of the scientific and technological data in the field and provide appropriate training to scientific staff in the team.
7. Contribute to valid records of laboratory and project activities, including validation reports, project reports and budget reports, and participate in corrective action as appropriate.
8. To remain current with developments in the rapidly changing field of digital image analysis and be able to advise on technology and software for future procurement exercises.
9. Support research staff in the use of a range of instrumentation that will be used within the cellular biomarker research programme image analysis software packages across a wide variety of tissue biomarker analysis projects.
10. Support technical standardisation across collaborative partners by engaging with technical and scientific staff in other UK centres.
11. Liaise with other senior technical staff and specialists in QUB and UK collaborative partners to ensure effective integration, standardisation and service support in digital pathology and provide advice to the Digital Pathology Group.
12. Develop knowledge and maintain an up-to-date understanding of the use of human tissue and digital pathology according to the Human Tissue Act 2004 and accreditation standards such as, CLIA, ISO18159(2012) and understand the ethical issues relating to digital pathology.
13. Ensure that the Digital Pathology Group comply with good clinical practice, good laboratory practice, ethical, governance and regulatory guidelines in the delivery of a busy digital pathology research programme.
14. Contribute to manuscript preparations, reports and other publication outputs and be responsible for ensuring the accuracy of the technical content disseminated.

Planning and Organising:

1. Prioritise own work on a day-to-day basis and liaise with colleagues to co-ordinate the service provision and research projects.
2. Plan with the Clinical lead and Scientific Lead to ensure the successful delivery of specific goals project.
3. Contribute to group planning.

4. Contribute to the writing of SOPs and regulatory compliance including overseeing visits from regulatory organisations.

Resource Management Responsibilities:
1. To be involved in the management, mentoring and training of junior technical staff and scientists using imaging resources.
2. Prioritise own work on a day-to-day basis and liaise with colleagues to co-ordinate the service provision and research projects.
3. Plan with the Clinical lead and Scientific Lead to ensure the successful delivery of specific goals project.
4. Contribute to group planning.
5. Provide training and guidance to other clinical, academic and support staff who will use the fluorescent imaging and digital pathology facilities.

Internal and External Relationships:
1. Liaise on a regular basis with professionals, internal and external to the university.
2. Present ongoing activity and results regularly at departmental and laboratory meetings.
3. Work closely with the TH & DP Clinical & Scientific Leads to ensure consistency of approach.
4. Regular reporting to and communication with the TH & DP Clinical & Scientific Leads.
5. Regular liaison with other sections and teams, in particular the Bioinformatics the PMC, QUB, Genomics HPC and scientific computing.
6. Participate in and develop external networks, and build relationships with stakeholders and partners who contribute to the PMC.
7. Liaise on a regular basis with colleagues, students and research teams.
8. Build internal contacts and participate in internal networks for the exchange of information.
9. Attend external meetings and conferences to learn the latest techniques, present the activities of the PMCoE and share information and ideas.

ESSENTIAL CRITERIA:
1. Degree in Machine Learning, Deep Learning, Image Analysis or related discipline.
2. At least one year's relevant experience in the development of algorithms for the analysis of large image data, or equivalent large data sets.
3. Experience of prototyping of algorithm solutions for use by external users.
4. Experience in use of Deep Learning for convolutional neural networks with full segmentation.
5. Experience of software programming such as Python, R, NumPy, SciPy, scikit-learn, or other data analysis.
6. Experience of machine learning using languages such as Java, C++, C or other general-purpose high-level programming language.
7. Experience in collaborating with other researchers or external stakeholders to develop algorithms for use by others.
8. IT skills and knowledge of clinical and research databases.
9. Ability to support multi-professional and multi-disciplinary teams.
10. Good organising skills.
11. Supervisory skills.
12. Willingness to be trained in new technologies.
13. Ability to plan, organise and prioritise work and meet deadlines.
14. Excellent verbal and written communicating skills with experience in communicating project progress and results to external stakeholders.
15. Ability to plan and allocate work and responsibilities using discretion to determine priorities and resolve conflicts to meet targets and deadlines.
16. Supervisory skills.
17. Ability to train staff and students in use of equipment and techniques in area of expertise.
18. Team worker, highly motivated, supportive of colleagues within the group.
19. Ability to show initiative and work independently when required.
20. Occasional work outside normal working hours.

DESIRABLE CRITERIA:
1. MSc or above in Machine Learning, Deep Learning, Image Analysis or related discipline.
2. Experience in the use of OpenCV, scikit-image, ImageJ or other image processing tools and libraries.
3. Experience of Theano, Tensorflow, Caffe, Keras, or other.
4. Experience of working with Linux/UNIX environments.
5. Experience managing, integrating and analysing different data sources.

6. Proficiency with a modern high-level programming language.
7. Experience creating, querying and maintaining databases, particularly MySQL or PostgreSQL.
8. Working with multiple partners to deliver a national research programme.
9. Experience of delivering tutorials and or academic lectures at a postgraduate level.
10. Working knowledge of developing software/algorithms in accordance with the requirements of IEC 62304.
11. Knowledge of histology.
12. Knowledge of the Human Tissue Act 2004 (HTA).
13. Experience of presenting externally at conferences or to industry/collaborative partners.