

**AI Software Engineer (KTP Associate) Fixed term for 24 months**

School / Department:	School of Architecture, Built Environment, Engineering and Computing Department of Computer Science	Grade:	£38,000 - £42,000 per annum
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New appointees to Birmingham City University will ordinarily be appointed at the entry point of the appropriate grade

Responsible to:	Academic Lead	Responsible for:	None
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Job Purpose

This position forms part of the Knowledge Transfer Partnership (KTP) programme co-funded by Innovate UK and PBL Care Limited. The AI Software Engineer (KTP Associate) will work on a 24-month collaborative innovation project to develop, implement and embed SMARTPBL, an AI-enabled operational intelligence platform for the social-care sector.

The Project

The project will transform PBL Care towards data-driven, predictive and insight-led care delivery. SMARTPBL will integrate with PBL's existing systems and combine:

- (1) a Geospatial and Intelligent Matching Engine for optimised carer-visit assignment;
- (2) a Workforce Retention and Attrition Risk Predictive Model; and
- (3) a domain-adapted NLP/LLM pipeline that converts unstructured care notes into structured, auditable intelligence.

The platform will support workforce planning, care continuity, regulatory compliance, staff satisfaction and sustainable growth.

Main Activities and Responsibilities

The successful candidate will lead the day-to-day technical delivery of SMARTPBL for PBL Care Limited. The position is for 24 months, and the expected start date is as soon as is practical.

The Associate will work on:

- Eliciting and validating user, business, integration, data and cybersecurity requirements through workshops, interviews and analysis of PBL's existing systems
- Designing the modular SMARTPBL architecture, data-management layer, APIs, dashboards and role-specific user interfaces
- Developing the geospatial intelligent matching engine using GIS/road-network travel-time modelling and multi-objective optimisation
- Developing workforce-retention and attrition-risk predictive models using operational indicators such as workload, rota volatility, travel burden and progression
- Developing a domain-adapted NLP/LLM pipeline for care notes to detect safeguarding concerns, missed tasks, deterioration indicators and quality risks, with auditable outputs and human review for high-risk cases
- Implementing secure cloud/data integrations, access control, data-protection and cybersecurity mechanisms aligned with GDPR and the regulated care environment
- Building and integrating the web-based platform and mobile application with PBL's existing systems, followed by unit, integration, security and user-acceptance testing
- Deploying the platform, supporting data migration, training system champions and staff, and producing operational, technical and helpdesk documentation

- Supporting impact evaluation, knowledge transfer, academic/industry dissemination and development of licensing and exploitation plans

The role requires the successful candidate to:

- Take ownership of the KTP workplan, milestones, risk register and technical deliverables, working closely with BCU academics and PBL management
- Translate requirements from technical and non-technical stakeholders into implementable specifications and user-centred solutions
- Work with incomplete, delayed or noisy operational data while maintaining data quality, provenance, explainability and regulatory traceability
- Communicate complex technical matters clearly to carers, coordinators, managers, service stakeholders and academic colleagues
- Embed new digital and AI capability within PBL through mentoring, workshops, documentation and practical knowledge-transfer activities
- Apply strong project-management, problem-solving and commercial awareness to deliver measurable operational and organisational impact.

Person Specification

Essential Criteria	Application Form / Support Statement / Interview
1. A minimum 2:1 or first-class undergraduate qualification in Computer Science, Artificial Intelligence, Data Science, Software Engineering or a closely related discipline	Application Form / Support Statement / Interview
2. Strong software-development skills and experience of developing data-driven systems	Application Form / Support Statement / Interview
3. Knowledge and practical experience of applied machine learning and data analytics, including predictive modelling and/or optimisation	Application Form / Support Statement / Interview
4. Knowledge or practical experience of NLP and Large Language Models (LLMs), including information extraction from unstructured text	Application Form / Support Statement / Interview
5. Experience of cloud-based platforms or cloud-hosted application architectures	Application Form / Support Statement / Interview
6. Strong understanding of database systems, APIs and system-integration approaches	Application Form / Support Statement / Interview
7. Understanding of cybersecurity principles, access control, secure communications and data protection/GDPR	Application Form / Support Statement / Interview



8. Experience of web and/or mobile application development	Application Form / Support Statement / Interview
9. Excellent communication skills, stakeholder-engagement, problem-solving and project-delivery skills	Application Form / Support Statement / Interview
10. Ability to work independently, manage change, take ownership of deliverables and operate effectively in a regulated environment	Application Form / Support Statement / Interview
11. Ability to work with structured and unstructured operational data, including data quality, preprocessing and governance issues	Application Form / Support Statement / Interview
12. Practical experience delivering applied AI/software projects and translating technical solutions into operational practice	Application Form / Support Statement / Interview
Desirable Criteria	
1. A Master's degree in Computer Science, Artificial Intelligence, Data Science, Software Engineering or a closely related discipline	Application Form / Support Statement / Interview
2. Approximately two years' relevant software-development or applied-AI experience	Application Form / Support Statement / Interview
3. Experience integrating or adapting open-source LLMs and/or practical NLP development	Application Form / Support Statement / Interview
4. Experience of GIS, road-network modelling, scheduling, routing or multi-objective optimisation	Application Form / Support Statement / Interview
5. Experience of workforce analytics, retention/attrition modelling or operational predictive analytics	Application Form / Support Statement / Interview
6. Practical experience with one or more major cloud platforms such as Microsoft Azure, AWS or Google Cloud	Application Form / Support Statement / Interview
7. Experience of healthcare, social care, digital health or another regulated/sensitive-data environment	Application Form / Support Statement / Interview
8. Knowledge of explainable AI, uncertainty, human-in-the-loop validation, fairness and bias monitoring	Application Form / Support Statement / Interview
9. Experience of user-centred design, stakeholder workshops, requirements elicitation and organisational change	Application Form / Support Statement / Interview
10. Academic acumen to support reporting through research publications, conference outputs and marketing/training materials	Application Form / Support Statement / Interview

Personal Skills	
1. Enthusiastic, self-motivated and able to take a proactive role in delivering the proposal's work plan successfully	Application Form / Support Statement / Interview
2. Practical interpersonal skills to establish good working relationships with colleagues, stakeholders, and industrial partners	Application Form / Support Statement / Interview
3. Excellent communication skills to express ideas adequately and articulate complicated matters between the academics and the company project team members either orally or in writing	Application Form / Support Statement / Interview
4. Excellent analytical, problem-solving, and computational skills, along with being adept at applying knowledge to commercial projects, driving value and making an impact where possible	Application Form / Support Statement / Interview
5. Strong leadership and project management skills	Application Form/Support Statement/Interview

- Application Form – assessed against the application form. Normally used to evaluate factual evidence e.g. award of a qualification. Will be assessed as part of the shortlisting process.
- Cover Letter & CV - applicants are asked to provide a statement to demonstrate how they meet the criteria, and may reference their CV. The response will be assessed as part of the shortlisting process.
- Interview – assessed during the interview process by either competency-based interview questions, tests, work-related exercise, presentation and discussion, or teaching session etc.