Intelligent Cloud-Native Sustainability Platform

PhD Scholarship at London South Bank University

Start Date	September 2025
Funding	Full tuition fee waiver for 4 years
Eligibility	Open to UK and International applicants
Reference	CSP5/BUS (quote in all correspondence and application form)
Deadline	20 June 2025 (expression of interest)
Location	LSBU Business School, London, United Kingdom

Project Overview

This research project aims to establish a comprehensive framework for Carbon Awareness as a Service (CAaaS), integrating real-time carbon intensity monitoring, predictive analytics, and adaptive scheduling. It seeks to equip industries with tools to minimise emissions without compromising productivity. The approach emphasises continuous visibility into carbon usage, employing streamlined data pipelines and intuitive dashboards that capture, analyse, and display region-specific and process-specific emissions metrics.

By leveraging machine learning and prescriptive analytics, the system anticipates carbon usage spikes and recommends interventions-such as aligning energy-intensive tasks with periods of lower carbon intensity. This predictive capacity extends to financial models, where subscription-based or performance-linked approaches may encourage broader CAaaS adoption. Concurrently, the initiative explores transparent data-sharing and carbon credit integration, reinforcing both trust and financial viability. Regulatory and ethical dimensions are addressed by ensuring robust data protection and auditability, potentially through the use of distributed ledgers to preserve integrity and bolster stakeholder confidence. The project methodology includes the construction of a cloud-based platform capable of real-time data ingestion and event-driven alerting, alongside the development of forecasting models using operational, environmental, and market data. Optimisation algorithms will guide workflow scheduling, balancing emission reductions with performance benchmarks.

Validation will occur through pilot studies, where the platform's effectiveness will be assessed against emission targets, cost implications, and compliance with evolving regulations. These trials will reveal the viability of CAaaS across diverse sectors, contributing to a refined understanding of best-practice governance, privacy standards, and stakeholder engagement.

Ultimately, the project aspires to deliver a functional CAaaS prototype, complete with intelligent scheduling and predictive decision-making-ensuring that carbon awareness becomes a core tenet of sustainable industrial operations. Future research is expected to explore the integration of advanced ML techniques, digital twins, and broader cross-industry partnerships to enhance carbon optimisation strategies further. This integrated approach positions CAaaS as a powerful catalyst for holistic environmental stewardship and cost efficiency.

Contact Person and Main Supervisor

Before applying, contact Dr Kasra Kassai, the Director of Studies at kasra.kassai@lsbu.ac.uk.

- Details of your current level of study and academic background.
- Summary of relevant experience.
- Brief paragraph outlining motivation for this PhD project.
- Include reference *CSP5/BUS* in the subject line.

Research Themes

- Real-time emissions telemetry and visual analytics.
- Forecasting and prescriptive optimisation for carbon-aware scheduling.
- Secure, auditable data pipelines and carbon-credit integration.
- Policy alignment and lifecycle assessment for sustainable computing and operations.

Ideal Candidate

- First-class honours degree and Merit/Distinction MSc in Computing, Software, Electrical/Electronic Engineering or a related field.
- Strong skills in optimisation (e.g., MILP) and AI/ML.
- Understanding of virtualisation, OS scheduling and distributed systems.
- Fluency in C++, Java or C#, plus Linux automation.
- Evidence of research potential (publications, thesis).
- English proficiency - IELTS $\geq$ 7.0 for overseas applicants.

How to Apply

- Expressions of interest: email CV, publications and research statement to Dr Kasra Kassai.
- Review the application requirements.
- Draft a 1,000-word research proposal aligned with this project.
- Upload proposal, personal statement, qualifications and CV via the LSBU application platform.
- Reference CSP5/BUS and Dr Kasra Kassai.
- Selected candidates will be interviewed online.
- Applications are assessed continuously-apply early.
- Visa costs and CAS insurance are applicant responsibilities.

Fee Waiver

Tuition fees waived for 48 months (including writing-up and examination). No stipend; self-funded living costs required.

Supervision

Primary supervision by Dr Kasra Kassai (Director of Studies) with Professor Ian Mackie (second supervisor).

Why Choose LSBU

- Membership of Business & Economics Insight Research Group, Smart Internet Technologies Hub (SITHub), and Data x Digital Research Centre.
- Highest paid graduates among London modern universities (LEO 2024).
- 3rd globally for reducing inequalities (THE Impact Rankings 2024).
- 4th among modern London universities (Guardian University Guide 2025).
- London - QS Best Student City for six consecutive years.
- Tailored doctoral training via London Doctoral College.
- Access to seminars, hackathons and industrial partnerships.

"The passion of the individuals in the research environment and the commitment that everyone shows is inspiring." - Ashley Howard, PhD, School of Applied Sciences