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: Zakwan Jaroucheh (Email: Z.Jaroucheh@napier.ac.uk)
- 2ND SUPERVISOR:

Subject Group: Computer science

Research Areas: Computer Science: Artificial Intelligence, Machine Learning and Cyber Security.

Project Title: Blockchain-based Ecosystem to Combat Fake News

Project description:
Building blocks for the so-called "Internet of Value" are provided by blockchain and distributed ledger technology (DLT), which allow for the recording of interactions and the transfer of "value," which can refer to any record of ownership of an asset, such as money, securities, or land titles, as well as ownership of specific information, such as identity, health information, or other personal data. Blockchain technology is becoming more and more recognised as a solution for enhancing data traceability and transparency in smart societies and social systems. We clearly observe an evolution toward a decentralised paradigm in the social media space. Web3 proposal claims a vision of the Internet that can cut the intermediation

of Big tech companies by completely decentralising the web. This new model of the Web enables the integration of metaverses, cryptocurrencies and tokens in many social media platforms. This gives the possibility both to reward users for their social actions and to define Non Fungible Tokens (NFTs), digital assets representing real-world objects like art, music, game items, videos so creating a new form of decentralised finance, the Social Finance (SocialFi).

On the other side, the proliferation of false information and disinformation has serious ramifications for society in terms of politics, society, ethics, and privacy. Therefore, it is morally necessary to stop the spread of false information. There is a lot more potential for blockchain and distributed ledger technologies than just financial payment systems. Blockchain eliminates the need for a reliable middleman since it establishes trust through encryption. Game-theoretical incentives and cryptography foster trust inside a decentralised system.

References:
[1] Z. Jaroucheh, M. Alissa and W. J. Buchanan, "Trust-based Ecosystem to Combat Fake News," 2020 IEEE International Conference on Blockchain and Cryptocurrency (ICBC), 2020, pp. 1-3, doi: 10.1109/ICBC48266.2020.9169435.
[2] "How google fights". PDF
[3] Iosifidis, Petros, and Nicholas Nicoli. "The battle to end fake news: A qualitative content analysis of Facebook announcements on how it combats disinformation." International Communication Gazette 82.1 (2020): 60-81.
[4] Fraga-Lamas P, Fernández-Caramés TM. Fake news, disinformation, and deepfakes: Leveraging distributed ledger technologies and blockchain to combat digital deception and counterfeit reality. IT Professional. 2020 Mar 27;22(2):53-9.
[5] Qayyum A, Qadir J, Janjua MU, Sher F. Using blockchain to rein in the new post-truth world and check the spread of fake news. IT Professional. 2019 Jul 15;21(4):16-24.

Candidate characteristics

Education:
A second class honour degree or equivalent qualification in computer science or closely related discipline.

Subject knowledge:
- blockchain and cryptography but this is not a requirement.

Essential attributes:
- Experience of fundamental computer science with strong programming skills.
- Competent in software engineering fundamentals and preferably cryptography/math.
- Good written and oral communication skills.
- Strong motivation.
- Good time management.

Desirable attributes: