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://www.napier.ac.uk/research-and-innovation/research-degrees/how-to-apply

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: Neil Urquhart (Email: N.Urquhart@napier.ac.uk)
- 2ND SUPERVISOR:

Subject Group: Computer science

Research Areas: Artificial Intelligence

Project Title: AI enhanced city and mobility design

Project description:

The design of transportation networks has a massive influence on urban mobility which in turn in influences factors such as quality of life for residents and environmental impact. Decisions around the design of public transport networks or the siting of facilities such as educational and medical facilities are complex with many variables to take into account. This becomes especially significant when taking into account advances such as the 15 minute city and ongoing commitments to reduce carbon emissions. Recent advances in the availability of hardware such as GPUs open the possibility of optimising problems with complex fitness functions that must take into account many factors and objectives such as those described above. The problems being discussed do not usually have one "correct" or optimal

solution, but may have many possible answers depending on the priorities of the user. A major part of this project is developing techniques to ensure that stakeholders are part of the problem solving process, the algorithm being tasked with finding compromises between conflicting stakeholder objectives.

References:

Candidate characteristics

Education:

A second class honour degree or equivalent qualification in Computer Science or Software Engineering

Subject knowledge:

- Software development (Java, Python, c++ or equiv)
- Algorithms - including complexity

Essential attributes:

- Curious.
- Hardworking
- Self-motavated

Desirable attributes: