

## Job Description

**Date Job Description created:** January 2019

<b>Job Title:</b> Data Scientist -KTP Associate	<b>Job Holder:</b>
<b>Department:</b> School of Computing Engineering & Physical Sciences	<b>Location:</b> KeyFM 'The Pistol Factory' 37 Main Street, Doune Scotland, FK16 6BJ

**Reporting to:**  
Dr Ashwini Konanahalli Lecturer in Construction Management (Knowledge Based Supervisor and Lead Academic), Dr Zeeshan Pervez, Professor Des Gibson, Professor Naeem Ramzan Gordon Mitchell (Company Supervisor), Stan Mitchell (KeyFM CEO) and Kate Mitchell (Chief Compliance Officer).

**Dimensions:**  
Established in Scotland since 1990, KEY Facilities Management is the UK's longest-established True Facilities Management (FM) business. Based in the historic village of Doune, KeyFM operations have grown to encompass 20+ countries and 3 continents, and private and public sector clients from smaller organisations through to corporate multinationals.

Key FM (UK) Ltd is focused on the development of Facilities Management (FM) centric IoT and technology solutions and is part of a group comprising five distinct business activities: FM Consulting, FM Training, FM and IoT Technology Solutions, FM Operations UK and FM Operations International.

KeyFM have played a pivotal role in establishing FM as a professional discipline worldwide. The CEO, Stan Mitchell has chaired several Global FM professional associations and has successfully lead the development of the first international standards in FM through his Chairmanship of the ISO TC 267 Committee, including Management System Standard ISO 41001.

The School of Computing Engineering & Physical Sciences has around 110 academic staff and over 2,300 undergraduate and postgraduate students with sections of the School based at the Paisley, Lanarkshire, Ayr and Dumfries campuses.

The successful candidate will be employed by the University of the West of Scotland but will be based at KeyFM Head Office in Doune, FK16 6BJ. The associate will be fully supported by both company staff and staff from the School of Computing, Engineering & Physical Sciences at the University. In addition, the associate will receive mentoring support from a local KTP Advisor and will have access to staff from the West of Scotland KTP Centre; providing further support and guidance during your period as a KTP Associate and providing access to an extensive network of KTP projects throughout the UK.

This thirty-six-month Knowledge Transfer Partnership (KTP) project between KeyFM and the University of the West of Scotland (UWS), will deliver an industry first FM platform capable of autonomous facilities operation, nanosecond procurement, asset monitoring and optimisation; all delivered via a user-friendly dashboard that provides both deep insight and integration across multiple FM systems and platforms. The project focuses on development of an end-to-end Digital twin offering with a specific focus on Autonomous FM. This holistic methodology involves connecting relevant information from key FM systems E.g. 3D models, CAFM, BMS, ERP, sensor data etc. This capability to achieve real-time visibility of the entire supply chain and come up with situation centric models has the potential to positively disrupt the market and transform building FM operations.

In addition to KTP core development training, the Associate will have a dedicated budget of £6,000 for further training and career development, as well as an opportunity to enrol for an MPhil/PhD degree with the School of Computing Engineering & Physical Sciences. The University will waive the tuitions fees for the duration of the partnership. The Associate will receive regular supervision from an academic

supervisor at UWS and Company supervisor from KeyFM. Since this degree will be awarded through a KTP project, the Associate is covered by the University's Regulations for Higher Degrees, and Code of Practice for Research Candidature and Supervision.

KTP is one of Innovate UK's flagship programmes and helps companies innovate and deliver business impact through gaining access to cutting-edge knowledge and skills within higher education institutions in the UK. <http://ktp.innovateuk.org>.

**Staffing:**

None

**Financial:**

Budget allocated for consumables and training.

**Key Result Areas:**

- Initial business case for autonomous FM, capturing technology, A True FM approach and competitor landscape.
- Assessment of existing KEYSTONE IoT platform highlighting its current capabilities and required investments to support KTP project objectives.
- Digital Twin framework development and integration of Artificial Intelligence and Machine Learning techniques.
- Integration of facilities management systems and external data sources, delivering an automated end-to-end digital workflow and decision making process.
- Upgrade KEYSTONE Platform to support Digital Twin with autonomous decision making capability.
- Pilot Trials with Key Customers.
- Launch the updated KEYSTONE platform.
- Final Report & Publications.

**Planning and Organising:**

The KTP Associate will work under the direction of the Knowledge Base Supervisor (Dr Ashwini Konanahalli) and the Company Supervisor (Gordon Mitchell). The post holder will be responsible for planning aspects of their work and will be responsible to producing monthly progress reports for the team as required. The post holder will also be responsible for organising meetings with key project stakeholders during the 36-month project.

**Working Relationships:**

The Associate will be required to regularly liaise with key representatives from the University and Key FM in the pursuit of the objectives of the project.

This position offers an exceptional career development opportunity working within a fast growing company in Scotland and an Internationally renowned academic team based at the University of the West of Scotland.

## Person Specification

<b>School:</b> School of Computing, Engineering & Physical Sciences	<b>Job Title:</b> Data Scientist -KTP Associate
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<p><b>Education/Qualifications/Training</b></p> <p><b><u>Essential</u></b></p> <ul style="list-style-type: none"> <li>The post holder must be educated to a minimum of MSc (2:1) in Computer/ Data Science, Electronic Engineering or, a good first degree (2:1 or above in Engineering/ Computing) and having equivalent research and development experience</li> </ul> <p><b><u>Desirable</u></b></p> <ul style="list-style-type: none"> <li>Membership of appropriate professional body</li> <li>Working towards or achieved Chartered Status Scientist/ Engineer</li> </ul>
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<p><b>EXPERIENCE</b></p> <p><b><u>Essential</u></b></p> <ul style="list-style-type: none"> <li>Experience in development and application of Machine Learning (ML) and Artificial Intelligence (AI) algorithms.</li> <li>High level Python, C/C++, MATLAB programming abilities.</li> <li>Ability to analyse, design, develop, and validate integrated data science pipelines in varied and diverse business context.</li> <li>Experience in software design, documentation and management.</li> <li>Experience of using analytics engines for Big data processing.</li> </ul> <p><b><u>Desirable</u></b></p> <ul style="list-style-type: none"> <li>Knowledge of Data visualisation/ Building Information Modelling /Digital modelling techniques.</li> <li>Expertise in Internet of Things and Edge Computing.</li> <li>Good understanding of database management.</li> <li>Experience in version control systems.</li> <li>Expertise in of big data framework.</li> <li>Working knowledge of data streaming framework.</li> <li>In depth understanding of software project management techniques and best practices.</li> </ul>
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<p><b>SKILLS/ KNOWLEDGE/ UNDERSTANDING</b></p> <p><b><u>Essential</u></b></p> <ul style="list-style-type: none"> <li>Machine Learning Libraries</li> <li>Sound working knowledge of numerical and analytical techniques.</li> <li>Expertise in services and data integration approaches and framework.</li> <li>Knowledge and understanding of Deep Learning and fuzzy logic systems.</li> <li>Understanding of tagging conventions and taxonomies for equipment and operational data produced by smart devices (Project Haystack, BRICKS)</li> <li>Ability to work with real-time data from sensors and IoT Platform.</li> <li>Understanding of Agile software development practices.</li> </ul> <p><b><u>Desirable</u></b></p> <ul style="list-style-type: none"> <li>Knowledge of full stack development and familiarity with Application Programming Interface (APIs), Data Base Management (SQL, noSQL databases) and data Interoperability frameworks.</li> <li>Understanding of Built environment sector and emerging best practices in the use of smart system in services, infrastructure and buildings.</li> </ul>
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## PERSONAL ATTRIBUTES

### **Essential**

- Good communication and interpersonal skills including excellent writing skills with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.
- Ability to work independently and as part of high performance team, collaborating with colleagues and sharing experience.
- Well-developed project management and research organisational skills.
- Good analytical skills, self-motivated, with the ability to work with individuals at all levels in the organisation.
- Ability to use own initiative and contribute to innovative solutions.
- Flexibility to adapt to evolving and dynamic environment.
- Enthusiasm to learn and explore new technical opportunities.
- Ability to exercise a high degree of attention to detail and accuracy.
- Genuine interest in Industry 4.0 related projects.