Data Engineer

**Full Time**
**Grade 7**
**Fixed Term until 31st July 2021**
**Walton Hall, Milton Keynes**

**About the role**

We are currently looking for a Data Engineer to help us with scaling up the predictive learning analytics system and move it to a new data architecture.

OU Analyse ([http://analyse.kmi.open.ac.uk](http://analyse.kmi.open.ac.uk)) is an award winning project that focus on increasing the retention rate at the Open University by Machine Learning powered Predictive Learning Analytics and at the same time to improve the quality of education.

Internet technologies enable universities to offer their students educational resources online and, at the same time to collect information about the use of these resources. By analysing students’ interactions with the virtual learning environment, it is possible to identify those who might be at risk of failing the course and offer them well-targeted additional support.

Our predictive models use data from the virtual learning environment, student performance during the course, legacy information, and the rules of the course to predict at-risk students as early as possible during the presentation. The analysis aims at identifying students for whom the additional support may help. By applying machine learning algorithms, we develop predictive models that identify patterns of behaviour typical for potential failure in the course.

The appointment will be made on the Grade 7 of the Salary Scale for Support Staff (Technical), ranging from £27,025 to £32,236 pa depending on qualification and experience.

**Key responsibilities**

You will work as part of a team of developers and researchers on designing, prototyping and putting into practice novel scalable solutions helping students with their learning. Your work will involve:

- Development on OUAnalyse, streamlining it in the new data architecture and scaling the project to all the undergraduate courses at the OU
- Development of data pipelines for supporting the current and new predictive algorithms to predict student success
- Development of new data science prototypes focused on a) development and deployment of personalised study recommender and b) modelling student pathways and predicting the best path towards the successfully finished qualification
- Collaborate with other team members, i.e. researchers, graphical designer and stakeholders (project manager, users);
- Moving prototypes into a production environment.
Person Specification

Essential

- Master Degree in Computer Science, or equivalent career experience (E).
- Experience in programming Java/C++/Python/R (or any other object-oriented language);
- Working knowledge of MySQL or other databases;
- Working knowledge of the Linux environment;
- Knowledge of principles of machine learning;
- Ability to independently and proactively define solvable solutions to problems;
- Deploy and maintain the solution in the production environment;
- Ability to work in a team, contribute to code review, knowledge of working with a versioning system (e.g. GIT).
- Ability to quickly demonstrate understanding of the project aims and specific tasks as requested;
- Fluency in English;
- Ability to write technical reports and document code;
- Good communicator;
- Ability to work to challenging targets.

Desirable

- Experience with designing Data Warehouses and ETL process;
- Working knowledge of client-side scripting and JavaScript frameworks, including jQuery;
- Knowledge of Java server technology;
- Experience with unit-testing.
- Knowledge of MS Azure;
About the Unit

**KMi**

The **Knowledge Media Institute** (KMi) is a multidisciplinary corporate R&D lab for the Open University, committed to world class research activity at the forefront of data science and new media technology. KMi has extensive experience in data and web science and has, for almost 25 years, deployed research results to address real world scenarios that have led to innovation in education and commercial settings. KMi currently consists of around 80 researchers, has published more than 1000 scientific papers since its creation, and has been involved in over 100 EU and national projects, including FP7 ROBUST, EPSRC ReelLives, MK:Smart, and many others. The research conducted in the context of these projects covers a diverse set of analysis for online communities, personal need and event detection, and monitoring and predicting behaviour based on large data sets.

**Faculty of Science, Technology, Engineering & Mathematics**

The Faculty of Science, Technology, Engineering and Mathematics (STEM) is comprised:

- School of Computing & Communications
- School of Environment, Earth & Ecosystem Sciences
- School of Engineering & Innovation
- School of Life, Health & Chemical Sciences
- School of Mathematics & Statistics
- School of Physical Sciences
- Knowledge Media Institute
- Deanery including teams supporting Curriculum, Research and Enterprise, Laboratory Infrastructure and Faculty Administration

“We aspire to be world leaders in inclusive, innovative and high impact STEM teaching and research, equipping learners, employers and society with the capabilities to meet tomorrow’s challenges”

The Faculty of STEM consists of 2500 staff including 1,800 Associate Lecturers. The Faculty delivers over 185 modules across undergraduate and postgraduate curriculum, supporting nearly 19,000 students (full time equivalents) which is 29% of the OU total.

The Faculty generates more research income (circa £17M) than any other Faculty in the University, supported by a comprehensive laboratory infrastructure.

We are proud of our distinctive values and capabilities underpinning our aspiration:

*We are inclusive:*

- We transform people’s lives, ensuring STEM education is openly accessible to many thousands of students from diverse backgrounds – our students express high satisfaction with their study experience.
- We engage the public in exciting citizen science and engineering, including through free open educational resources, multi-platform broadcasting, outreach to inspire the next generation and with programmes to encourage more women into STEM.
We are highly innovative:

- We are at the forefront of innovative developments in teaching practical science and engineering at a distance, through simulated and remote access laboratories and practical experimentation.
- Our high quality teaching and curriculum are informed by world-leading research, strong links with professional bodies and communities of practitioners, as well as by scholarship focused on continuously improving our STEM pedagogy.

We deliver significant social and economic impact:

- We provide STEM higher education at a scale and reach unsurpassed in the UK, with a sizeable international reach and further growth potential.
- We inject transferable STEM skills and knowledge direct into the workplace for immediate employee and employer benefit, as students combine study while working.
- The employability value of our courses is underpinned by accreditation from leading STEM Professional Bodies and Learned Societies, as well as partnerships and sponsorship with leading employers.
- Our high quality, applied and academically relevant teaching and research addresses real-world issues, delivering impact for industry and society, including addressing pressing STEM skill-shortages across the UK.