Job Description

Job title	Research Assistant
Department/School	Mechanical Engineering
Job family	Education and Research
Grade	6
Reporting to	Principal Investigator (PI) or Co-Investigator (CI) for area of research
Responsible for	No staff management responsibilities
Location	University of Bath premises

Background and context

A software engineer is sought with experience in 3D programming, motion capture and/or object tracking. They will work with a team of engineers and healthcare professionals to develop and test a novel medical device as part of a prestigious nationally-funded project to benefit patients of the NHS.

Applicants must have experience with some or all of the following: motion capture algorithms, 3D geometry computations, homogeneous transforms, quaternion representations, homography, point set registration, computer vision and/or image processing. Experience with at least one of MATLAB, C++ and Python is required.

This position is part of a team in the medical robotics group, designing and testing a new drill guidance system for assisting surgeons with orthopaedic hand surgery. The project will develop and evaluate motion capture algorithms, tracking algorithms, and user interfaces, and integrate them into a hardware package suitable for use in the operating theatre. The project will culminate in clinical and non-clinical investigations to quantify the effectiveness of the system in improving patient outcomes. The work forms part of a project funded by the National Institute for Health Research, working with surgeons at the Royal United Hospital in Bath to validate the suitability of the device as a new medical product for use across the NHS.

The core project team includes a surgeon, two academic researchers, a software engineer and a mechanical design engineer. We work closely with statisticians, health economists, medical research design specialists, medical product development consultants, and a medical device manufacturer.

Job purpose
To provide research assistance in the area of motion capture programming and testing. The role is to support a Principal Investigator (PI)/Co-Investigator (CI) and their research team for a medical device product development grant.

Main duties and responsibilities	
1	Implement motion capture algorithms and geometry computations. Assist the PI in designing and refining algorithms.
2	Quantify accuracy of motion capture and computed positional information. Assist PI with design of tests and reporting.
3	Assist with implementation of algorithms on physical hardware, and testing of physical implementation.
4	Assist with planning for clinical and non-clinical investigations (test campaigns).
5	Assist operators in conducting investigations and analysing results, in particular with setup of software systems and instruction of operators.
6	Provide support to PI and other research staff with project management (for example, organising meetings and corresponding with partners).
7	Contribute to the production of research reports, regulatory paperwork and publications.
8	Participate regularly in group meetings and prepare and deliver presentations to research team.
9	Assist with supervising undergraduate student projects.
10	Continually update knowledge and understanding in field or specialism to inform research activity.
	You will from time to time be required to undertake other duties of a similar nature as reasonably required by your line manager. You are required to follow all University policies and procedures at all times and take account of University guidance.

Person Specification

Criteria	Essential	Desirable
Qualifications		
A first degree (BA/BSc) in a subject relevant to the research activity	√	
Master level qualification		√
Experience/Knowledge		
Relevant work experience in a related area to the project		√
Demonstrated depth and breadth of specialist knowledge of subject matter to effectively contribute to the research programme	√	
Demonstrated awareness of latest developments in the field of research	√	
Skills		
Ability to organise and prioritise own workload to meet required deadlines	√	
Ability to write research reports and to effectively disseminate outcomes	√	
Proficient verbal, interpersonal and written communication skills	√	
Highly competent in IT packages as appropriate to discipline/area of research	√	
Attributes		
Commitment to working within professional and ethical codes of conduct	√	
Innovation and developing creative solutions	√	
Self-confidence when communicating with a wide range of stakeholders	√	
Commitment to safe working practices	√	
Ability to work independently	√	
Commitment to excellence in research	√	
Ability to be an effective team worker	√	