



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: Zeeshan Siddiqui (Email: Z.Siddiqui@napier.ac.uk)
- 2ND SUPERVISOR:

Subject Group: Cyber-security and system engineering

Research Areas: Cyber Security, Networks, Quantum Computing

Project Title: Security and Privacy in Quantum Cryptography

Project description:

The project is going to explore the existing security attacks related to Quantum Cryptography, such as Collective, Coherent and Symmetric Collective attacks. This project is also going to explore the existing Quantum Key Distribution protocols, such as BB84 and BBM92 and explore the possibilities of proposing a resilient protocol to protect against eavesdropping.

References:

Candidate characteristics

Education:

A second class honour degree or equivalent qualification in Computer Science, Cybersecurity, or Networks

Subject knowledge:

- Cryptography
- Quantum Cryptography
- Cybersecurity
- Networking

Essential attributes:

- Experience in fundamental aspects of computer science, cryptography and quantum cryptography
- Competence in mathematical computations and authentication protocols
- Knowledge of networking concepts and networking essentials
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management

Desirable attributes:

- Knowledge and understanding of different computational algorithms and functions
- Knowledge and understanding of Quantum Testing tools, such as Quantum Key Distribution Test Set, Quantum Random Number Generators, Quantum-Safe Cryptography Libraries, Quantum