

Job Description

Job title	Research Assistant – AI in cardiac imaging – 5 Year FTC
School / department	School of Computing and Engineering
Grade	Research B
Line manager	Professor Massoud Zolgharni
Responsible for (direct reports)	N/A
Date of creation or review	25/05/2022

Main purpose of the job

A short summary of the role

The post is funded by the British Heart Foundation Research Programme for 5 years. As Research Assistant, you will carry out and plan a high-quality programme of research in Artificial Intelligence tools applied in cardiac imaging.

You will work alongside a team of cardiologists from Imperial College London and physiologists from 21 Hospitals in the UK, and computer scientists at UWL to develop AI techniques applied to cardiac image processing. The main aim of this cross-disciplinary project is to develop a AI-assisted fully-automated novel medical technology to be used by cardiologists to assess cardiac function. To this end, a combination of engineering expertise (parallel programming, medical image acquisition and processing), computer science (AI algorithm development, statistics), and clinical experience (cardiology, echocardiography) will be used. As part of the project, you will be given the opportunity to spend a period at Imperial College London, to undertake collaborative research using cardiac imaging techniques such as echocardiography.

In addition, you will contribute significantly to the research, enterprise development and commercial training of the School of Computing and Engineering. This will include, contributing significantly to developing and preparing new research bids for external funding. The post holder will be working as part of a team of academics and researchers within the Intelligent Sensing and Vision Research Group (<https://intsav.github.io>).

You will also be expected to contribute to the teaching & learning activities of the MSc Artificial Intelligence, offered by the research group within the School of Computing and Engineering.

Key areas of responsibility

Description of the key duties and responsibilities associated with the role (bullet pointed or numbered).

Research Duties

- To liaise with research students and research fellows in order to reach agreed specifications for system
- To refine existing image processing algorithms and develop new algorithms

- To implement the processing algorithms in time-efficient programming environments, so that the system can run in real time
- To assist with the analysis of data
- To publish the findings
- To ensure the validity and reliability of data at all times
- To maintain accurate and complete records of all work
- To assist with the writing of reports to research sponsors
- To present the results of work to colleagues
- To provide advice to other staff, students and researchers regarding the use of software and techniques developed
- To take initiatives in the planning of research
- To direct the work of small research teams of MSc students
- To identify suitable techniques, and apparatus, for the collection and analysis of data
- To submit publications to refereed journals
- To promote the reputation of the Research Group, the School and the University
- To maintain highly organised and accurate record of experimental work
- To participate in Group research meetings and School's internal seminars
- To collaborate with other allied scientists within UWL and elsewhere in London and abroad, as appropriate
- To assist in the supervision of undergraduate and postgraduate research students as required
- To attend relevant workshops and conferences as necessary
- To develop contacts within UWL and the wider community
- To comply with the safety practices and to attend courses on safety when appropriate.

In addition to the above areas of responsibility the post-holder maybe required to undertake any other reasonable duties relating to the broad scope of the position, commensurate with the post, and in support of the University.

Dimensions / background information

[Organisational chart or some further information about the School/College/department.](#)

The University of West London (UWL) is one of the top 40 universities in the UK and the top modern university in London according to the influential Guardian University Guide 2021.

We were also named University of the Year for Student Experience in The Times and The Sunday Times Good University Guide 2021, being described by the editor as “regularly among the top-performing universities” and proving that “it is possible for a London-based institution to achieve outstanding levels of student satisfaction beyond other universities”.

The School of Computing and Engineering is a dynamic and forward-looking School with high quality teaching, student experience and research informed teaching at the top of its priority list. The school has strong links with local, national and international partners and employability of graduates is the key to courses that we offer. The school enjoys state-of-the-art equipment and continues to invest heavily in its improvement. We offer a number of courses fully accredited by relevant professional bodies across the board.

Person Specification

	Criteria	Essential or Desirable ¹	Demonstrated ²		
			Application	Interview	Test / Exercise
Qualifications and/or membership of prof. bodies This section reflects the appropriate level of expertise required by the role.	MSc in Computer Science	Essential	X	X	
	PhD in Computer Science, Engineering, Mathematics or other appropriate discipline, or equivalent research, industrial or commercial experience	Desirable	X	X	
	Fellow of Higher Education Academy (or willingness to enrol on PGCHE programme at UWL)	Desirable	X	X	
Knowledge and experience This section reflects the level of knowledge and experience of the key aspects of the role, as described in the job description.	Good understanding of the principles and practical aspects of medical image processing and analysis	Essential	X	X	
	Background in AI, ML, and DL	Essential	X	X	
	Knowledge of research methods and statistical procedures	Essential	X	X	
	Background in ultrasound image and signal processing	Desirable	X	X	
	Knowledge of cardiac imaging	Desirable	X	X	
Specific skills to the job This section identifies job-specific skills required which might be completely unnecessary for other jobs but are critical to this particular job.	Practical experience in programming in Python	Essential	X	X	
	Practical experience with one of the deep learning frameworks (e.g., TensorFlow, PyTorch)	Essential	X	X	
	Experience with app development for Android/Apple platforms	Desirable	X	X	
General skills	Practical experience within a research environment	Essential	X	X	

<p>This section identifies transferable skills that you use for almost every job.</p>	Experience in publishing in international peer-reviewed journals or conferences	Essential	x	x	
	Experience in presentation of work at significant conferences	Essential	x	x	
	Demonstrated experience in collaboration with research institutions, commercial companies, and hospital bioengineering units	Desirable	x	x	
	Demonstrable ability to interact with other academics	Essential	x	x	
	Ability to conduct a detailed review of recent literature	Essential	x	x	
	Creative approach to problem-solving	Essential	x	x	
	Excellent verbal communication skills and the ability to deal with a wide range of people	Essential	x	x	
	Excellent written communication skills and the ability to write clearly and succinctly for publication	Essential	x	x	
	Ability to organise own work with minimal supervision	Essential	x	x	
	Experience in writing (author or co-author) research proposals for attracting research funding	Desirable	x	x	
<p>Other</p> <p>This section should be used to make candidates aware of any special circumstances pertaining to the post.</p>	Persistence with long-term goals and projects coupled with the flexibility to respond quickly to new requirements as research projects develop	Essential	x	x	
	Discipline and regard for confidentiality and security at all times	Essential	x	x	
	Willingness to undertake any necessary training for the role	Essential	x	x	

Disclosure and Barring Scheme Is a DBS Check required: ☒ DBS (This post does not require a DBS check) ☐

Before making a selection, please refer to the University's [Disclosure and Barring Checks Guidance for Staff](#) and [Criminal Convictions, Disclosures and Barring Staff Policy and Procedure](#). If a DBS check is required for the role, a **Check Approval Form** will need to be completed.

¹**Essential Criteria** are those, without which, a candidate would not be able to do the job. Applicants who have not clearly demonstrated in their application that they possess the essential requirements will normally be rejected at the shortlisting stage.

Desirable Criteria are those that would be useful for the post holder to possess and will be considered when more than one applicant meets the essential requirements, to determine which applicants to shortlist.

²**Demonstration:** Select the Recruitment Process stage at which the candidates will have to demonstrate that they meet the criteria. Criteria which have to be demonstrated at application stage should be mentioned in the Recruitment Information Pack as Pre-Selection/Killer Questions, Shortlisting Questions or Shortlisting Criteria. Other criteria should be evaluated and tested at interview stage (e.g. through interview questions) or through additional tests, exercises or presentations. Criteria can (and should) be demonstrated at multiple stages.