

**It is important to note that this job description is a guide to the work you will initially be required to undertake. It may be changed from time to time to meet changing circumstances. It does not form part of your contract of employment.**

**Job Description for the post of:**

## **Postdoctoral Research Associate in Generative Adversarial Networks (GANs)**

**EHR0095-0621**

**Reporting to:** Principal Investigator of the Research Project

**Accountable to:** Head of Department

### **The Post**

Applications are invited for a postdoctoral research associate (PDRA) in Computer Vision and Deep Learning at the Department of Computer Science, Edge Hill University, Ormskirk, UK.

The successful applicant will work on an innovative initiative project (funded by CRUK, PUCK and EPSRC) focusing on developing a novel computational framework for early detection of Pancreatic Cancer (PC). The framework is driven by the mechanism in Generative Adversarial Networks (GANs) to generate and validate plausible hypotheses with a functionality of learning to emphasize PC-linked variables/measurements describing high-risk malignant transformation of cystic pancreatic lesions. Due to the interdisciplinary nature of the project, you will be working closely with other involved researchers from Queen Mary University of London (QMUL), University College London (UCL), Manchester Metropolitan University (MMU) and the University of Hertfordshire (UH).

Candidates should have a PhD in the broad area of Computer Science/Engineering and/or Applied Mathematics with experience in machine learning, deep learning, computer vision, artificial intelligence (AI) and strong computational skills. You must have working knowledge of computer vision and machine learning with strong programming (e.g., Python) and mathematical skills. You should have also experience in software development using agile, iterative and data-driven methodology. A good knowledge of machine learning and hands-on-experience with opensource deep learning tools (e.g., TensorFlow, Keras, PyTorch, etc.) is anticipated. Publications in top computer vision and/or machine learning conferences/journals (e.g., CVPR, ICCV, ECCV, AAAI, NIPS, ICML, ICLR) is highly desirable.

## **Duties and Responsibilities**

1. Engage in state-of-the-art research and development in the broad area of computer vision (CV), deep learning (DL) and Generative Adversarial Network (GANs) targeted for the early detection of the Pancreatic Cancer (PC).
2. Publish high-quality research outputs targeting top-tier computer vision conferences (e.g., CVPR, ICCV, ECCV, etc.) and journals (e.g., PAMI, IJCV, CVIU, etc.). Effectively communicate research findings at internal and, where appropriate, external project meetings, scientific meetings and conferences. Engage in preparing project reports.
3. Conduct high quality research in different areas of CV/DL, including CT/MRI image analysis and recognition using deep Convolutional Neural Networks (CNNs) and Generative Adversarial Network (GAN) frameworks.
4. Adapt existing CV/DL algorithms/framework components into a multimodal environment with missing and noisy data samples.
5. Extend and improve existing CV/DL frameworks for multimodal analysis and recognition.
6. Effectively collaborate with the project consortium involving researchers from Queen Mary University of London (QMUL), University College London (UCL), Manchester Metropolitan University (MMU) and the University of Hertfordshire (UH).
7. Ensure that her/his skills and technical competence are kept sufficiently up to date to enable her/him to utilise specialist equipment and software used in the research projects.
8. Engage with relevant academic and professional networks through active membership of societies, associations etc.
9. Undertake activity related to the development of effective applications for research funding in collaboration with the project team.
10. Assist in the development of the research skills of postgraduate students; for example, as part of a postgraduate supervisory team, and through the delivery of practical workshops.
11. Involve in organizing conferences/workshops, outreach activities, as well as hands-on-training and competitions involving DL, CV and AI skills for the next generation scientists/researchers.
12. Undertake additional duties, as required by the principal investigator or Head of Department.

**In addition to the above all Edge Hill University staff are required to:**

- a) Adhere to all Edge Hill's policies and procedures, including Equality and Diversity and Health and Safety
- b) Respect confidentiality: all confidential information should be kept in confidence and not released to unauthorised persons
- c) Undertake appropriate learning and development activities as required
- d) Participate in Edge Hill's Performance Review and Development Scheme
- e) Adhere to Edge Hill University's environmental policy and guidelines and undertake tasks in a sustainable manner
- f) Demonstrate excellent Customer Care in dealing with all customers

**Salary:** Grade 8, Points 31-35  
£34,804 - £39,152 per annum

**Hours:** Full-Time

**Candidates should note that shortlisting will be based on information provided on the application form with regard to the applicant's ability to meet the criteria outlined in the Person Specification attached.**

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**CRITERIA:**

Applicants should provide evidence of their ability to meet the following criteria:

		Essential	Desirable	*Method of assessment (I/A/S/T/P)
<b>Qualifications</b>				
1	PhD in Computer Science/Engineering or related area	*		A
<b>Experience and Knowledge</b>				
2	Detailed theoretical and practical understanding and knowledge of Computer Vision / Deep learning	*		S/I/P
3	Strong programming (e.g., Python) and mathematical skills, as well as working experience in software development	*		S/I/P
4	Previous experience of conducting high quality research involving Computer Vision / Machine Learning / Artificial Intelligence	*		S/I/P
5	Experience of working in the Higher Education sector		*	A/I
6	Experience of working in multi-disciplinary research		*	A/I
7	Knowledge of the processes involved in preparing and submitting research proposals		*	S/I
8	Experience in working with one or more deep learning tools (e.g., TensorFlow, Keras, PyTorch, etc.)	*		S/I/P
9	Publications in relevant conferences/journals	*		A/I
<b>Abilities/Skills</b>				
10	Able to communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience	*		S/I
11	Able to present research findings and participate at internal and external project meetings, scientific meetings and conferences	*		I/P
12	Able to write up research outcomes for publication in leading peer-reviewed conferences and journals	*		S/I
13	Able to work on own initiative, organising and prioritising work effectively under pressure to meet deadlines	*		S/I
14	A self-starter, able to work independently and without supervision as well as part of a team	*		S/I

15	Ability to operate flexibly and reliably with a willingness to adapt to change	*		I
16	Able to develop and maintain effective working relationships at all levels	*		S/I
17	Able to maintain total confidentiality and to work within ethical guidelines	*		S/I

**\*Method of Assessment**

**(I-Interview, A-Application, S-Supporting Statement, T-Test, P-Presentation)**

Please note that applications will be assessed against the Person Specification using this criteria.