School of Computing, Engineering, and the Built Environment
Edinburgh Napier University

PHD STUDENT PROJECT

Funding and application details

Funding status: Self funded students only

Application instructions:
Detailed instructions are available at https://blogs.napier.ac.uk/scebe-research/available-phd-student-projects/

Prospective candidates are encouraged to contact the Director of Studies (see details below) to discuss the project and their suitability for it.

Project details

Supervisory Team:
- DIRECTOR OF STUDY: Masoud Sajjadian (Email: M.Sajjadian@napier.ac.uk)
- 2ND SUPERVISOR:

Subject Group: Built Environment

Research Areas: Built Environment.

Project Title: A Framework to Use Parallel Computing and Simulations for Net-Zero Built Environment

Project description:
The UK was the first major economy that passed net-zero emission law. The reduction of carbon emissions in the construction industry mostly relied upon a 'fabric first' approach in addition to use renewables. However, decision making at various levels is complicated and embodied carbon of materials added even more complexity to the decision making processes.

This project aims to develop a customised framework to use parallel computing and simulations to minimise carbon emissions in the design and operation of the building.

The framework covers a broad spectrum from architectural detailing to overall design and material selection for the net zero target.

This investigation also aims to demonstrate how data-driven approaches in digital environments can simplify the decision making process and support the AEC industry to achieve net zero by 2050.

Perspective applicants are encouraged to contact Masoud Sajjadian (Email: M.Sajjadian@napier.ac.uk) before submitting their applications.

Applications should make it clear the project you are applying for and the name of the supervisors.

References:

Candidate characteristics

Education:
A first-class honours degree, or a distinction at master level, or equivalent achievements in Architecture, Architectural Engineering, Architectural Technology, Civil Engineering

Subject knowledge:
Building Physics and Construction Technology

Essential attributes:
- Excellent understanding of applied building physics
- Competent in building simulations or willingness to learn
- Excellent communication skills

Desirable attributes: