



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: Dr. Temidayo Osunsanmi (Email: T.Osunsanmi@napier.ac.uk)
- 2ND SUPERVISOR: Professor Cletus Moobela

Subject Group: Built environment

Research Areas: Architecture and Built Environment

Project Title: A Model for Adopting Metaverse Technologies for Enhanced Construction Safety Training and Implementation

Project description:

The construction industry which is vital to the growth of the economy continues to grapple with safety challenges. The industry is notorious for its high-risk working environments, where accidents and injuries occur frequently. Towards curbing the accidents within the industry traditional safety methods have been proposed such as classroom sessions and on-site drills, which have limitations in terms of engagement and effectiveness. The limitations of the traditional methods also emanate from the limited realism, inadequate hands-on practice, and difficulty in scalability. Also, despite the adoption of traditional training methods accidents and

injuries remain prevalent, necessitating innovative approaches to enhance safety training and practices. The proposed PhD student would develop a model that supports the adoption of metaverse technology for enhanced construction safety. The student will also develop an immersive environment leveraging the technologies driven by the metaverse technology to develop an immersive environment for training and implementing construction safety. It is anticipated that in an immersive environment, these technologies can recreate construction sites, machinery operations, and hazardous conditions. Workers can step into these virtual or augmented worlds, allowing them to learn and practice safety procedures without exposing themselves to actual risks. The anticipated outcomes of this research hold promise for significantly reducing accidents on construction sites, addressing a longstanding challenge within the industry, and thereby meeting the United Nations sustainable development goals.

References:

Candidate characteristics

Education:

A first-class honours degree, or a distinction at master level, or equivalent achievements in Construction management, Real Estate, Quantity Surveying, and/or Architectural technology

Subject knowledge:

- English
- Mathematics
- Construction Safety
- Property valuation

Essential attributes:

- Good time management
- Competent use of statistical software
- Experience in fundamental Python coding techniques, SQL, JAVA or others
- Knowledge of AMOS or SmartPLS
- Good written and oral communication skills
- Evidence of strong research publication skills