

Dr. Sushil Kumar

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ACADEMIC QUALIFICATIONS

- *Ph.D in Computer Science & Technology* from *Jawaharlal Nehru University, New Delhi, Indian*
- *M.Tech. (Computer Science & Technology)* from *Jawaharlal Nehru University, New Delhi, India*

UGC NET

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

WORK EXPERIENCE:

Teaching Experience: (18 years)

- *Assistant Professor* in School of Computer & Systems Sciences, JNU (September 1, 2004 – till date)
- *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.
- Working as *Coordinator of remedial classes* in SC&SS, JNU from 2009 to 2019
- Working as *Placement Incharge*, in SC&SS, JNU from 2007 to 2000.

AREAS OF INTEREST/SPECIALIZATION:

Ad-Hoc and Sensor Networks, Internet of Things, Cybersecurity, Green Computing, Machine/Deep Learning

RESEARCH PUBLICATIONS:

Papers published in Journals:

- [1] Sudhakar, Sushil Kumar, "MCFT-CNN: Malware classification with fine-tune convolution neural networks using traditional and transfer learning in Internet of Things", *Future Generation Computer Systems*, Elsevier, online 24 June 2021, doi.org/10.1016/j.future.2021.06.029.
- [2] Saneh Lata Yadav, R. L. Ujjwal, Sushil Kumar, "Traffic and Energy Aware Optimization for Congestion Control in Next Generation Wireless Sensor Networks", *Journal of Sensors*, vol. 2021, Article ID 5575802, 16 pages, 2021
- [3] Vandhana Bashin, Sushil Kumar et al., "Trust-Aware Distributed and Adaptive Energy Efficient Secure Routing in sensor networks", *Ad Hoc & Sensor Wireless Networks* (accepted June 11, 2020)
- [4] Vinod Kumar. Sushil Kumar. Grouping and Sponsoring Centric Green Coverage Model for Internet of Things. *Sensors* 2021, 21, 3948.
- [5] Pankaj K. Kashyap, Sushil Kumar et.al. "Towards Precision Agriculture: IoT-enabled Intelligent Irrigation Systems Using Deep Learning Neural Network" in *IEEE Sensor Journal*, doi: 10.1109/JSEN.2021.3069266. March 29, 2021.
- [6] Ankita Jaiswal, Sushil. Kumar, et.al. " Quantum Learning Enabled Green Communication for Next Generation Wireless Systems", in *IEEE Transactions on Green Communications and Networking*, doi: 10.1109/TGCN.2021.3067918, March 22, 2021
- [7] Vandhana Bashin, P.C. Saxena, Sushil Kumar, "Compressing index on distributed data of sensors", in *IEEE Sensor Journal*, doi: 10.1109/JSEN.2021.3066199, March 17, 2021
- [8] Rinki Rani, Sushil Kumar, et.al. "Towards Green Computing Oriented Security: A Lightweight Postquantum Signature for IoE", *Sensors*. 2021; 21(5):1883.

- [9] Ankita Jaiswal, Sushil Kumar, et.al., “Green computing in IoT: Time slotted simultaneous wireless information and power transfer”, *Computer Communications, Elsevier*, Vol. 168, Feb. 2021, Pages 155-169
- [10] Ankita Jaiswal, Sushil. Kumar, et.al. "Secrecy Rate Maximization in Virtual-MIMO Enabled SWIPT for 5G Centric IoT Applications", in *IEEE Systems Journal*, vol. 15, issue 21, pp-2810-2821, June 2021 2020
- [11] Kirshna Kumar, Sushil Kumar et. al. “Drone Assisted Flying Ad-Hoc Networks: Mobility and Service Oriented Modeling using Neuro-Fuzzy”, *Ad Hoc Networks, Elsevier*, Vol. 106, 2020, 102242.
- [12] Kirshna Kumar, Sushil Kumar et. at. “Internet of Unmanned Aerial Vehicles: QoS Provisioning in Aerial Ad-Hoc Networks”, *Sensors 2020*, 20, 3160.
- [13] Sushil Kumar, Omprakash Kaiwartya, Manisha Rathee et al. “Towards Energy Oriented Optimization for Green Communication in Sensor Enabled IoT Environments”, *IEEE Systems Journal*, vol. 14, no. 4, pp. 4663-4673, April 27, 2020
- [14] Manisha Rathee, Sushil Kumar, Amir H. Gandomi et al. “Ant Colony Optimization based Quality of Service Aware Energy Balancing Secure Routing Algorithm for Wireless Sensor Networks”, *IEEE Transaction on Engineering Management*, vol. 68, no. 1, pp. 170-182, 2019
- [15] Sunil Kumar, Karan Singh, Sushil Kumar, et al., “Delimitated Anti Jammer Scheme for Internet of Vehicle: Machine Learning based Security Approach”, *IEEE Access*, vol. 7, pp. 113311-113323, 2019.
- [16] Sushil Kumar, Vipin Kumar, O. Kaiwartya et al., “Towards Green Communication in Wireless Sensor Network: GA enabled Distributed Zone Approach”, *Ad Hoc Networks, Elsevier*, vol. 93, 101903 May 2019 pp.1-17
- [17] Rinki Rani, Sushil Kumar and Upasana Dohare, "Trust Evaluation for Light Weight Security in Sensor Enabled Internet of Things: Game Theory Oriented Approach", *IEEE Internet of Things Journal*, vol. 6, no. 5, pp. 8421-8432, Oct. 2019.
- [18] Ram, M.; Kumar, S.; Kumar, V.; Sikandar, A.; Kharel, R. Enabling Green Wireless Sensor Networks: Energy Efficient T-MAC Using Markov Chain Based Optimization. *Electronics* 2019, 8(5), 534.
- [19] Pankaj Kumar Kashyap, Sushil Kumar et al. “Green Computing in Sensors-Enabled Internet of Things: Neuro Fuzzy Logic-Based Load Balancing”. *Electronics* 2019, vol. 8 (4), 384.
- [20] Sushil Kumar, Upasana Dohare et al. "Cybersecurity Measures for Geocasting in Vehicular Cyber Physical System Environments," *IEEE Internet of Things Journal*, vol. 6, issue 4, pp. 5916 – 5926, Aug. 2019.
- [21] Jitender Kumar, Sushil Kumar et al., “Enabling Green Computing in Cloud Environments: Network Virtualization Approach Towards 5G Support”, *Transactions on Emerging Telecommunications Technologies, Wiley*, vol. 29, no. 11, Nov. 2018.
- [22] Reena Kasana, Sushil Kumar et al., "Fuzzy-Based Channel Selection for Location Oriented Services in Multichannel VCPS Environments," *IEEE Internet of Things Journal*, vol. 5, no. 6, pp. 4642-4651, Dec. 2018.
- [23] O. Kaiwartya, Yue Cao, Jaime Lloret, Sushil Kumar et al., "Geometry-Based Localization for GPS Outage in Vehicular Cyber Physical Systems," *IEEE Transactions on Vehicular Technology*, vol. 67, no. 5, pp. 3800-3812, May 2018.
- [24] Kirshna Kumar, Sushil Kumar, Omprakash Kaiwartya, Yue Cao, Jaime Lloret and Nauman Aslam, “Cross-Layer Energy Optimization for IoT Environments: Technical Advances and Opportunities”, *Energies*, 2017, 10(12), 2073; doi:10.3390/en10122073
- [25] Aanchal K, Sushil Kumar, Kaiwartya O, Aslam N, Meena N, Abdullah AH. “Towards green computing in wireless sensor networks: Controlled mobility–aided balanced tree approach”, *Int J Commun Syst. Wiley*, 2017:e3463, pp1-18.
- [26] Vipin Kumar, Sushil Kumar, “Energy balanced position-based routing for lifetime maximization of wireless sensor networks”, *Ad Hoc Networks, Elsevier*, August, 2016, vol. 52, pp. 117-129
- [27] Aanchal, Sushil Kumar, Omprakash Kaiwartya, Abdul Hanan Abdullah, “Green Computing for Wireless Sensor Networks: Optimization and Huffman Coding Approach” *Peer-to-Peer Networking and Applications*, Springer, May 2017, Volume 10, Issue 3, pp 592–609.
- [28] R. Kasana, S. Kumar, O. Kaiwartya, W. Yan, Y. Cao and A. H. Abdullah, "Location error resilient geographical routing for vehicular ad-hoc networks," in *IET Intelligent Transport Systems*, vol. 11, no. 8, pp. 450-458, 10 2017.
- [29] Omprakash Kaiwartya, Sushil Kumar, Abdul Hanan Abdullah, “Analytical model of Deployment Methods for Application of Sensors in non-Hostile Environment”, *Wireless Personal Communications*, Springer, November 2017, Volume 97, Issue 1, pp 1517–1536

- [30] O. Kaiwartya; A. H. Abdullah; Y. Cao; J. Lloret; Sushil Kumar; R. R. Shah; M. Prasad; S. Prakash, "Virtualization in Wireless Sensor Networks: Fault Tolerant Embedding for Internet of Things," in *IEEE Internet of Things Journal*, vol. 5, no. 2, pp. 571-580, April 2018.
- [31] Ahmed A., Abdul Hanan A., Omprakash K., Usman M. J., Sushil K., D. K. Lobiyal, "Cloud Computing in VANETs: Layered Architecture, Element, Taxonomy and Challenges", *IETE Technical Review*, vol. 35, issue 5 2018 , pp- 523-547
- [32] Faseeh Ullah, Abdul Hanan Abdullah, Omprakash Kaiwartya, Sushil Kumar and Marina Md. Arshad, "Medium Access Control (MAC) for Wireless Body Area Network (WBAN): Superframe structure, multiple access technique, taxonomy, and challenges" , *Hum. Cent. Comput. Inf. Sci.* (2017) 7: 34.
- [33] Omprakash Kaiwartya¹, Abdul Hanan Abdullah , Yue Cao, Ram Shringar Raw, Sushil Kumar, Rajeev Ratan "T-MQM: Testbed based Multi-metric Quality Measurement of Sensor Deployment for Precision Agriculture-A Case Study", *IEEE sensor journal*, vol. 16, Issue 23, 2016, pp. 8649 – 8664,
- [34] Dalya Khalid Sheet, Omprakash Kaiwartya¹, Abdul Hanan Abdullah¹ , Yue Cao, Ahmed Nazar Hassan, Sushil Kumar , "Location Information Verification using Transferable Belief Model for Geographic Routing in VANETs", *IET Intelligent Transport Systems*, Volume 11, Issue 2, March 2017, p. 53 – 60,
- [35] Vipin Kumar, and Sushil Kumar, "Position-Based Beaconless Routing in Wireless Sensor Networks", *Wireless Personal Communications, Springer*, January 2016, Vol. 86, Issue 2, pp 1061-
- [36] Priyanka, Righipal Singh, and Sushil Kumar, "Performance Analysis of IEEE 802.11p in the Presence of Hidden Terminals", *Wireless Personal Communications, Springer*, July 2016, Volume 89, Issue 1, pp 61–78
- [37] Omprakash Kaiwartya and Sushil Kumar "Guaranteed Geocast Routing (GGR) in Vehicular Adhoc Networks for Highways Environment", *Wireless Personal Communications, Springer*, August 2015, Volume 83, Issue 4, pp 2657–2682
- [38] Omprakash Kaiwartya , Sushil Kumar , D. K. Lobiyal , Abdul Hanan Abdullah and Ahmed Nazar Hassan, "Performance Improvement in Geographic Routing for Vehicular Ad Hoc Networks", *Sensors*, 2014, 14(12), 22342-22371; doi:10.3390/s141222342
- [39] Omprakash Kaiwartya, Sushil Kumar, D. K. Lobiyal, Pawan Kumar Tiwari, Abdul Hanan Abdullah, and Ahmed Nazar Hassan, "Multi-objective Dynamic Vehicle Routing Problem and Time Seed Based Solution Using Particle Swarm Optimization", *Journal of Sensors*, Volume 2014, Article ID 189832, 14 pages, <http://dx.doi.org/10.1155/2015/189832>.
- [40] Sushil Kumar and D K Lobiyal, "Impact of Interference on Coverage in Wireless Sensor Networks", *Wireless Personal Communications, Springer*, Jan- 2014, Vol. 74, Issue 2, pp. 683-701.
- [41] Upasana Dohare, D. K. Lobiyal, Sushil Kumar, "Energy Balanced Model for Lifetime Maximization in Randomly Distributed Wireless Sensor Networks", *Wireless Personal Communications, Springer*, September 2014, Volume 78, Issue 1, pp 407-428
- [42] Rajesh Kumar, Sushil Kumar, Diksha Shukla, Ram Shringar Raw, Omprakash Kaiwartya "Geometrical Localization Algorithm for Three Dimensional Wireless Sensor Networks", *Wireless Personal Communications, Springer*, November 2014, Volume 79, Issue 1, pp 249-264.
- [43] Ram Shringar Raw, D. K. Lobiyal, Sanjoy Das, Sushil Kumar , "Analytical Evaluation of Directional-Location Aided Routing Protocol for VANETs", *Wireless Personal Communications, Springer*, June 2015, vol. 82, no. 3, pp. 1877-1891
- [44] Manisha Rathee and Sushil Kumar, Kumar Dilip, "Quantum-Inspired Ant-based Energy Balanced Routing in Wireless Sensor Networks", *Recent Advances in Computer Science and Communications* (2020) 13: 1
- [45] Sudhakar, Kumar, S. An emerging threat Fileless malware: a survey and research challenges. *Cybersecurity*, 3, 1 (2020).
- [46] Pankaj Kumar Kashyap, Sushil Kumar, "Genetic Fuzzy Based Load Balanced protocol for WSNs", *International Journal of Electrical and Computer Engineering (IJECE)*, vol. 9, No.2, pp. 1168-1183, April 2019
- [47] Kirshna Kumar, Sushil Kumar, "Energy efficient link stable routing in Internet-of-Things", *International Journal of Information Technology, Springer*, December 2018, Volume 10, Issue 4, pp 465–479.
- [48] Vandhana Bashin, Sushil Kymar et. al, "Security Architectures in Wireless Sensor Network", *International Journal of Information Technology, Springer* <https://doi.org/10.1007/s41870-018-0103-6> / [Jan 31](#), 2018.
- [49] Omprakash Kaiwartya and Sushil Kumar "Cache Agent based Geocasting (CAG) in VANETs", *International Journal of Information and Communication Technology, Inderscience*, 7(6):562-584 . September 2015.

- [50] Sushil Kumar and D. K. Lobiyal, "Sensing Coverage Prediction for Wireless Sensor Networks in Shadowed and Multipath Environment," *The Scientific World Journal*, vol. 2013, Article ID 565419, 11 pages, Sept- 2013.

Book Chapter:

- [1] Omprakash Kaiwartya, Pawan Kumar Tiwari, Sushil Kumar "Dynamic Vehicle Routing Solution in the Framework of Nature Inspired Algorithms", *Handbook of Research on Designing and Implementing Global Supply Chain Management*, IGI Global Publication, Dec, 2015, ISBN: 9781466697201.
- [2] Kumar K., Kashyap P.K., Kumar S. (2018) Aeronautical Assisted IoT Implementation: Route Lifetime and Load Capacity Perspective. In: Deka G., Kaiwartya O., Vashisth P., Rathee P. (eds) *Applications of Computing and Communication Technologies. ICACCT 2018. Communications in Computer and Information Science*, vol. 899. Springer, Singapore, ISBN: 978-981-13-2034-7.
- [3] P. K. Kashyap, K. Kumar, S. Kumar "Fuzzy-kohonen Self-Organizing Clustering algorithm in wireless sensor networks of Things. In: Deka G., Kaiwartya O., Vashisth P., Rathee P. (eds) *Applications of Computing and Communication Technologies. ICACCT 2018. Communications in Computer and Information Science*, vol. 899. Springer, Singapore, ISBN: 978-981-13-2034-7.
- [4] Maurya G.U.K., Kumar S. (2014) Cooperation Enforcement and Collaboration Inducement in Mobile Ad Hoc Networks. In: Mohapatra D., Patnaik S. (eds) *Intelligent Computing, Networking, and Informatics. Advances in Intelligent Systems and Computing*, vol. 243. Springer, New Delhi, pp 221-231, ISBN: 978-81-322-1664-3
- [5] Sikandar A., Kumar S., Maurya G.U.K. (2014) Optimizing Delay for MAC in Randomly Distributed Wireless Sensor Networks. In: Mohapatra D., Patnaik S. (eds) *Intelligent Computing, Networking, and Informatics. Advances in Intelligent Systems and Computing*, vol. 243. Springer, New Delhi, ISBN: 978-81-322-1664-3
- [6] Sikandar A., Kumar S. (2014) Performance Analysis of Interference Aware Power Control Scheme for TDMA in Wireless Sensor Networks. In: Kumar Kundu M., Mohapatra D., Konar A., Chakraborty A. (eds) *Advanced Computing, Networking and Informatics- Volume 2. Smart Innovation, Systems and Technologies*, vol. 28. Springer, Cham, ISBN: 978-3-319-07350-7
- [7] Aanchal, Sushil Kumar, Omprakash Kaiwartya, Abdul Hanan Abdullah, Optimizing energy consumption and inequality in wireless sensor networks using NSGA-II.: *Communication and Computing Systems :In Proceedings of ICCCS*. Taylor & Francis, Boca Raton, 10 September 2016. ISBN: 9781138029521

Research Papers published in Conferences:

- [1] A. Jaiswal, S. Kumar and U. Dohare, "Green Computing in Heterogeneous Internet of Things: Optimizing Energy Allocation Using SARSA-based Reinforcement Learning," *2020 IEEE 17th India Council International Conference (INDICON)*, 2020, pp. 1-6, doi: 10.1109/INDICON49873.2020.9342200.
- [2] P. K. Kashyap, S. Kumar and A. Jaiswal, "Deep Learning Based Offloading Scheme for IoT Networks Towards Green Computing," *2019 IEEE International Conference on Industrial Internet (ICII)*, Orlando, FL, USA, 2019, pp. 22-27, doi: 10.1109/ICII.2019.00015.
- [3] Sudhakar and S. Kumar, "Botnet Detection Techniques and Research Challenges," *2019 International Conference on Recent Advances in Energy-efficient Computing and Communication (ICRAECC)*, Nagercoil, India, 2019, pp. 1-6, doi: 10.1109/ICRAECC43874.2019.8995028.
- [4] Mahendra Ram, Sushil Kumar, Parveen, "Estimation of Energy Consumption in Wireless Sensor Networks Using Random Radius Clustering Technique", *The International Conference on Networks and Cryptology (NetCrypt)*, JNU, New Delhi, India, 2019.
- [5] Intyaz Alam, Sushil Kumar, P. K. Kashyap "Internet of Vehicle: Layered Architecture, Network Model, Security, Application, Issues, and Challenges", *The International Conference on Networks and Cryptology (NetCrypt)*, JNU, New Delhi, India, 2019.
- [6] Ankita Jaiswal, Sushil Kumar, P. K. Kashyap, "TBM Based Charger Deployment Technique in Internet of Things", 2019, *The International Conference on Networks and Cryptology (NetCrypt)*, JNU, New Delhi, India, 2019.
- [7] M. N. Pavan, S. Kumar and G. Nayak, "Interference Aware Resource Allocation (IARA) in Cognitive Radio Networks," *2018 IEEE 13th International Conference on Industrial and Information Systems (ICIIS)*, Rupnagar, India, 2018, pp. 202-206.

- [8] Vinod Kumar, Sushil Kumar, "Coverage Preserving Scheduling for Life Span Maximization in Wireless Sensor Network based Internet of Things", International Conference on Communication and Computing Systems (ICCCS-18) , December 1 – 2, 2018, Gurgaon
- [9] Reena Kasana, Sushil Kumar, "Reliable Geographic Routing Protocol for Vehicular Ad-hoc Networks under Shadowing and Multipath Environments," in Proceedings of International Conference on Information and Communications Technology 6-8 March, 2018 (ICOIACT 2018), IEEE, Indonesia
- [10] Reena Kasana, Sushil Kumar, Omprakash Kaiwartya, "Towards Location Error Resilient Geographic Routing for VANETs," In Proceedings of International Conference on Computing, Communication and Automation (ICCCA 2017), pp. 691-697, IEEE, India
- [11] P. Bai, K. kumar and S. kumar, "Energy Efficient Communication Protocol at Network Layer for Internet of Things," *2018 5th International Conference on Signal Processing and Integrated Networks (SPIN)*, Noida, 2018, pp. 148-153.
- [12] P. K. Kashyap, S. Kumar, K. Kumar, "Energy Efficient fuzzy K-means clustering algorithm for wireless sensor networks in Internet of Things", In Proceedings of the International Conference on Computing for Sustainable Global Development, IEEE, New Delhi, 15 March, 2018.
- [13] I. Alam, S. Kumar, "A performance evaluation of MAC protocols in WSNs", In Proceedings of the International Conference on Computing for Sustainable Global Development, IEEE, New Delhi, 15 March, 2018.
- [14] Durga Prasada Dora, Sushil Kumar, Omprakash Kaiwartya and Abdul Hanan Abdullah, "Route Detection Using Segmented Path Vector (RD-SPV) Based Connectivity-Aware Geocast Routing In VANETS", Communication and Computing Systems: Proceedings of the International Conference on Communication and Computing Systems (ICCCS 2016), Gurgaon, India, 9-11 September, 2016,
- [15] Dora D.P., Kumar S., Kaiwartya O., Prakash S. (2016) Secured Time Stable Geocast (S-TSG) Routing for VANETs. In: Nagar A., Mohapatra D., Chaki N. (eds) Proceedings of 3rd International Conference on Advanced Computing, Networking and Informatics. Smart Innovation, Systems and Technologies, vol 44. Springer, New Delhi.
- [16] Durga Prasada Dora, Sushil Kumar, Mita Joshi, "Impact of traffic signal on connectivity in intersection based connectivity aware geocast routing (IB-CAGR) in VANETs", Signal Processing and Integrated Networks (SPIN), 2016 3rd International Conference on, 11-12 Feb. 2016, pp. 4-8.
- [17] Manisha Rathee, Sushil Kumar, "Quantum Inspired Genetic Algorithm for Energy Efficient Clustering in Wireless Sensor Networks", ICPEICES 2016, 4th-6th July 2016 New Delhi.
- [18] Manisha Rathee, Sushil Kumar, "Quantum Inspired Genetic Algorithm for Multi-Hop Energy Balanced Unequal Clustering in Wireless Sensor Networks", IC3 2016, 11th-13th Aug. 2016, Noida.
- [19] Arvind Kumar, Sushil Kumar, Vipin Kumar, "A Novel Energy Efficient Geocast Routing Algorithm for Mobile Ad Hoc Networks", Computing for Sustainable Global Development (INDIACom), 2016 3rd International Conference on, 16th– 18th March, 2016, BVICAM, New Delhi, pp. 2926-2929
- [20] Durga Prasada Dora, Sushil Kumar, and Puspanjali Mallik , "On-the-Fly Segment Density (OFSD) in Adaptive Beaconing System (ABS) Based Connectivity-Aware Geocast Routing (CAGR) in VANETs", Proceedings of the International Conference on Signal, Networks, Computing, and Systems, SC&SS, JNU, New Delhi, 25-27 Feb 2016, 269-275.
- [21] Kirshna Kumar, Sushil Kumar, and Omprakash Kaiwartya , "Distance, Energy and Link Quality Based Routing Protocol for Internet of Things", Proceedings of the International Conference on Signal, Networks, Computing, and Systems, Springer, SC&SS, JNU, New Delhi. 25-27 Feb 2016, pp. 253-259
- [22] Rupali Rohankar, C.P. Katti, Sushil Kumar, "Comparison of Energy Efficient Data Collection Techniques in Wireless Sensor Network" *Procedia Computer Science*, vol. 57, 2015, pp. 146-151
- [23] Sujit Kumar and Sushil Kumar "Bee Colony Optimization for Data Aggregation in Wireless Sensor Networks", In Proceedings of 3rd International Conference on Advanced Computing, Networking, and Informatics (ICACNI), Springer, Bhubaneswar, India, 23-25 June, 2015, pp. 239-246.
- [24] Sujit Kumar and Sushil Kumar "Data Aggregation Using Spatial and Temporal Data Correlation", Futuristic Trends on Computational Analysis and Knowledge Management (ABLAZE), 2015 International Conference on, IEEE, Noida, India, 25-27 February, 2015, pp. 479-483.
- [25] Kasana, Reena; Kumar, Sushil, "Multimetric Next Hop Vehicle Selection for Geocasting in Vehicular Ad-hoc Networks," *Computational Intelligence & Communication Technology (CICT), 2015 IEEE International Conference on* , 13-14 Feb. 2015, pp.400,405.
- [26] Pankaj Kashyap, Sushil Kumar, "Load-balanced distributed intra-clustering algorithm", IEEE INDICON 2015, Jammia Millia Islamia, New Delhi, 17-20 Dec 2015, pp-1-6.
- [27] Mahendra Ram and Sushil Kumar "Analytical energy consumption model for MAC protocols in wireless sensor networks," *Signal Processing and Integrated Networks (SPIN), 2014 International Conference on* , pp. 444-447, Feb-2014

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- [29] Aarti Singh, Sushil Kumar, Omprakash Kaiwartya, “A Hybrid Localization Algorithm for Wireless Sensor Networks, *Procedia Computer Science*, vol. 57, 2015, pp. 1432-1439
- [30] Omprakash Kaiwartya and Sushil Kumar “Geocasting in Vehicular Adhoc Networks Using Particle Swarm Optimization” *In Proceedings of Information Systems and Design of Communication (ISDOC 2014)*, ACM, pp. 62-66, May 2014, Portugal.
- [31] Omprakash Kaiwartya, Sushil Kumar “Geocast Routing: Recent Advances and Future Challenges in Vehicular Adhoc Networks,” In Proceedings of *Signal Processing and Integrated Networks (SPIN)*, IEEE, pp.291-296, Feb-2014.
- [32] Vipin Kumar, Sushil Kumar, “Optimal Path and Best-Effort Delivery in Wireless Sensor Networks”, *Intelligent Computing, Networking, and Informatics, Advances in Intelligent Systems and Computing, Springer*, June-2013, pp. 1257-1266
- [33] Vipin Kumar, Sushil Kumar, “Spanning-Tree-Based Position-Based Routing in WSNs”, *Intelligent Computing, Networking, and Informatics, Advances in Intelligent Systems and Computing, Springer*, June-2013, pp. 1267-1275
- [34] Meenakshi Diwakar and Sushil Kumar, Energy Efficient Hierarchical Clustering Routing Protocol For Wireless Sensor Networks, LNICST Vol. 84, Springer, 2012 pp 409-420
- [35] Omprakash Kaiwartya and Sushil Kumar “Enhanced Caching for Geocast Routing in Vehicular Ad-Hoc Networks (ECGR)”, *International Conference on Advanced Computing, Networking, and Informatics (ICACNI)*, Springer, vol. 243, pp.213-220, June-2013.
- [36] Omprakash Kaiwartya, Sushil Kumar and Reena Kasana “Traffic light based time stable geocast (T-TSG) routing for urban VANETs,” *Contemporary Computing (IC3), Sixth International Conference on*, IEEE, pp.113-117, Aug-2013.
- [37] Upasana Dohare, D.K. Lobiyal, and Sushil Kumar, Game Theoretic Model for Selfish Node Avoidance in Ad Hoc Networks, LNICST Springer, vol. 84, , pp 465-476 , 2012
- [38] Sushil Kumar and D K Lobiyal, Linear Order Sensor Network Deployment for Coverage Analysis Based on TBM Theory, IEEE, International Advance Computing conference, 22-23 Feb. 2013 pp. 404 - 407
- [39] 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, Ghazibad, 1-2 April, 2016.
4. IndiaCom-2016, Bharati Vidyapeeth's , Institute of Computer Applications and Management, New Delhi

Organised:

1. Online National Instructional Workshop on CRYPTOLOGY (NIWC-2020), SC&SS, JNU, New Delhi, from 22nd - 26th July 2020
2. 1st International conference on Networks and Cryptology (NETCRYPT-2019),14-16 June 2019 at SC&SS, JNU, New Delhi.
3. Emerging challenge of cyber crime in India, 09-10 Oct. 2017.
4. PyDelhi-2016, Workshop on Python, SC&SS, JNU, New Delhi, March 05, 2016.
5. “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 technologies, 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. Research Solution for Cybersecurity, JNU, ATAL FDP on cybersecurity, 2020, Nov. 24, 2020.
2. Classical Cryptography, ATAL Faculty Development Programme (Online) on Cyber Crime & Security, Department of Information Technology, College of Technology, GBPUAT, Pantnagar, India, Nov. 24, 2020.
3. 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.
4. Classical Techniques in Cryptography, Online National Instructional Workshop on CRYPTOLOGY (NIWC-2020), SC&SS, JNU, New Delhi, from 22nd - 26th July 2020
5. 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
6. Wireless Network Simulation using ns-3, Workshop on "Internet of Things", ICARS, New Delhi, from 22nd June, 2020 to 26th June, 2020
7. 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
8. Working on NS-2 and NS-3" in Workshop on Research Tools, ICARS, New Delhi held from June 29, 2020- July 03, 2020
9. IoT Security & Health Applications, JNU, ATAL FDP 2020, June 02, 2020.
10. Cybersecurity Research and Solutions, JNU, ATAL FDP 2020, May 29, 2020.
11. Network Simulation and Data Security, CCSIT, TMU, Moradabad, UP, August 07, 2018.
12. Mobile and Opportunistic Networks, Ambedkar Institute of Technology, Delhi, August 17, 2017
13. Network Simulator-2, RMS college of engineering & Technology, Bareilly, July 12, 2016.
14. 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 Awarded

1. Kirshna Kumar, Routing in IoT, July 02, 2021.
2. Pankaj Kumar Kashyap, Load Balancing in Wireless Sensor Networks, August 24, 2020.
3. Vinod Kumar, Energy Efficient Coverage in Sensor Enabled Internet of Things, July, 2019
4. Reena Kasana, Geographic Routing in Vehicular Ad-hoc Networks, March, 2019
5. Manish Rathee, Energy balancing in wireless sensor networks, Sept. 2018.
6. Priyanka Rathee, Performance modeling of medium access control doe vehicular ad-hoc networks, July 2018.
7. Aanchal, Lifetime maximization of wireless sensor networks, December, 2017
8. Vandana Bhasin, Design of secure and reliable data distribution in wireless sensor networks, December, 2017.
9. Vipin Kumar, Position-based routing protocols in wireless sensor networks, Dec, 2017
10. Arvind Kumar, Optimization of Energy Consumption in Mobile Ad hoc Networks, Dec, 2017
11. Ajay Sikandar, Energy Efficient Transmission in Wireless Sensor Networks, July, 2015
12. Omprakash Kaiwartya, Goecast Routing Protocols in Vehicular Adhoc Networks, July, 2015

M.TECH. Awarded

1. Ankit Madharha, Data Dissimination in Vehicular Cyber Physical Systems, July 2018

2. Manoj Kumar, Localization Systems for wireless sensor networks, July 2018
3. Ritesh Yaduwanshi, Vehicular cyber physical system, July 2017.
4. Bhawana. Messaging queue for internet of things, July 2017
5. Pinky Bai, Energy efficient communication protocol, at network layer for internet of things, July 2017
6. Sameeksha Tandon ,Traffic Forwarding in Virtual Local Networks, July 2016
7. Intyaz Alam, Performance Analysis of T-MAC Protocol in Wireless Sensor Networks, July 2016
8. Ankita Jaiswal, Energy Neutrality in Randomly Deployed Energy Harvesting Wireless Sensor Networks, July 216
9. Krishna Kumar, *Routing Protocols in Internet of Things, July 2015.*
10. Vijay Prakash Bijlwan, *Enhancing Communication Channel Model for Wireless Body Area Networks, July 2015*
11. Purevsuren Altangerel, *Performance Analysis of Deployment Methods for Wireless Sensor Networks, July 2015*
12. Durga Prasad Dora, *Geocast Routing in VANETs, July 2014.*
13. Sujit Kumar, *Data Aggregation in Wireless Sensor Networks, July 2014.*
14. Panjak Kumar, *Maximizing Lifetime of Wireless Sensor Networks, July 2014*
15. Reena Kasana, Geocast Routing in Vehicular Adhoc Networks, July 2013.
16. Aarti Singh, Performance Analysis of Localization Techniques in Wireless Sensor Networks, July 2013.
17. Anchal Khatri, *Cooperation Enforcement in Mobile Adhoc Networks using Reputation System, July 2013.*
18. Omprakash Kaiwartya, *Geocast Routing Protocols for Vehicular Adhoc Networks, July 2012*
19. Gyani Umesh Kumar, *Cooperation Enforcement Methods in Adhoc Networks, July 2012.*
20. Vipin Kumar, *Position based Routing Protocols in Wireless Sensor Networks, July 2012.*
21. Mahendra Ram, *Energy Optimization in Wireless Sensor Networks, July 2012.*
22. Vinesh Teotia, 2012.
23. Arun Kumar, *Integrating Wormhole Attack Defence Mechanism with Reactive based Routing Protocols, July 2012.*
24. Ajay Sikandar, *Performance Analysis of SMAC Protocol in Shadowed Environments, July 2010*
25. Manish Kumar, *Security in Wireless Sensor Networks, July 2011*
26. Sujata, *Energy Efficient MAC Protocols for Wireless Sensor Networks, July 2009*
27. Meenakhi Diwakar, *Hierarchical Routing Protocol in Wireless Sensor Networks, July 2009.*
28. Ansuman Bose, *Performance Enhancement of IP Storages over the Wireless Networks, July, 2007*
29. 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)