

Research Fellowship in the Built Environment

How can AI assist in meeting the UN Sustainable Development Goals?

£50k per year for 2 years | Closing Date for applications 6 September 2023

Given that global human-made mass now exceeds all living biomass (Nature 588 (442-444) 2020) we may believe we are beyond the point of no return in achieving sustainable development for the goals which involve the construction of infrastructure and buildings. Most new development adds to the existing stock of anthropogenic materials, while depleting natural resources and ecosystems. Even if new construction is built to the highest standards, the intractable problem remains of upgrading existing buildings. Complex problems arise in design decision-making - weighing up resource availabilities and impacts, carbon saving strategies for both operational and embodied emissions, impacts on wider ecosystems, providing healthy internal conditions and all alongside pragmatic perennial drivers of cost, time and constructability. Finding the optimum balance in limited view of the interdependence of variables is all to often relying on a designer's gut instinct, perhaps missing opportunities for better and unexpected solutions.

It is early days in the application of AI in architecture and engineering. Issues of authorship, rights and liability are raised but surely AI will have the capability to resolve extremely complex problems through a more objective process of optimisation? This year's 1851 Royal Commission fellowship will consider the application of AI to specific UN SDGs (for example goals 9: Industry, Innovation and Infrastructure and 11: Sustainable Cities and Communities). Proposals that examine any of the following: Planning, the design process, materials, procurement or construction including adaptation are welcome.

Entries will be accepted not only from individuals but also from formal or informal partnerships. Candidates should be UK based aiming to carry out research over a 2 year period culminating in a milestone output of significance. In all cases candidates should identify a mentor who can contribute objectively to the project and widen the reach of outputs to help make a difference.

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