Farhana Javed - Researcher/PhD Student

Summary & Research Interest

My current research focuses on two leading technologies, Blockchain/DLT and Network Slicing. The aim is to integrate functionalities of Blockchain, i.e., smart contracts and distributed applications in multi-administrate domains for 5G and beyond networks. For that, I have investigated the multiple ways in which they have been combined to define my research problem in a more fine-grained way. My research work includes understanding Ethereum (including solidity development, truffle, and geth), IOTA Tangle, IPFS, Chainlink Oracle, and other related technologies. I currently work on use cases for 5G and beyond networks to support inter-provider agreements. Also, this research work is a step toward building an open marketplace with monitoring of Service Level Agreements (SLAs) using Blockchain and DLT.
As a highly diligent student with strong critical thinking ability, I have published and co-authored in some well-recognized academic journals. Previously, I have worked and produced high equality research work that is also published in highly reputable Journals like IEEE Communications Survey & Tutorials and IEEE Access. In the future, I aim to integrate other technical and complex research such as Artificial Intelligence (AI) and Machine Learning (ML) with Blockchain in my research towards building solutions for 6G networks.

Education

Universidad Politécnica de Cataluña (UPC) — Barcelona, Spain
Doctor of Philosophy, Network Engineering — *2020-Present*
- Supervisors: Josep Mangues Bafalluy

Huazhong University of Science and Technology (HUST) — Wuhan, China
Master of Science, Computer Applied Technology — *2017-2019*
- Supervisor: Fui Chen

COMSATS University — Islamabad, Pakistan
Bachelor of Science, Computer Sciences — *2012-2016*

Publications

Citations: 200+ (h-index: 5)

First Author:

Javed, F ., Antevski, K., Mangues-Bafalluy, J., Giupponi, L., & Bernardos, C. J. (2022). Distributed Ledger Technologies For Network Slicing: A Survey. IEEE Access, 10, 19412-19442.

Javed, F ., Afzal, M. K., Sharif, M., & Kim, B. S. (2018). Internet of Things (IoT) operating systems support, networking technologies, applications, and challenges: A comparative review. IEEE Communications Surveys & Tutorials, 20(3), 2062-2100.

Under-Review:

Javed, F ., & Mangues-Bafalluy, J., (2022). Blockchain and 6G Networks: A Use Case for Cost-Efficient Inter-Provider Smart Contracts. In IEEE International Symposium on Personal, Indoor and Mobile Radio Communications.

Javed, F ., & Mangues-Bafalluy, J., (2022). Blockchain-based 6G Inter-Provider Agreements: Auction vs. Marketplace. In IEEE Global Communications Conference.

As co-author:

Javaid, S., Wu, Z., Fahim, H., & **Javed, F** . (2020, December). Simulated Annealing Algorithm Based Temperature-Aware Routing Scheme for Intrabody Nanonetworks. In 2020 International Conference on Networking and Network Applications (NaNA) (pp. 248-253). IEEE.

Javaid, S., Wu, Z., Fahim, H., Fareed, M. M. S., & **Javed, F** . (2020). Exploiting temporal correlation mechanism for designing temperature-aware energy-efficient routing protocol for intrabody nanonetworks. IEEE Access, 8, 75906-75924.

Javaid, S., Fahim, H., Liao, X., & **Javed, F** . (2019, October). Exploiting temporal correlation mechanism for energy efficient data collection in intrabody nanonetworks. In 2019 International Conference on Networking and Network Applications (NaNA) (pp. 119-123). IEEE.

Fahim, H., Li, W., Javed, S., & **Javed, F** . (2019, October). Bio-inspired nanorouter mobility model for energy efficient data collection in intrabody nanonetwork. In 2019 International Conference on Networking and Network Applications (NaNA) (pp. 124-128). IEEE.

Rahim, M. H., Javaid, N., Rahim, S., Naz, M., Akbar, M., & **Javed, F**. (2018, July). Weighted Cuckoo Search Based Load Balanced Cloud for Green Smart Grids. In International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing (pp. 252-264). Springer, Cham.

Javaid, S., Wu, Z., Fahim, H., **Javed, F** ., & Chen, J. (2018, October). Analyzing the impact of nanonode density on biological tissues in intrabody nanonetworks. In 2018 International Conference on Networking and Network Applications (NaNA) (pp. 159-163). IEEE.

Work Experience

Researcher/PhD Student December 2019 – (Current)
CTTC *Barcelona, Spain*

- Research Activities: Integration of Blockchain techniques for multi-administrative domains.

ICT Facilitator August 2019 – November 2019
Heavy Industries Taxila Education City *Taxila, Pakistan*

- Responsibilities: Incorporate ICT methods where practitioners can bring in new ideas.

Teaching Assistant January 2017 – August 2017
HITEC University *Taxila, Pakistan*

- Responsibilities: Assistant for Computer Communication and Networks Subjects

Skills

Practical Skills : Solidity, Geth, Truffle, IOTA Tangle, IPFS, Chainlink Oracle, Python, MATLAB, NS3, C/C++
Transferable Skills: Organization, Teamwork, Project management, Public speaking
Writing Skills: Technical writing, Scientific writing, research paper writing
Languages: English (Proficient, official language), Spanish (A2), Mandarin (HSK1), Urdu (Native)

Awards & Honors

Chinese government scholarships
Benevolent Fund (Four years)
FPI (Formación Personal Investigador) project 5G-REFINE (Resource Efficient 5G Networks)
Foji Foundation Scholarship
Prime Minster Youth Training Scheme