Job Description

Position / Job Title:	Post Doctoral Research Assistant (RED ID 14020)
Ref:	117
Location/Building:	Talbot House - Talbot Campus
Faculty/Professional Service:	Faculty of Science and Technology
Group/Section:	Computing & Informatics
Duration if Temporary:	Fixed Term from 01/09/2024 for 24 months
Normal Hours per Week: (Some flexibility will be required in order to ensure that key time scales and deadlines are met).	37
Grade:	6
Accountable to:	Prof Hamid Bouchachia

Job Purpose

We are seeking talented and enthusiastic candidates to join the EU-funded **PRESERVE** project, under the direction of the Principal Investigator, Prof Hamid Bouchachia, working towards the development of machine learning and data mining, and AI methods with application in Computer Vision (video and image processing), Speech Recognition (audio) and Natural Language Processing (text). The position will be suitable for any profile in computer science, engineering, mathematics, statistics or from other science disciplines with knowledge in machine learning and AI (specifically **foundation models, deep learning architectures, federated learning, data fusion**) and essential knowledge about ML frameworks and pipelines as well as computer systems.

The successful candidate will need to be a PhD holder in one of the listed areas and will investigate and develop scalable and privacy-guaranteed novelty detection, clustering and classification. The focus is mostly on **foundation models** that involve multiple modalities of data (text, video, audio, image), where **transferability** and **robustness** of such foundation models are key questions. Other elements of foundation models such as **transparency** and **reasoning** are also of relevance. However, the exact boundary of the research work for this position will be limited to one of the listed aspects based on the background of the candidate in a way for them to contribute to the delivery of the project by conducting relevant research that leads to publishable outputs.

Overall, the role of the Postdoctoral Researcher is to contribute to planning, designing, and conducting research leading to published outputs and exploitable results.

The researcher will have access to funding for international travel, e.g., for attending conferences, attending the consortium meetings, and research dissemination, while working in a supportive, collaborative, inclusive and non-discriminating working environment. We welcome candidates from all backgrounds to apply.

Main Responsibilities

1. Plan, design, conduct research, and report the work in the form of publication and official reports.
2. Deliver research objectives of proposed work within the timeframes of the project and ensuring the achievement of project outcomes.

3. Act as a point of contact for the project, liaise with colleagues from project partners as required and attend the consortium meetings, and report on progress.
4. Present findings at national/international conferences and other dissemination and knowledge exchange activities, including public engagement.
5. Maintain accurate, complete, and timely data and records in accordance with the project's data management protocols.
6. Contribute to the supervision of Master and Bachelor students working on relevant projects as appropriate.
7. Undertake personal and professional development activities in line with agreed appraisal and development programme to enhance personal knowledge and contribution to relevant activities.
8. Identify opportunities and support on preparing proposals for research grant funding when possible.
9. Contribute to the delivery of education activities if interested and if time permits.

Organisation Chart

PDRA → Prof Hamid Bouchachia→Nan Jiang (Professor and Head of Department Computing and Informatics)

Dimensions

The work to be undertaken is part of the EU project **PRESERVE** with the vision to develop privacy-aware federated ML/AI algorithms that builds on existing foundation models and that are capable to deal with the multi-modality and scalability of the data.

Besides the scientific work, the candidate should be able to assist in the delivery of **PRESERVE** in terms of coordination and monitoring if required.

Contacts:

Internal: Prof Hamid Bouchachia

External: PRESERVE'S Consortium partners

Challenges What are the most difficult, complex or challenging parts of the job

We are seeking a profile with expertise in ML/deep learning with good background in federated learning, foundation models (covering video, audio, text and image data), and representation learning paradigms. Other aspects of expertise like knowledge-informed ML, ethical and trustworthy AI are welcome too.

Information Governance Responsibilities

Data User
i. Comply with the associated data protection, information security, information management and information technology regulations, policies, processes and procedures.

Additional Information

The purpose of the job description is to indicate the general level of responsibility and location of the position. The duties may vary from time to time without changing their general character or level of responsibility.

BU is an equal opportunities employer which values a diverse workforce. The post holder must at all times carry out their responsibilities with due regard to the University's Dignity, Diversity and Equality Policy Statement.

Our highly skilled and creative workforce is comprised of individuals drawn from a broad cross section of the globe, and who reflect a variety of backgrounds, talents, perspectives and experiences to build our global learning community. Through fused activity, the post holder must have an understanding of and commitment to promoting a global outlook.

All employees have an obligation to be aware of the University's Sustainability Policy, Climate and Ecological Crisis Action Plan, Travel Plan and associated documents, and to ensure that they carry out their day-to-day activities in an environmentally responsible manner and inspire students to do the same.

June 2024

Person Specification

Position / Job Title: Postdoctoral Research Assistant	Faculty / Service: Computing & Informatics
Position No: TBC	Date: June 2024

SELECTION CRITERIA	Essential / Desirable
Knowledge (including experience & qualifications)	
Expertise in Machine Learning (foundation models, deep learning architectures, data fusion, computer vision, NLP, speech processing)	E
PhD holder in computer science, applied mathematics, probabilities, statistics, or engineering	E
Experience of using ML libraries and programming languages (such as Python)	E
Understanding of ML workflow, development tools, and big data ecosystems	E
Understanding of distributed and federated ML and awareness of dedicated frameworks	E
Good understanding of human activity recognition	D
Good understanding of information routing	D
Skills	
Ability to work independently	E
Ability to work to deadlines	E
Excellent communication skills	E
Strong administrative skills	E
Strong writing abilities	E
Effective team working skills	E
Ability to reason accurately and quickly and handle complex situations.	E
Attributes	
Analytical	E
Collegiate	E
Commitment to high quality research	E
Initiative	E
High level of attention to detail	E
Motivated to succeed	E