# Dr. MUHAMMAD UMAR JAVED

*Artificial Intelligence | Data Science | Blockchain*

As a devoted computer science researcher with expertise in artificial intelligence, data science, and blockchain, I provide a solid foundation of theoretical understanding and practical implementations. My Ph.D. study focused on applying blockchain and developing AI approaches, notably in the areas of smart grids and electric vehicles, showcasing my dedication to pushing innovation in this dynamic field.

## Academics

2018-2023 **Ph.D. (Computer Science)**
COMSATS University Islamabad, Islamabad 44000, Pakistan
Thesis Title: Making Electric Vehicles Energy Efficient in Smart Grids using Blockchain

2015-18 **MS (Electrical Engineering)**
Government College University, Lahore 54000, Pakistan
Thesis Title: Cost Effective Implementation of Large Scale Photovoltaic Systems in Pakistan

2010-14 **BS (Electrical Engineering)**
Government College University, Lahore 54000, Pakistan
Final Year Project: Mitigating Electricity Theft in the Power Grids

## Research Articles

I have published 31 research articles so far. Here, these articles are arranged in two parts: (a) Journal Publications and (b) Conference Proceedings. For more details, visit Google Site.

### Journal Publications

[25] **Javed, Muhammad Umar**, Nadeem Javaid, Nabil Alrajeh, Muhammad Shafiq, and Jin-Ghoo Choi. "Mutual authentication enabled trust model for vehicular energy networks using Blockchain in Smart Healthcare Systems." Simulation Modelling Practice and Theory 136 (2024): 103006. Download from Simulation Modelling Practice and Theory

[24] **Javed, Muhammad Umar**, Abid Jamal, Eman H. Alkhammash, Myriam Hadjouni, Saeed Ali Bahaj, and Nadeem Javaid. "Secure Message Handling in Vehicular Energy Networks Using Blockchain and Artificially Intelligent IPFS." IEEE Access 10 (2022): 82063-82075. Download from IEEE Access

[23] **Javed, Muhammad Umar**, Nadeem Javaid, Muhammad Waseem Malik, Mariam Akbar, Omaji Samuel, Adamu Sani Yahaya, and Jalel Ben Othman. "Blockchain based secure, efficient and coordinated energy trading and data sharing between electric vehicles." Cluster Computing (2021): 1-29. Download from Cluster Computing

[22] **Javed, Muhammad Umar**, Nadeem Javaid, Abdulaziz Aldegheishem, Nabil Alrajeh, Muhammad Tahir, and Muhammad Ramzan. "Scheduling Charging of Electric Vehicles in a Secured Manner by Emphasizing Cost Minimization Using Blockchain Technology and IPFS." Sustainability 12, no. 12 (2020): 5151. Download from Sustainability

[21] **Javed, Muhammad Umar**, Mubariz Rehman, Nadeem Javaid, Abdulaziz Aldegheishem, Nabil Alrajeh, and Muhammad Tahir. "Blockchain-based secure data storage for distributed vehicular networks." Applied Sciences 10, no. 6 (2020): 2011. Download from Applied Sciences

[20] Saeed, Arooba, **Muhammad Umar Javed**, Ahmad Almogren, Nadeem Javaid, and Mohsin Jamil. "Employing Blockchain and IPFS in WSNs for Malicious Node Detection and Efficient Data Storage." Wireless Networks, February 2024. Download from Wireless Networks

[19] Musa Baig, Shakira, **Muhammad Umar Javed**, Nadeem Javaid, Ahmad Almogren, and Mohsin Jamil. "A Blockchain and Stacked Machine Learning Approach for Malicious Nodes' Detection in Internet of Things." Peer-to-Peer Networking and Applications, August 2023. Download from Peer-to-Peer Networking and Applications

[18] Abid Jamal, **Muhammad Umar Javed**, Nabil Alrajeh, Safdar Hussain Bouk, and Nadeem Javaid. "Blockchain based Reputation Management, Data Storage and Distributed Revocation in Vehicular Energy Networks in Smart Health Care Systems". Cluster Computing (2023):1-13. Download from Cluster Computing

[17] Sadiq, Ayesha, **Muhammad Umar Javed**, Rabiya Khalid, Ahmad Almogren, Muhammad Shafiq, and Nadeem Javaid. "Blockchain Based Data and Energy Trading in Internet of Electric Vehicles." IEEE Access 9 (2020): 7000-7020. Download from IEEE Access

[16] Bukhsh, Rasool, **Muhammad Umar Javed**, Aisha Fatima, Nadeem Javaid, Muhammad Shafiq, and Jin-Ghoo Choi. "Cost Efficient Real Time Electricity Management Services for Green Community Using Fog." Energies 13, no. 12 (2020): 3164. Download from Energies

[15] Naz, Aqdas, **Muhammad Umar Javed**, Nadeem Javaid, Tanzila Saba, Musaed Alhussein, and Khursheed Aurangzeb. "Short-term electric load and price forecasting using enhanced extreme learning machine optimization in smart grids." Energies 12, no. 5 (2019): 866. Download from Energies

[14] Aslam, Zeeshan, Nadeem Javaid, **Muhammad Umar Javed**, Muhammad Aslam, Abdulaziz Aldegheishem and Nabil Alrajeh. "A New Clustering based Semi-supervised Method to Restrict the Users from Anomalous Electricity Consumption: Supporting Urbanization." Electrical Engineering (2024): 866. Download from Electrical Engineering

[13] Pamir, Nadeem Javaid, **Muhammad Umar Javed**, Mohamad Abou Houran, Abdullah Almasoud, and Muhammad Imran. "Electricity Theft Detection for Energy Optimization using Deep Learning Models", Energy Science & Engineering, August 2023. Download from Energy Science & Engineering

[12] Ullah, Ashraf, Nadeem Javaid, **Muhammad Umar Javed**, Byung-Seo Kim, and Saeed Ali Bahaj. "Adaptive data balancing method using stacking ensemble model and its application to non-technical loss detection in smart grids." IEEE Access (2022): 133244-133255. Download from IEEE Access

[11] Javaid, Nadeem, Naeem Jan, and **Muhammad Umar Javed**. "An adaptive synthesis to handle imbalanced big data with deep siamese network for electricity theft detection in smart grids." Journal of Parallel and Distributed Computing 153 (2021): 44-52. Download from Journal of Parallel and Distributed Computing

[10] Yahaya, Adamu Sani, Nadeem Javaid, **Muhammad Umar Javed**, Ahmad Almogren, and Ayman Radwan, "Blockchain based Secure Energy Trading with Mutual Verifiable Fairness in a Smart Community", IEEE Transactions on Industrial Informatics 18 (2022): 7412 - 7422. Download from IEEE Transactions on Industrial Informatics

[9] Yahaya, Adamu Sani, Nadeem Javaid, **Muhammad Umar Javed**, Muhammad Shafiq, Wazir Zada Khan, and Mohammed Y. Aalsalem. "Blockchain-based energy trading and load balancing using contract theory and reputation in a smart community." IEEE Access 8 (2020): 222168-222186. Download from IEEE Access

[8] Shehzad, Faisal, Nadeem Javaid, Sheraz Aslam, and **Muhammad Umar Javaid**. "Electricity theft detection using big data and genetic algorithm in electric power systems." Electric Power Systems Research 209 (2022): 107975. Download from Electric Power Systems Research

[7] Samuel, Omaji, Nadeem Javaid, Ahmad Almogren, **Muhammad Umar Javed**, Umar Qasim, and Ayman Radwan, "A Secure Energy Trading System for Electric Vehicles in Smart Communities using Blockchain", Sustainable Cities and Society (2022): 103678. Download from Sustainable Cities and Society

[6] Ullah, Ashraf, Nadeem Javaid, Muhammad Asif, **Muhammad Umar Javed**, Adamu Sani Yahaya, "AlexNet, AdaBoost and Artificial Bee Colony based Hybrid Model for Electricity Theft Detection in Smart Grids", IEEE Access 10 (2022): 18681-18694. Download from IEEE Access

[5] Khalid, Rabiya, Nadeem Javaid, Ahmad Almogren, **Muhammad Umar Javed**, Sakeena Javaid, and Mansour Zuair. "A blockchain-based load balancing in decentralized hybrid P2P energy trading market in smart grid." IEEE Access 8 (2020): 47047-47062. Download from IEEE Access

[4] Naz, Aqdas, Nadeem Javaid, Muhammad Asif, **Muhammad Umar Javed**, Abrar Ahmed, Sardar Muhammad Gulfam, Muhammad Shafiq, and Jin-Ghoo Choi. "Electricity Consumption Forecasting Using Gated-FCN With Ensemble Strategy." IEEE Access 9 (2021): 131365-131381. Download from IEEE Access

[3] Pamir, Nadeem Javaid, Ahmad Almogren, Muhammad Adil, **Muhammad Umar Javed**, and Mansour Zuair. "RFE based feature selection and KNNOR based data balancing for electricity theft detection using BiLSTM-LogitBoost stacking ensemble model." IEEE Access (2022): 112948-112963. Download from IEEE Access

[2] Pamir, Nadeem Javaid, Saher Javaid, Muhammad Asif, **Muhammad Umar Javed**, Adamu Sani Yahaya, and Sheraz Aslam. "Synthetic Theft Attacks and Long Short Term Memory-Based Preprocessing for Electricity Theft Detection Using Gated Recurrent Unit." Energies 15, no. 8 (2022): 2778. Download from Energies

[1] Yahaya, Adamu Sani, Nadeem Javaid, Sameeh Ullah, Rabiya Khalid, **Muhammad Umar Javed**, Rehan Ullah Khan, Zahid Wadud, and Muhammad Asghar Khan, "A Secure and Efficient Energy Trading Model using Blockchain for a 5G Deployed Smart Community", Wireless Communications and Mobile Computing (2022). Download from Wireless Communications and Mobile Computing

## Conference Proceedings

[6] **Javed, Muhammad Umar**, Abid Jamal, Nadeem Javaid, Noman Haider, and Muhammad Imran. "Conditional Anonymity enabled Blockchain-based Ad Dissemination in Vehicular Ad-hoc Network." In 2020 International Wireless Communications and Mobile Computing (IWCMC), pp. 2149-2153. IEEE, 2020. Download from IEEEXplore

[5] **Javed, Muhammad Umar**, and Nadeem Javaid. "Scheduling charging of electric vehicles in a secured manner using blockchain technology." In 2019 International Conference on Frontiers of Information Technology (FIT), pp. 351-3515. IEEE, 2019. Download from IEEEXplore

[4] Hameed, Javaria, Rabiya Khalid, **Muhammad Umar Javed**, Sakeena Javaid, Sheeraz Ahmed, and Nadeem Javaid. "Enhanced Classification with Logistic Regression for Short Term Price and Load Forecasting in Smart Homes." In 2020 3rd International Conference on Computing, Mathematics and Engineering Technologies (iCoMET), pp. 1-6. IEEE, 2020. Download from IEEEXplore

[3] Khan, Beenish, Rabiya Khalid, **Muhammad Umar Javed**, Sakeena Javaid, Sheeraz Ahmed, and Nadeem Javaid. "Short-Term Load and Price Forecasting based on Improved Convolutional Neural Network." In 2020 3rd International Conference on Computing, Mathematics and Engineering Technologies (iCoMET), pp. 1-6. IEEE, 2020. Download from IEEEXplore

[2] Ashfaq, Tehreem, Nadeem Javaid, **Muhammad Umar Javed**, Muhammad Imran, Noman Haider, and Nidal Nasser. "Secure Energy Trading for Electric Vehicles using Consortium Blockchain and k-Nearest Neighbor." In 2020 International Wireless Communications and Mobile Computing (IWCMC), pp. 2235-2239. IEEE, 2020. Download from IEEEXplore

[1] Rehman, Mubariz, Zahoor Ali Khan, **Muhammad Umar Javed**, Muhammad Zohaib Iftikhar, Usman Majeed, Imam Bux, and Nadeem Javaid. "A Blockchain Based Distributed Vehicular Network Architecture for Smart Cities." In AINA Workshops, pp. 320-331. 2020. Download from Springerlink

## Experience

[6] **Assistant Professor at University of South Asia, Lahore (April, 2024 to date)**

I am working as an Assistant Professor at Department of Computer Science, University of South Asia, Lahore Cantt, Lahore from April 18, 2024. I am also working as the Convenor of the Outcome Based Education System at the University level. I have also helped in development and designing of the roadmaps and lab manuals under the capacity of CRC member. I have also helped in formulating the roadmaps of BS Data Science, BS Artificial Intelligence and BS Cyber Security. I am also serving as an active member of the IQAE Department.

[5] **Assistant Professor at University of Wah, Wah (Oct, 2023 - Mar, 2024)**

I have worked as an Assistant Professor at Department of Computer Science, University of Wah, Wah Cantt, Wah from October 02, 2023 to March 22, 2024. I have also worked as the Convenor of the Outcome Based Education System at the University level.

[4] **Postdoctoral Researcher Fellow at COMSATS University Islamabad, Islamabad (Feb, 2023 - Sept, 2024)**

I have worked as a Postdoctoral Researcher Fellow from February 06, 2023 to September 06, 2024 at Communications over Sensors (ComSens) Lab, Department of Computer Science, COMSATS University Islamabad, Islamabad.

[3] **Research Associate at COMSATS University Islamabad, Islamabad (Mar, 2018 - Jan, 2023)**

I have worked as a Research Associate from March 05, 2018 to January 20, 2023 at Communications over Sensors (ComSens) Lab, Department of Computer Science, COMSATS University Islamabad, Islamabad.

[2] **Senior Lecturer at Ahmad Hassan Polytechnic Institute, Lahore (Sept, 2015 - Feb, 2018)**

I have worked as a Senior Lecturer for DAE Electrical from September 07, 2015 to February 16, 2018 at Ahmad Hassan Polytechnic Institute, Lahore.

[1] **Trainer at Info IT, Lahore (Oct, 2014 - Aug, 2015)**

I have worked as a Trainer for GIS and MS Office Suite from October 06, 2014 to August 28, 2015 at Info IT, Lahore.

## Certifications

**Artificial Intelligence**

[1] 7 Days of Hands-On AI Development Bootcamp and Certification by Udemy
[2] AI Superpowers: Transform Your Work with latest AI Tools by Udemy
[3] AI Productivity: Mastering Tools for Success in 2024 by Udemy
[4] Generative AI and Artificial Intelligence (AI) for Leaders by Udemy
[5] Presentation Expert: AI & GPT, Pitch Decks, Business Speech by Udemy
[6] Introduction to Modern AI course from CISCO
[7] Elements of AI by the University of Helsinki
[8] Generative AI for Educators

**Cybersecurity**

[1] Getting Started with Cybersecurity fom IBM
[2] Getting Started with Threat Intelligence and Hunting from IBM

[3] Introduction to Critical Infrastructure Protection from OPSWAT Academy

[4] Blockchain Theory 101 by Udemy

[5] Blockchain Developer Training by SkillUp

[6] Introduction to Cyber Security by SkillUp

## Awards and Achievements

2018-2023 **Outstanding Ph.D. Student of ComSens Lab**

I have been regarded as the outstanding Ph.D. student of ComSens Lab, headed by Prof. Nadeem Javaid at Department of Computer Science, COMSATS University Islamabad, Islamabad, Pakistan.

2022 **Highly Cited Paper**

**Javed, Muhammad Umar**, Mubariz Rehman, Nadeem Javaid, Abdulaziz Aldegheishem, Nabil Alrajeh, and Muhammad Tahir. "Blockchain-based secure data storage for distributed vehicular networks." Applied Sciences 10, no. 6 (2020): 2011.

2016-2021 **HEC Indigenous Scholarship**

Scholarship acquired for 5 years for pursuing MS and Ph.D.

2014 **National ICT R&D Fund**

Funding acquired for the BS Final Year Project

## Professional Memberships

[1] **IEEE Member**

Membership Number: 96667603

[2] **Pakistan Engineering Council (PEC)**

Registration Number: ELECT/53572

## References

Available upon request