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ACADEMIC QUALIFICATIONS

- ***Ph.D in Computer Science & Technology*** from ***Jawaharlal Nehru University, New Delhi, India***
- ***M.Tech. (Computer Science & Technology)*** in January 1999 from ***Jawaharlal Nehru University, New Delhi, India*** with a ***CGPA of 7.66 (81.6%) on a scale of 9.0***.

UGC NET

- Cleared ***UGC NET Examination*** for Lectureship held in ***July 2000*** in ***Computer Science & Applications***.

WORK EXPERIENCE:

Teaching Experience: (23 years)

- *Associate Professor in School of Computer & Systems Sciences, JNU (September 1, 2017 – till date)*
- *Assistant Professor in School of Computer & Systems Sciences, JNU (September 1, 2004 – August 31, 2017)*
- *Lecturer* (Computer Science) in Jamia Millia Islamia, New Delhi (July 16, 2002, - August 31, 2004).
- *Lecturer* (Computer Science) in Shri Lal Bahadur Shastri R. S. Vidyapeeth (Deemed University), New Delhi (January 07, 2002 - July 15, 2002).

Administrative Experience:

- *Worked as **Warden of Mahi/Mandavi Hostel**, JNU from 23/03/2006 to Sept. 2018.*
- Worked as **Coordinator of remedial classes** in SC&SS, JNU from 2009 to 2019
- Working as **Placement Co-ordinator**, in SC&SS, JNU from 2007 to 2024.

AREAS OF INTEREST/SPECIALIZATION:

Wireless Sensor Networks, Vehicular Ad-Hoc Networks, Internet of Things, Cybersecurity, Quantum Computing, Applied Machine Learning/Deep Learning, Blockchain

RESEARCH PUBLICATIONS:

Papers published in Journals:

[1] Safa Hamdare etl. ,"Cyber Defense in OCPP for EV Charging Security Risks", International Journal of Information Security, Volume 24, article number 134, May 2025.pp. 1-25

[2] Aanchal Khatri, Mahima, Punit Kumar, Balak Ram, Upasana D., Sushil., "Towards precision agriculture: utilizing IoT and deep learning for automatic farm fire detection and extinguishing", Peer-to-Peer Netw. Appl. 18, 164, 3 May 2025. https://doi.org/10.1007/s12083-025-01966-1

[3] Ankit Manderna, Upasana Dohare, Sushil Kumar, Balak Ram, "Intrusion detection in internet of things using differential privacy: A hybrid machine learning approach", Ad Hoc Networks, Volume 174, March 2025

[4] Pankaj K Kashyap, Upasana D, etl. "Blockchain and Quantum Machine Learning Driven Energy Trading for Electric Vehicles", Ad Hoc Networks, Volume 165, 1 December 2024, 103632

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[6] Hamdare, Safa, David J. Brown, Yue Cao, Mohammad Aljaidi, Sushil Kumar, Rakan Alanazi, Manish Jugran, Pratik Vyas, and Omprakash Kaiwartya. 2024. "A Novel Charging Management and Security Framework for the Electric Vehicle (EV) Ecosystem" World Electric Vehicle Journal 15, no. 9: 392., Aug. 2024

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[8] Mohammad Aljaidi, et.al "QoE-based Assignment of EVs to Charging Stations in Metropolitan Environments*", IEEE Transactions on Intelligent Vehicles*, June, 2024 doi: 10.1109/TIV.2024.3412372

[9] Maria Drolence Mwanje, Omprakash Kaiwartya, Mohammad Aljaidi, Yue Cao, Sushil Kumar, Devki Nandan Jha, Abdallah Naser, Jaime Lloret, "Cyber security analysis of connected vehicles", *IET Intelligent Transport Systems, 18, 1175–1195 (April 2024).*

[10] Greetta Pinheiro, I. H. Rather, A. Raj, S. Minz, and S. Kumar, "Image Quality Assessment of Multi-Satellite Pan-Sharpening Approach: A Case Study using Sentinel-2 Synthetic Panchromatic Image and Landsat-8 ", EAI Endorsed Scal Inf Syst, vol. 11, no. 6, Mar. 2024.

[11] Manisha Rathee, Sushil Kumar, etl. "Towards Energy Balancing Optimization in Wireless Sensor Networks: A Novel Quantum Inspired Genetic Algorithm Based Sinks Deployment Approach", *Ad Hoc Networks*, Volume 153, 1 February 2024, 103350

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Book Chapter:

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[49] Sushil Kumar and D K Lobiyal, Connectivity Enhancement in Randomly Distributed Wireless Sensor Network Using Cooperative Cluster Transmission, 2013 IEEE International Mutli-Conference on Automation, Computing, Communication, Control and Compressed Sensing (iMac4s), 22-23 March 2013 pp. 607 - 612

CONFERENCE / WORKSHOP ORGANIZED, CHAIR/ATTENDED:

Session Chaired:

1. ICCCS 2019, International conference on communication and computing systems, 1-2, Dec, 2018
2. ICPR 2017 Springer International conference on pattern recognition, 22, December, 2017.
3. COMTECH-2016, National Conference on Emerging Computer Technologies, AKG, Ghaziabad, 1-2 April, 2016.
4. IndiaCom-2016, Bharati Vidyapeeth's , Institute of Computer Applications and Management, New Delhi

Organised:

1. Conf. Chair, 3rd Int. Conf. on Networks and Cryptology, SC&SS, JNU, 29-31 May 2025
2. Online National Instructional Workshop on CRYPTOLOGY (NIWC-2020), SC&SS, JNU, New Delhi, from 22nd - 26th July 2020
3. 1st International conference on Networks and Cryptology (NETCRYPT-2019),14-16 June 2019 at SC&SS, JNU, New Delhi.
4. Emerging challenge of cyber crime in India, 09-10 Oct. 2017.
5. PyDelhi-2016, Workshop on Python, SC&SS, JNU, New Delhi, March 05, 2016.
6. "International Conference on Signal, Networks, computing, and Systems (ICSNCS-2016 Springer), SC&SS, JNU, New Delhi, 25-27 Feb 2016.

Attended/presented:

1. IndiaCom-2016, Bharati Vidyapeeth's , Institute of Computer Applications and Management, New Delhi
2. IEEE International conference on intelligent computing, instrumentation and control technologes, July 6-7, 2017.
3. WRFER, new delhi, 02 july, 2017
4. NSD poster presentation, JNU,new delhi, 28, Feb. 2015
5. UGC Sponsered Orientation Programme , Jamia Millia Islamia, 6th April to 7th May, 2014 (four weeks)

6. Refresher Course in Computer Science, J. N. U., 10th Nov to 5th Dec, 2008 (four weeks)
7. Refresher Course in Computer Science & Information Technology, J. N. U., 22 July to 16 Aug., 2013 (four weeks)
8. Short term course on Network & Cyber Security, SC&SS, 27/06/16 to 01/07/16 (one week).
9. One week workshop on Fuzzy and Rough Sets for Knowledge Discovery, Sept. 5-9, 2016
10. "IEEE International Advance Computing conference (IACC-2013)", AKG Engineering College, Ghaziabad, UP.
11. "IEEE International Mutli-Conference on Automation, Computing, Communication, Control and Compressed Sensing (iMac4s-2013)",Palai, Kerala .
12. "Emerging Computing Technologies in Modern Era-2014", SSJ P.G college, Jaipur.

Invited talk

1. Networking Communication Systems, International Workshop on Future Mobility and Applications, NTU, UK, Nov. 22, 2022.
2. Research Issues in Cybersecurity, JNU, ATAL FDP on cybersecurity, Dec.07, 2021,
3. Research Solution for Cybersecurity, JNU, ATAL FDP on cybersecurity, 2020, Nov. 24, 2020.
4. Classical Cryptography, ATAL Faculty Development Programme (Online) on Cyber Crime & Security, Department of Information Technology, College of Technology, GBPUAT, Pantnagar, India, Nov. 24, 2020.
5. Classical Cryptography, AICTE Sponsored Faculty Development Programme (Online) on Cyber Crime & Security, Department of Information Technology, College of Technology, GBPUAT, Pantnagar, India, October 5-17,2020.
6. Classical Techniques in Cryptography, Online National Instructional Workshop on CRYPTOLOGY (NIWC-2020), SC&SS, JNU, New Delhi, from 22nd - 26th, July 2020
7. Trust Evaluation for Lightweight security in Internet of Things using ns-3, Workshop on "Security" , ICARS, New Delhi & Sharda University, Greater Noida, from 06th July, 2020 to 10th July, 2020
8. Wireless Network Simulation using ns-3, Workshop on "Internet of Things", ICARS, New Delhi, from 22nd June, 2020 to 26th June, 2020
9. Energy Oriented Optimization in Sensor- Enabled Internet of Things using NS-2, Workshop on Research Tools, ICARS, New Delhi , June 29, 2020- July 03, 2020
10. Working on NS-2 and NS-3" in Workshop on Research Tools, ICARS, New Delhi held from June 29, 2020- July 03, 2020
11. IoT Security & Health Applications, JNU, ATAL FDP 2020, June 02, 2020.
12. Cybersecurity Research and Solutions, JNU, ATAL FDP 2020, May 29, 2020.
13. Network Simulation and Data Security, FDP on "Network Simulation and Data Security", CCSIT, TMU, Moradabad, UP, August 07, 2018.
14. Mobile and Opportunistic Networks, Workshop on "Mobile and Opportunistic Networks", Ambedkar Institute of Technology, Delhi, August 17, 2017
15. Network Simulator-2, RMS college of engineering & Technology, Bareilly, July 12, 2016.
16. Network Lab/Demo, HRDC, JNU, Sept. 04, 2015.

RESEARCH PROJECTS UNDERTAKEN:

- Title of Research Project(s): *Development of Protocols and Algorithms for Green Wireless Sensor Networks,* Date of Commencement: May 13, 2015, Completion: March 31, 2019,Total Grants : 23 Lakhs

RESEARCH GUIDANCE:

Ph.D Supervised-

1. Balak Ram, "Designing Energy Optimization Framework in Internet of Things", 12/09/2025
2. N. Pavan, "Spectrum Sharing in Cognitive Radio Networks", 30-06-2025
3. Ishfaq Hussain Rather, "Designing Deep Learning Models for Small Datasets", Dec. 2024
4. Ankit Manderna, "Security and Privacy for Intelligent Vehicular Networks Using Machine Learning", Jan., 2024
5. Ritesh Yaduwanshi," Cooperative Localization in Internet of Vehicles", Feb. 2023
6. Manoj Kumar, "Energy Optimization in Internet of Things", Feb. 2023
7. Bhawana, "Modeling Emerging Internet of Things Applications Using Blockchain", Feb. 2023
8. Pinky Bai, "Blockchain Enabled Security and Privacy for IoT Centric Smart Healthcare System", Feb. 2023
9. Rinki Rani, "Lightweight Security Models for Green Computing in Internet of Things", Sept. 22, 2022
10. Mukesh Kumar, "Data Mining Enabled Models for Efficient Data Transmission in Internet of Things",

Sept. 23, 2022
11. Sudhkar, " Cybersecurity Threat Detection using Machine Learning and Deep Learning Techniques", July 1, 2022
12. Intyaz Alam, "Modeling of Internet of Vehicles", Feb. 2022
13. Ankita Jaiswal, "Energy Harvesting in Internet of Things", Feb. 2022
14. Mahendra Ram, Modeling of Energy Efficient MAC Protocols in Wireless Sensor Networks, Feb. 2022
15. Kirshna Kumar, Routing in Internet of Thighs, July, 02, 2021
16. Pankaj Kumar Kashyap, Load Balancing in Wireless Sensor Networks, August 24, 2020.
17. Vinod Kumar, Energy Efficient Coverage in Sensor Enabled Internet of Things, 26 July, 2019
18. Reena Kasana, Geographic Routing in Vehicular Ad-hoc Networks, March, 2019
19. Manish Rathee, Energy balancing in wireless sensor networks, Sept. 2018.
20. Priyanka Rathee, Performance modeling of medium access control for vehicular ad-hoc networks, July 2018.
21. Aanchal, Lifetime maximization of wireless sensor networks, December, 2017
22. Vandana Bhasin, Design of secure and reliable data distribution in wireless sensor networks, December, 2017.
23. Vipin Kumar, Position-based routing protocols in wireless sensor networks, Dec, 2017
24. Arvind Kumar, Optimization of Energy Consumption in Mobile Ad hoc Networks, Dec, 2017
25. Ajay Sikandar, Energy Efficient Transmission in Wireless Sensor Networks, July, 2015
26. Omprakash Kaiwartya, Goecast Routing Protocols in Vehicular Adhoc Networks, July, 2015

M.TECH. Supervised-

1. Nidhi, "Lightweight Intrusion Detection Approach for IoT Using Machine Learning", 2025
2. Mukul Yadav, "Trajectory Planning for Autonomous Vehicles Using Reinforcement Learning", 2025
3. Ganeshwar Prasad Kewat, Machine Learning-Driven Attack Detection Model for SCADA Networks,", 2025
4. KADAGUANG MALANGMEI, " IoT Based Accident Control and Alert System in Hilly Region", 2025
5. Rinchen Angmo ," TRUST EVALUATION MODEL FOR LIGHTWEIGHT SECURITY IN INTERNET OF THINGS", July 2023
6. Anjani ," CYBER SECURITY MODEL FOR ELECTRIC VEHICLE CHARGING STATION", July 2023
7. Latika Gupta, "FEDERATED TRANSFER LEARNING FOR CYBERSECURITY ATTACKS DETECTION IN IOT", July 2023
8. Pooja, "ANALYSIS AND CLASSIFICATION OF COUGH SIGNAL USING MACHINE LEARNING", July 2023
9. Anushka Dixit, "DATA OFFLOADING IN EDGE CENTRIC UAV NETWORKS", July 2023
10. Bhagvati, "TRUSTWORTHY AI APPROACHE FOR AUTONOMOUS VEHICLES", July 2023
11. Noni Bai, "VISIBLE LIGHT COMMUNICATION FOR CONNECTED AND AUTONOMOUS VEHICLES", July 2023
12. Neha Singh, "CYBER SECURITY THREATS DETECTION USING DEEP LEARNING", July 2023
13. Vibha Bharilya, "Deep Learning and IoT Enabled Model for Plant Disease Detection", July 14, 2022
14. Apoorva Srivastva, Machine Learning enabled Intrusion Detection Model in loT, Jan. 2022
15. Prashant Kumar, An Effecive Machine Learning based Technique for Traffic Classification in IoT Networks, Jan, 2022
16. Kumar Anukool, Homomorphic Encryption for Machine Learning Models, Dec 2021
17. Ankit Mandearna, Data Dissimination in Vehicular Cyber Physical Systems, July 2018
18. Manoj Kumar, Localization Systems for wireless sensor networks, July 2018
19. Ritesh Yaduwanshi, Vehicular cyber physical system, July 2017.
20. Bhawana. Messaging queue for internet of things, July 2017
21. Pinky Bai, Energy efficient communication protocol, at network layer for internet of things, July 2017
22. Sameeksha Tandon ,Traffic Forwarding in Virtual Local Networks, July 2016
23. Intyaz Alam, Performance Analysis of T-MAC Protocol in Wireless Sensor Networks, July 2016
24. Ankita Jaiswal, Energy Neutrality in Randomly Deployed Energy Harvesting Wireless Sensor Networks, July 2016
25. Krishna Kumar, *Routing Protocols in Internet of Things, July 2015.*
26. Vijay Prakash Bijlwan, *Enhancing Communication Channel Model for Wireless Body Area Networks,*

July 2015

27. Purevsuren Altangerel, *Performance Analysis of Deployment Methods for Wireless Sensor Networks, July 2015*
28. Durga Prasad Dora, *Geocast Routing in VANETs*, July 2014.
29. Sujit Kumar, *Data Aggregation in Wireless Sensor Networks*, July 2014.
30. Panjak Kumar, *Maximizing Lifetime of Wireless Sensor Networks*, July 2014
31. Reena Kasana, Geocast Routing in Vehicular Adhoc Networks, July 2013.
32. Aarti Singh, Performance Analysis of Localization Techniques in Wireless Sensor Networks, July 2013.
33. Anchal Khatri, *Cooperation Enforcement in Mobile Adhoc Networks using Reputation System*, July 2013.
34. Omprakash Kaiwartya, *Geocast Routing Protocols for Vehicular Adhoc Networks,* July 2012
35. Gyani Umesh Kumar, *Cooperation Enforcement Methods in Adhoc Networks*, July 2012.
36. Vipin Kumar, *Position based Routing Protocols in Wireless Sensor Networks,* July 2012.
37. Mahendra Ram, *Energy Optimization in Wireless Sensor Networks*, July 2012.
38. Vinesh Teotia, 2012.
39. Arun Kumar, *Integrating Wormhole Attack Defence Mechanism with Reactive based Routing Protocols,* July 2012.
40. Ajay Sikandar, *Performance Analysis of SMAC Protocol in Shadowed Environments*, July 2010
41. Manish Kumar, *Security in Wireless Sensor Networks*, July 2011
42. Sujata, *Energy Efficient MAC Protocols for Wireless Sensor Networks*, July 2009
43. Meenakhi Diwakar, *Hierarchical Routing Protocol in Wireless Sensor Networks,* July 2009.
44. Ansuman Bose, *Performance Enhancement of IP Storages over the Wireless Networks*, July, 2007
45. Rakesh Kumar, *Performance Algorithms of Routing Algorithms in Wireless Sensor Networks*, July 2007

Member of board/committee:

- Member of board of study in Department of Computer Science, Himachal Pradesh University, Shimla, from Feb. 16, 2018 to Feb. 15, 2020.

Professional Membership:

- Senior member, IEEE

(SUSHIL KUMAR)