Job Description

Data Scientist Research Associate

Salary: £45,000 - £50,000 per annum
Contract: For a fixed period of 30 months and full-time
School/Department: School of Computing
Location: Apex Contractors Limited, The Old Mill, Bexley High Street, Bexley, DA5 1JX
Responsible to: Knowledge Base Team, University of Kent; Business Supervisor, Apex Contractors Limited

Knowledge Transfer Partnerships

Knowledge Transfer Partnership (KTP) is one of Europe's largest graduate recruitment programmes providing candidates with exciting opportunities to work on key strategic projects. KTP is a leading UK-wide programme that has successfully enabled businesses, for 50 years, to improve competitiveness and productivity. KTP projects are based on a partnership between a University and a company or organisation with a recently qualified graduate (the Associate) delivering the project with support from the academic team within the University. For this KTP you will be working with the University of Kent experts in the project area.

As the Associate, you will benefit from a generous training and personal development programme including the opportunity to gain a CMI or similar management qualification. You will also be encouraged to attain membership of a professional organisation and funding support, if appropriate, may be available towards study for a higher degree (MSc-by-Research or PhD).

More information about KTPs and the many benefits of being a KTP Associate can be found on the KTP website at www.gov.uk/guidance/knowledge-transfer-partnerships-what-they-are-and-how-to-apply

Job purpose

We seek a graduate with a master's degree or a doctoral degree to lead a Knowledge Transfer Partnership between the University of Kent and Apex Contractors that will strengthen company data foundations, implement a secure and monitored data layer, and deliver applied analytics and AI solutions to enhance operational performance, planning, quality, and commercial decision-making, with later extension to pricing optimisation.

The project will establish robust operational foundations, converting fragmented and early-stage information into reliable, timely insights via user-ready dashboards, prototypes and pilot deployments, to reduce manual effort and error. Given the current immaturity of our estimating and commercial systems, our primary focus is on operational delivery; the extension into estimating and commercial decision support will follow once the foundational data and systems are stabilised.

Key objectives include building secure data connections and automated refresh, producing a unified data warehouse, developing forecasting and risk-flag tools, and embedding capability through documented procedures, training and a signed handover to business.

Major challenges include fragmented and variable-quality data, the need for clear acceptance criteria and evaluation on real work, and the requirement to introduce new digital practices in a live construction environment.

The Associate will be based at Apex Contractors and will work closely with academic supervisors at the University of

Kent, with access to research expertise, mentoring and professional development; subject to performance and business need, a permanent role may be considered at the end of the project.

Key accountabilities

- Deliver the Knowledge Transfer Partnership workplan to its milestones and decision points and report performance clearly to stakeholders.
- Establish and steward a secure, reliable and auditable data environment that the business can trust.
- Provide validated analytics and artificial-intelligence solutions that meet agreed acceptance criteria and are adopted by business users.
- Safeguard responsible and ethical use of data and models, including fairness, explainability and filed model cards.
- Embed capability in Apex Contractors by producing the runbook and standard operating procedures and by enabling staff members to train others.
- Coordinate effective collaboration between Apex Contractors and the University of Kent and communicate progress and impact to the Local Management Committee and the Board of Directors.

Key duties

The following are the main duties for the job. Other duties, commensurate with the grading of the job, may also be assigned from time to time.

- Map how information is generated, stored and accessed and produce a concise data-journey report and action plan with a short list of top risks.
- Set up secure data connectors, automated refresh and monitoring and agree practical data-quality checks with named owners.
- Translate business needs into acceptance criteria, build and iterate prototypes and dashboards with users and record feedback after each demonstration.
- Validate each use case on representative historic and live shadow data, prepare the pilot plan and file fairness and explainability notes with model cards.
- Design the warehouse schema and pipelines, publish operational dashboards for success rates and freshness, deliver the training programme and complete the signed handover to Apex Contractors.

Internal & external relationships

Internal: The KTP Associate will work on a day-to-day basis at Apex Contractors' premises, with frequent contact with the Business Supervisor. The Associate will be expected to remain in frequent contact with the academic supervisors through meetings, email, video-conferencing or other means.

External: The KTP Associate will interact with construction teams on specific projects with the support of the Business Supervisor. The engagement will involve capturing requirements about their site management processes and facilitating the evaluation and feedback on prototype solutions as they are being developed. The KTP Associate will also interact with academics and industrialists at conferences.

Health, safety & wellbeing considerations

This job involves undertaking duties which include the following health, safety and wellbeing considerations:

- Regular use of Screen Display Equipment
- The role may include visiting construction sites. Supervision and training will be given as appropriate.

Person specification

The person specification details the necessary skills, qualifications, experience or other attributes needed to carry out the job. Applications will be measured against the criteria published below.

Selection panels will be looking for clear evidence and examples in an application, or cover letter (where applicable), which back-up any assertions made in relation to each criterion.

Essential Criteria:

- Master's degree or Doctor of Philosophy in data science, computer science, statistics, artificial intelligence, or a related field or equivalent (A).
- Strong programming in Python and Structured Query Language (A, I, T).
- Build and evaluate machine-learning models for structured business data using metrics such as mean absolute error, precision, and recall (A, I, T).
- Data engineering: design pipelines with scheduled refresh, logging, monitoring, and version control (A, I).
- Create dashboards and simple prototypes; turn requirements into testable acceptance criteria (A, I).
- Communicate with stakeholders; run workshops; write runbooks and standard operating procedures; present to senior leaders (I).
- Apply security and data governance: access control, audit trail, confidentiality, and ethics (A, I).
- Plan and deliver to milestones and decision points in a live business setting (A, I).
- Willing to visit construction sites and work across Apex Contractors company and the University of Kent locations (I).
- Firm commitment to achieving the University's vision and values, with a passion for a transformative student and employee experience and multidisciplinary, impactful research (I)
- Commitment to deliver equality, diversity and inclusivity in the day-to-day work of the role (I)

Desirable Criteria:

- Experience of collaborating with construction industries (A,I,T)
- Understanding of construction industry requirements and challenges (A,I,T)
- Recent track record of publication in leading international journals or conferences in an area relevant to machine learning (A)
- Flexible problem-solving skills to develop solutions to improve business performance (I,T)
- Previous experience in real-world deployments (A,I)

Assessment stage: A - Application; I - Interview; T - Test/presentation at interview stage