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**Section 2 – *Project Information***

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| **Project Title** | **Artificial Intelligence approach for Sustainable Datacentres** |
| **Project Highlights:** | 1. | Develop solutions for real-world cloud datacentres to optimise their server energy consumption |
| 2. | Analyse large-scale cloud datacentre trace logs and develop intelligent approaches for energy-efficient processing of cloud workloads |
| 3. | High-quality publications in reputable journals and conferences, and contribution to writing research proposals. |
| **Project Summary**  |
| Climate change and sustainability is of global importance. Cloud datacentres are addressed as massive energy consumers and a source of environmental pollutants via carbon footprints. Popular strategy to reduce cloud energy consumption is to understand the resource consuming characteristics of cloud workloads and execute them accordingly. However, a lack of precise understanding of such characteristics has restrained their efficiency in achieving sustainable datacentre execution and a generalised model of workload and user characteristics is largely missing. Achieving a maximum utilisation of minimal number of server resources is ideal both from an energy and revenue perspective. Addressing the lack of precise modelling of cloud workload characteristics, this project focuses on uncovering the yet unknown insights of cloud workloads and their execution trends and further develop intelligent models by leveraging Machine-Learning and Artificial Intelligence based techniques to process workloads in an energy-efficient way, ultimately to promote sustainable datacentres.The methodology involves analysing large-scale real-world cloud trace logs with descriptive, predictive and prescriptive analytics using machine-learning, and deep-learning techniques. Furthermore, the insights of analytics will be utilised to develop an intelligent model that can aid in scheduling, task placement, and resource provisioning aspects of cloud workload execution with energy awareness.Successful candidate will work within the School of Computing and Mathematical Sciences, and become a part of our Research Centre for Artificial Intelligence, Data Analytics and Modelling ([AIDAM](https://le.ac.uk/aidam)). The candidate will have opportunities for engaging with our industrial partners on potential opportunities. |

**References:**

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