



Maimoona Bint E Sajid

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Maimoona Bint E Sajid

MS in Software Engineering

About Me: I have received BS degree in Software Engineering from COMSATS Islamabad, Wah campus, Pakistan in 2019. I have done my MS degree in Software Engineering from COMSATS University Islamabad, Islamabad Campus in 2022, under the keen supervision of Dr. Nadeem Javaid. Now I am working as a research associate in [Communications Over Sensors \(ComSens\) Research Laboratory](#). Currently, I have two journal publications and five conference publications. My area of interest includes Wireless Sensor Networks (WSNs), Blockchain and Machine Learning.

Qualification

Masters of Science in Software Engineering (MSSE)

COMSATS University Islamabad, Pakistan, 2019 - 2022

Thesis Title: A Blockchain based Malicious Node Detection during Routing using Support Vector Machine in Wireless Sensor Networks

Abstract: In this thesis, we proposed two system models. In first system model, a blockchain based secure routing model is proposed for the Internet of Sensor Things (IoSTs). The blockchain is used to register the nodes and store the data packets' transactions. Moreover, the Proof of Authority (PoA) consensus mechanism is used in the model to avoid the extra overhead incurred due to the use of Proof of Work (PoW) consensus mechanism. Furthermore, during routing of data packets, malicious nodes can exist in the IoSTs network, which eavesdrop the communication. Therefore, the Genetic Algorithm based Support Vector Machine (GA-SVM) and Genetic Algorithm based Decision Tree (GA-DT) models are proposed for malicious node detection. After the malicious node detection, Dijkstra algorithm is used to find the optimal routing path in the network. In second system model, the routing protocol is proposed that is based on Energy, Temperature and Degree for the Low Energy Adaptive Clustering Hierarchy (ETD-LEACH). This protocol improves the network lifetime by consuming less energy of the nodes. The proposed protocol selects the Cluster Heads (CHs) on the bases of degree, temperature and energy that perform routing. Moreover, the blockchain is used to solve the issue of the single point of failure. It is deployed on the CHs and base station to store the data transactions and used the PoA consensus mechanism. In the blockchain, Secure Hashing Algorithm-256 (SHA-256) is used for the secure hashing of data transactions.

Bachelor of Science in Software Engineering (MSSE)

COMSATS University Islamabad, Pakistan, 2015 - 2019

Project Title: Android Based Perfect Garden

Abstract: Gardens express the creative soul of its creator. The users themselves tell their own story and carry in them fragile life. This application based upon concept of augmented reality gives anyone the tools they need to create their desired gardens. An empty land and its dimensions will be provided to user to start creating gardens. There will be some already made garden templates for those users who will be unable to create their own gardens.

User will create garden by drag and drop from the categories which will be provided in the application. The garden will be in a virtual 3D representation. Texturization is performed and users can change different colors and patterns of pots based upon provided range of patterns. Users will see the cost of plants, vegetables, entrance arches and flowerpots and then system will calculate the cost of the garden.

Experience

Research Associate: Sep 2020 - Oct 2024

- Research Associate in ComSens Research Lab at the Department of Computer Science, COMSATS University Islamabad (2nd Top University in Pakistan), Pakistan
- My main responsibilities include:
 - Producing research papers
 - Help out the research fellows in coding
 - Reviewing papers of other students
 - Validating the findings of research fellows

ISI-indexed Impact Factor Journals

[1] **Maimoona Bint E Sajid**, Sameeh Ullah, Nadeem Javaid, Ibrar Ullah, Ali Mustafa Qamar, Fawad Zaman "Exploiting Machine Learning to Detect Malicious Nodes in Intelligent Sensor-Based Systems Using Blockchain", Wireless Communications and Mobile Computing, Volume: 2022, Pages: NN, Published: December 2021, ISSN: 1530-8677. doi:<https://doi.org/10.1155/2022/7386049>. [IF= 3.367]. Download from [Hindawi](#)

[2] Asad Ullah Khan, **Maimoona Bint E Sajid**, Abdul Rauf, Malik Najmus Saqib, Fawad Zaman, Nadeem Javaid, "Exploiting Blockchain and RMCV based Malicious Node Detection in ETD-LEACH for Wireless Sensor Networks", Wireless Communications and Mobile Computing, Volume 2022, Article ID 7281872, DOI: <https://doi.org/10.1155/2022/7281872>, August 2022. Download from [Hindawi](#)

International Conference Proceedings

[1] Hajra Zareen, Saba Awan, **Maimoona Bint E Sajid**, Shakira Musa Baig, Muhammad Faisal and Nadeem Javaid, "Blockchain and IPFS based Service Model for the Internet of Things", in the 15th International Conference on Complex, Intelligent and Software Intensive System (CISIS), 20, ISBN: 978-3-030-50454-0.

Download from [SpringerLink](#) or [ResearchGate](#).

[2] Saba Awan, **Maimoona Bint E Sajid**, Sana Amjad, Usman Aziz, Muhammad Usman Gurmani and Nadeem Javaid, "Blockchain based Authentication and Trust Evaluation Mechanism for Secure Routing in Wireless Sensor Networks", in the 13th International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing (IMIS), 2021, ISBN: 978-3-030-22263-5.

Download from [SpringerLink](#) or [ResearchGate](#).

[3] Usman Aziz, Muhammad Usman Gurmani, Saba Awan, **Maimoona Bint E Sajid**, Sana Amjad, and Nadeem Javaid, "A Blockchain based Secure Authentication and Routing Mechanism for Wireless Sensor Networks", in the 13th International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing (IMIS), 2021, ISBN: 978-3-030-22263-5.

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References

References will be provided upon demand

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