UWS UNIVERSITY OF THE WEST of SCOTLAND

Job Description & Person Specification

Academic and Research roles

JOB DESCRIPTION

Job title	Software Engineer (KTP Associate)
School/Department	CEPS
Division (if applicable)	Computing
Programme (if applicable)	
Location	UWS Paisley Campus / Booth Welsh (Company Irvine, Ayrshire based)
Reporting to	Professor Muhammad Zeeshan Shakir
UWS grade	KTP Associate
FTE	1

Job summary
About the project:

This Knowledge Transfer Partnership (KTP) project between the University of the West of Scotland (UWS) and Booth Welsh aims to digitize and automate engineering workflows through the development of advanced cloud-native software and the integration of Large Language Models (LLMs). By mapping and enhancing Booth Welsh's engineering processes, this project will streamline operations, improve productivity, and optimize team interactions across various departments. The resulting technologies will drive innovation in workflow automation, significantly boosting efficiency in system engineering and control processes. This initiative will not only strengthen Booth Welsh's technological capabilities but also reinforce their position as a leader in digital engineering solutions.

About the Company

Booth Welsh Automation Limited (trading as Booth Welsh) was incorporated in 1989 and is an engineering technology company providing integrated engineering services to the process industries and manufacturing. We specialise in process engineering and design including process automation and systems integration, electrical and instrumentation design, piping design, civil and structural engineering, control panel design, control panel build & installation, and asset management services. Booth Welsh is the parent company of iTech (Scotland) Ltd, a business incorporated in 2011, specialising in control system integration and is a Siemens Solutions Partner.

Mainly operating in the UK, but with international experience and capability, the business has built long standing relationships with a growing list of global companies within the Oil and Gas, Nuclear Power, Chemicals & Petrochemicals, Pharmaceuticals & Life Sciences, Renewable Energy, Utilities, Food & Beverage and Defence industries, including Veola, GSK, EDF, Diageo, BOC, Novartis, Merck, Thermofisher Scientific and AkzoNobel.

About UWS

University of the West of Scotland is one of Scotland's largest and most dynamic modern universities. Our reach across the country, together with our London campus, means that UWS is a significant force in global knowledge creation, innovation, and a leading provider of undergraduate, postgraduate and research degree education. Our degrees provide students with a transformational experience; equipping them with highly sought-after graduate skills that set them up for global success in world-leading sectors, industries and businesses.

With cutting-edge courses, modern pedagogy and practical knowledge, we enable our students and staff to experience the joy of learning, teaching, research and innovation, and apply their knowledge for the benefit of others.

UWS is officially ranked by Times Higher Education in the top 200 universities worldwide under 50 years old (2023 Young University Rankings).

The School of Computing, Engineering & Physical Sciences offers industry-focused teaching and research opportunities that deliver solutions to real-world problems. You will join an innovative and supportive team, playing a key role in driving forward our ambition to deliver transformational change, through outputs that have a tangible, early and positive impact on society across the globe. Our students benefit from state-of-the-art facilities, extensive expertise in research and development, and our robust collaborations with multinational companies across the world.

About AVCN and DCISF

The Artificial Intelligence, Virtual Communications, and Networks (AVCN) research institute at UWS is a leader in AI, IoT, Big Data, 5G/6G Networks, and Communication technologies, with six centres and groups focusing on these areas. The institute boasts over 900 publications, including 300 within the last five years, and supports large-scale funding projects totalling more than £40m.

Digital Connectivity & Innovation for Sustainable Futures (DCISF), an integral research group within AVCN, stands at the forefront of digital innovation. With substantial funding from prestigious entities such as NIHR, QNRF, EU programs, UK and Scottish Governments, British Council, and Innovate UK, our group has spearheaded groundbreaking research and received recognition through numerous awards. Among our accolades are the Fred W. Ellersick Award in 2021, Innovate UK Award of Excellence in 2023 and 2018, and several best research paper awards. At DCISF, our vision is clear: to revolutionize automation for a sustainable future. We are committed to pioneering digital connectivity solutions that are reliable, robust, and resilient, while simultaneously driving innovations that enhance efficiency, minimize environmental impact, and elevate overall quality of life. https://dcisf.com/

About the KTP Program

This position forms part of the Knowledge Transfer Partnership (KTP) funded by Innovate UK. It's essential you understand how KTP works with business and the University, and the vital role you will play if you successfully secure a KTP Associate position. Please visit: www.uws.ac.uk/ktp or contact Stuart Mckay (stuart.mckay@uws.ac.uk).

The KTP program aims to help businesses in the UK to innovate and grow by linking them with academic or research institutions. This program supports the placement of a KTP Associate to work on a strategic project for a company, guided by both company and academic supervisors.

People & finance responsibilities

People	NA
Finance	Manage project budget including travel, consumable and personal development budget.

Key activities

- Cloud native software development for monitoring and optimisation of engineering and control processes.
- Development of database for the platform/software and integration of the system
- Development of Large Language Models for automation of the engineering and control processes.
- Report writing, project management, and communications with stakeholders and teams
- Manage the project lifecycle, prepare reports, and communicate effectively with stakeholders and team members at regular intervals.

Job scope

Planning and organising	- Plan and organise own work schedules within time frames, working on own initiative and prioritising workload to ensure completion of research tasks within project deadlines. - Be responsible for working to deadlines and to alerting principal researcher/s to progress against deadlines. - Participate in project team meetings and contribute to project planning and implementation. - Seek guidance on actions to cope with unforeseen disruption or delay to project. - Liaise with the key stakeholders online and offline as required.
Decision making	- Deal with problems, as part of a team, which may affect the delivery or the achievement of research objectives and deadlines. - Contribute to decisions affecting the work of the team. - Analyse and interpret the results of research and contribute to the generation of outputs. - Make decisions on project progress and inform academic team of future issues, bottlenecks or roadblocks. - Working Relationships – Liaison and Networking - Collaborate with research teams from collaborating institutions. - Develop knowledge and understanding, and contacts for future collaboration where appropriate.

Working relationships – *Liaison and Networking*	• Collaborate with research teams from collaborating institutions. • Develop knowledge and understanding, and contacts for future collaboration where appropriate.
Working relationships – *Communication*	• Communicate effectively with team members and stakeholders. • Prepare reports and documentation as required. • Work across company engineering groups to gain understanding of design processes and data.
Working relationships – *Teamwork*	• Work collaboratively with a multidisciplinary team. • Share knowledge and experience with colleagues.
Working relationships – *Pastoral Care*	• Support MSc/PhD students as part of joint project deliverables.

PERSON SPECIFICATION

Qualifications

			Evidence **A = Application** **I = Interview**
Essential	QE1	Minimum MSc/MEng in Computing Science, AI, Electrical/Electronic Engineering, Computer Engineering, or related fields.	A
Desirable	QD1	PhD in Electrical/Electronic Engineering or Computer Engineering/Science, AI or Mathematics or related areas.	A

Experience

			Evidence **A = Application** **I = Interview**
Essential	EE1	Experience in test-driven, cloud-native and agile software development methodologies, software documentation, commercialisation, version control, IP, technical writing, and user training.	A/I
	EE2	Experience in Python, Java, C/C++; hands-on experience in database management systems (e.g., MySQL); Large Languale Models with proven track record in developing and implementing feature extraction and classification and data visualisation algorithms.	
Desirable	ED1	Experience in monitoring engineering and control processes management.	A/I

Skills

			Evidence **A = Application** **I = Interview**
Essential	SE1	Excellent communication, writing, and interpersonal skills, with an ability to present complex information in an accessible way.	A/I
	SE2	Excellent project management skills (risk management, time management)	
Desirable	SD1	Flexibility to adapt to changing environments.	A/I

Knowledge

			Evidence A = Application I = Interview
Essential	KE1 KE2	Understanding of cloud-native software development Understanding of LLM and data analytics.	A/I
Desirable	KE1	Understanding of engineering and control processes.	A/I

Behaviours

			Evidence A = Application I = Interview
Essential	BE1	Ability to work professionally and independently and as part of a team.	A/I
Desirable	BD1	Enthusiasm to learn new technologies and engineering practices.	A/I

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