

Publications

Journals

- 1) Shilpi, Kumar, A. "Sensor node localization using nature-inspired algorithms with fuzzy logic in WSNs" , Journal of Supercomputing , Vol- 80, page- 26776–26804, Sept. 2024, <https://doi.org/10.1007/s11227-024-06464-4>
- 2) Shilpi and A. Kumar, "Fuzzy Distance Jaya Algorithm based Node Localization in Anisotropic Wireless Sensor Networks," *IEEE Transactions on Network Science and Engineering*, 16th August 2024, doi: 10.1109/TNSE.2024.3444589
- 3) Shilpi, **Arvind Kumar**, "Application of Jaya algorithm for solving localization problem in a distributed Wireless Sensor Network" The Journal of Supercomputing, 16th Oct. 2023, SCIE, ISSN: 1573-0484, Impact Factor: 2.5, <https://doi.org/10.1007/s11227-023-05683-5>
- 4) Sanapala Shanmukha Rao, Shilpi, **Arvind Kumar**, "Performance Evaluation of Zone Based Three Level Heterogeneous Clustering Protocol for WSNs", Journal of Telecommunications and Information Technology, Scopus, 29th Sept. 2023, Vol. 3, <https://doi.org/10.26636/jtit.2023.3.1381>
- 5) Akshay Verma, Sunil Kumar, Prateek Raj Gautam, Tarique Rashid, and **Arvind Kumar**, "Enhanced Cost and Sub-Epoch based Stable Energy Efficient Clustering Algorithm for Heterogeneous Wireless Sensor Networks", Wireless Personal Communication, Impact Factor: 1.9, SCI, Vol and No. 131, 35 26 July 2023 <https://doi.org/10.1007/s11277-023-10601-2>
- 6) Shilpi, **Kumar, A.** "A localization algorithm using reliable anchor pair selection and Jaya algorithm for wireless sensor networks" Telecommunication System, Jan. 2023, Impact Factor: 1.7, SCIE, <https://doi.org/10.1007/s11235-022-00984-1>
- 7) Shilpi, Prateek Raj Gautam, Sunil Kumar, and **Arvind Kumar** "An optimized sensor node localization approach for wireless sensor networks using RSSI", The Journal of Super Computing, Dec. 2022, Impact Factor: 2.5, SCIE, <https://doi.org/10.1007/s11227-022-04971-w>
- 8) Prateek Raj Gautam, Akshay Verma, Sunil Kumar, Dinesh Prasad, **Arvind Kumar**, "Design of Directional Antennas for Wireless Sensor Networks and the Internet of

- Things Experiments”, IEEE Sensors Letters, Vol. 6, NO. 9, pp; 1-4 September 2022, Impact Factor: 2.2, SCIE, [https://DOI: 10.1109/LSENS.2022.3202919\(ISSN 2475-1472\)](https://DOI: 10.1109/LSENS.2022.3202919(ISSN 2475-1472))
- 9) Sunil Kumar, Prateek Raj Gautam, AkshayVerma, Tarique Rashid, and **Arvind Kumar**, “Division Algorithm Based Energy-Efficient Routing in Wireless Sensor Networks”, Wireless PersonalCommunication, Springer, Vol. 122 Issue 3, 18 Aug. 2021, pp 2335–2354, Impact Factor: 1.9, SCIE, <https://DOI: 10.1007/s11277-021-08996-x>
 - 10) A.Verma, S. Kumar, P. R. Gautam, and **A. Kumar**, “Neural-Fuzzy based effective clustering for large-scale wireless sensor networks with mobile sink”, Peer-to-Peer Networking and Applications, Springer, 16 June 2021, Vol. 14, PP 3518–3539, Impact Factor: 3.3, SCIE, <https://DOI 10.1007/s12083-021-01167-6>
 - 11) R. C. S. Chauhan, **A. Kumar**, and P. R. Gautam, “Optical orthogonal code generation scheme and grouping of codes for optical CDMA systems,” International Journal of System Assurance Engineering and Management, 24 Jun. 2020, vol.12, pp. 91-103, Impact Factor: 1.6, SCIE, <https://doi: 10.1007/s13198-020-01007-5>
 - 12) AkshayVerma , Sunil Kumar, Prateek Raj Gautam, Tarique Rashid, and **Arvind Kumar** “Broadcast and Reliable Coverage based Efficient recursive Routing in Large-Scale WSNs” Springer, Telecommunication System vol. 75, pp. 63–78 , 11 June 2020. <https://doi:10.1007/s11235-020-00679-5>, Impact Factor: 1.7, SCIE
 - 13) P. R. Gautam, S. Kumar, A. Verma, and **A. Kumar**, “Energy-efficient localisation of sensor nodes in WSNs using single beacon node,” IET Communications, The Institution of Engineering and Technology, Wiley , 10.1049/iet-com.1298, pp. 1459–1466, April. 2020. <https://Doi: 10.1049/iet-com.1298>.ISSN 1751-8628, Impact Factor: 1.5, SCIE
 - 14) A. Verma, S. Kumar, P. R. Gautam, T. Rashid and **A. Kumar**, "Fuzzy Logic Based Effective Clustering of Homogeneous Wireless Sensor Networks for Mobile Sink," IEEE Sensors Journal, vol. 20, no. 10, pp. 5615-5623, May, 2020. <https://Doi: 10.1109/JSEN.2020.2969697>, Impact Factor: 4.3, SCIE
 - 15) Tarique Rashid, Sunil Kumar Akshay Verma, P. R. Gautam, and **A. Kumar** “Co-REERP: Cooperative Reliable and Energy Efficient Routing Protocol for Intra Body Sensor Network (Intra-WBSN)”. Wireless Personal Communication, Springer Vol 114, pp. 927–948, 22 April 2020. <https://doi:10.1007/s11277-020-07401-3>, Impact Factor: 1.9, SCIE.

- 16) Sunil Kumar, Prateek Raj Gautam, AkshayVerma, Tarique Rashid, and **Arvind Kumar**. "An Energy-Efficient Transmission in WSNs for Different Climatic Conditions." Wireless Personal Communications, Springer, 21 Sept 2019, vol. 110, no. 1 pp 423-444. <https://doi:10.1007/s11277-019-06735-x>, Impact Factor: 1.9, SCIE
- 17) Verma, Akshay, Tarique Rashid, Prateek Raj Gautam, Sunil Kumar, and **Arvind Kumar**. "Cost and Sub-Epoch Based Stable Energy-Efficient Clustering Algorithm for Heterogeneous Wireless Sensor Networks", Wireless Personal Communication, Springer, vol. 107, pp.1865–1879, 15 April 2019. <https://doi:10.1007/s11277-019-06362-6>, Impact Factor: 1.9, SCIE
- 18) P. R. Gautam, S. Kumar, A. Verma, T. Rashid, and **A. Kumar**, "Energy-Efficient Localization of Sensor Nodes in WSNs Using Beacons From Rotating Directional Antenna," IEEE Transactions on Industrial Informatics, vol. 15, no. 11, pp. 5827–5836, Nov. 2019, <https://doi:10.1109/TII.2019.2908437>. **Impact Factor : 11.7, SCIE**
- 19) Rashid, Tarique, Sunil Kumar, AkshayVerma, Prateek Raj Gautam, and **Arvind Kumar**, "Rb-IEMRP: Relay Based Improved Throughput Energy-Efficient Multi-Hop Routing Protocol for Intra Body Sensor Network (Intra-WBSN)", International Journal of Computer Networks & Communications (IJCNC) Vol.11, No.2, pp 69-82 March 2019, <https://doi:10.5121/ijcnc.2019.11205>, Scopus.
- 20) Sunil Kumar, Prateek Raj Gautam, Tarique Rashid, AkshayVerma, and **Arvind Kumar**, "ETDCC: Energy-Efficient Transmission Scheme for Dynamic Climatic Conditions in WSN." TELKOMNIKA (Telecommunication Computing Electronics and Control) vol.16, no. 3, pp. 1126-1134.June 2018. <https://doi:10.12928/telkomnika.v16i3.8513>, Scopus.
- 21) Rashid, Tarique, Sunil Kumar, AkshayVerma, Prateek Raj Gautam, and **Arvind Kumar**, "Pm-EEMRP: Postural Movement Based Energy Efficient Multi-hop Routing Protocol for Intra Wireless Body Sensor Network (Intra-WBSN)."TELKOMNIKA Telecommunication, Computing, Electronics and Control vol. 16, no. 1 pp. 166-173, Feb 2018, <https://doi:10.12928/telkomnika.v16i1.7318>, Scopus.
- 22) AkshayVerma , Tarique Rashid , Prateek Raj Gautam , Sunil Verma, **Arvind Kumar** "Fuzzy based Stable Clustering Protocol for Heterogeneous Wireless Sensor Networks"

International Journal of Engineering and Technology (IJET), vol 9, issue 4, page 671-678, Sep. 2017. ISSN 0975-4024, Scopus

- 23) **Arvind Kumar** and Rajeev Tripathi " Simulation & Performance Evaluation of QoS Routing Protocol for Ad-hoc Networks using Directional Communication" International Journal of Communications, Network and System Science, Vol. 5, pp. 825-833, 2012, ISSN : 1913-3723, Scopus
- 24) **Arvind Kumar**, Rajeev Tripathi " Performance Evaluation of MAC protocols for Ad-hoc Networks using Directional Antenna" International Journal of Wireless & Mobile Networks (IJWMN) vol-3, No-6, pp. 17-28, 2011 ISSN : 0975 – 3834, Scopus

Conferences/Proceeding/book chapter

- 1) Mohammad Nafees, **A. Kumar**, "Physical Layer Security in Ambient Backscatter Communication: A review," *1st International Conference on Advances in Emerging Trends in Computer Applications (ICAETC-2023)*, Babu Banarasi Das Institute of Technology and Management Lucknow, India, 2023. [Accepted & Presented]
- 2) Shilpi and **A. Kumar**, "An Optimized Node Localization Approach Using Quantized Salp Swarm Algorithm in WSNs," *2023 10th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, Gautam Buddha Nagar, India, 2023, pp. 178-182, [https://doi: 10.1109/UPCON59197.2023.10434337](https://doi.org/10.1109/UPCON59197.2023.10434337)
- 3) Shilpi and **A. Kumar**, "SSADV-Hop: Node Localization Approach in WSNs using a SSA based DV-Hop Range Free Method," *2023 9th International Conference on Signal Processing and Communication (ICSC)*, NOIDA, India, 2023, pp. 173-177, [https://doi: 10.1109/ICSC60394.2023.10440998](https://doi.org/10.1109/ICSC60394.2023.10440998)
- 4) Shilpi and **A. Kumar**, "Nature Inspired Node Localization Algorithm for Anisotropic WSNs," *2022 IEEE 9th Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, Prayagraj, India, Dec. 2-4, 2022, IIIT Allahabad pp. 1-5, [https://doi: 10.1109/UPCON56432.2022.9986387](https://doi.org/10.1109/UPCON56432.2022.9986387).
- 5) Shilpi, P. R. Gautam, S. Kumar and **A. Kumar**, "A Comparative Analysis of Distance-based Node Localization in Wireless Sensor Network," *2021 8th International*

- Conference on Signal Processing and Integrated Networks (SPIN)*, Noida, India, 2021, pp. 118-123, <https://doi: 10.1109/SPIN52536.2021.9566136>.
- 6) P. R. Gautam, S. Kumar, A. Verma, and **A. Kumar**, "Localization of Sensor Nodes in WSNs using Three Dimensional Angle of Arrival detection at BS," IEEE International Conference on Electrical, Electronics and Computer Engineering (UPCON), 8-10 Nov. 2019 Aligarh, India, pp. 1-4, <https://doi: 10.1109/UPCON47278.2019.8980262>.
 - 7) Sunil Kumar, Prateek Raj Gautam, AkshayVerma, and **Arvind Kumar**, "Energy Efficient Routing using Sectors Based Energy-Hole Reduction in WSNs." IEEE International Conference on Electrical, Electronics and Computer Engineering (UPCON), 8-10 Nov. 2019 Aligarh, India, pp. 1-4, <https://doi: 10.1109/UPCON47278.2019.8980254>.
 - 8) A. Verma, R. Mondal, P. Gupta and **A. Kumar**, "Neural based Energy-Efficient Stable Clustering for Multilevel Heterogeneous WSNs,"IEEE 2018 First International Conference on Secure Cyber Computing and Communication (ICSCCC), 15-17 Dec. 2018 Jalandhar, India, pp. 208-212, <https://doi: 10.1109/ICSCCC.2018.8703353>
 - 9) Sunil Kumar, AkshayVerma, Prateek Rai Gautam, AkashDayal, and **Arvind Kumar**. "The load balancing of optimizing leach clustering algorithm with mobile sink and rendezvous nodes." In 2018 5th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON), 2-4 Nov 2018 MMMUT Gorakhpur, UP, pp. 1-6., <https://Doi: 10.1109/UPCON.2018.8596989>
 - 10) Akshay Verma, M. Khosla, T. Rashid and **A. Kumar**, "Grid and Fuzzy based Stable Energy-Efficient Clustering Algorithm for Heterogeneous Wireless Sensor Networks," 2017 14th IEEE India Council International Conference (INDICON), 15-17 Dec. 2017 Roorkee, 2017, pp. 1-6, <https://doi: 10.1109/INDICON.2017.8488101>.
 - 11) Tarique Rashid, Sunil Kumar, **Arvind Kumar**, "Effect of Body Node Coordinator (BNC) Positions on the Performance of Intra-Body Sensor Network (Intra-WBSN)" IEEE 4th International Conference on Power, Control and Embedded Systems (ICPCES - 2017) 9-11 March, 2017, MNNIT Allahabad pp. 1-6, <https://doi: 10.1109/ICPCES.2017.8117613>.
 - 12) Tarique Rashid, Sunil Kumar , **Arvind Kumar** "REER: Relay based Energy Efficient Routing for Intra Body Sensor Network (Intra-WBSN)" IEEE 4th International Conference on Signal Processing and Integrated Networks (SPIN), 2 -3

Feb,2017,Noida,India,pp-222-227,ISBN: 978-1-5090-2797-2,

<https://doi:10.1109/SPIN.2017.8049948>.

- 13) Pathak, S.; Rashid, T.; Kumar, B.; **Kumar, A.** "Energy efficient intra-hospital multi-patient cardiac monitoring through Zig-Bee network" 2nd IEEE International Conference on Signal Processing and Integrated Networks (SPIN), 19 -20 Feb, 2015, Noida,India,pp-400-404,ISBN: 978-1-4799-5991-4,
<https://doi:10.1109/SPIN.2015.7095394>.
- 14) Rashid, T. Kumar, B.; Pathak, S.; **Kumar, A.** "Performance evaluation of ZigBee network for multi-patient cardiac monitoring in intra-hospital scenario" IEEE, International Conference on Medical Imaging, m-Health and Emerging Communication Systems (Med-Com),7-8 Nov. 2014 Noida, India. pp. 422-427 ISBN: 978-1-4799-5097-3, <https://doi:10.1109/MedCom.2014.7006045>.
- 15) SharanyanSrikant, **Arvind Kumar** and Rajeev Gupta, "Implementing the Dynamic Time Warping algorithm in multithreaded environments for real time and unsupervised pattern discovery" IEEE International conference on Computer and Communication Technology, (ICCCT-2011), Sept 15-17, 2011, MNNIT, Allahabad, India. pp. 394-398 ISBN: 978-1-4577-1386-6, <https://doi:10.1109/ICCCT.2011.6075111>
- 16) SharanyanSrikant, **Arvind Kumar** and Vasiya Krishnan, "Online Accelerated Implementation of the Fuzzy C-means algorithm with the use of the GPU platform" IEEE 2nd International Conference on Computer and Communication Technology, (ICCCT-2011), Sept 15-17, 2011, MNNIT, Allahabad, India. pp. 385-388, ISBN: 978-1-4577-1386-6, <https://doi:10.1109/ICCCT.2011.6075148>.
- 17) SharanyanSrikanth, **Arvind Kumar** and Vaishya Krishanan "Accelerating the Dynamic Time Warping computation for online unsupervised pattern discovery using GPUs" International conference on Intelligent Computing and Control (ICOICC-2011) May 27-28, 2011, Bangkok, Thailand. ISBN: 978-1-4577-1386-6.
- 18) SharanyanSrikanth , **Arvind Kumar** and Vaishya Krishanan "Accelerating the Euclidean Distance Matrix Computing using GPUs",3rd International Conference on Electronics Computer Technology (ICECT-2011) April 8-10 2011 Kanyakumari, India.ISBN: 978-1-4244-8679-3.
- 19) Prabhat C. Shrivastava, Rupesh Kumar, **Arvind Kumar**, Sanjeev Rai " High Speed and Low Power Unified dual-field Multiplier in GF(P) and GF(2^m)", in proceeding of IEEE

Asia Pacific Conference on Circuit and System, APCCAS-2010, Dec-6-9, 2010, Kuala Lumpur, Malaysia. pp.847-850, ISBN: 978-1-4244-7456-1, <https://doi: 10.1109/APCCAS.2010.5774883>.

- 20) SharanyanSrikanth and **Arvind Kumar**, “ An optimized Check pointing Based Learning Algorithm for Single Upsets”, in proceeding of IEEE Signature Conference on Computer, Software and Applications”, COMPSAC 2010, July 19-23, 2010, Seoul, Korea. pp. 395-400, ISBN: 978-1-4244-7513-1, <https://doi: 10.1109/COMPSAC.2010.47>.
- 21) **Arvind Kumar** and Rajeev Tripathi, “Impact of Beam Joining on Resource Utilization of Wireless Mesh Networks using Smart Antenna” , in proceeding of IEEE sponsored International conference on Computer and Communication Technology, ICCCT-2010, Sept 17-19 , 2010, MNNIT, Allahabad, India. pp. 377-382, ISBN: 978-1-4244-9034-9, <https://doi:10.1109/ICCCT.2010.5640498>.
- 22) **Arvind Kumar** and Rajeev Tripathi, “Effective Resource Utilization in Wireless Mesh Networks using Smart Antenna”, in proceeding of 7th IEEE and IFIP International conference on Wireless and Optical Communication Networks , WOCN-2010, Next Generation Internet, Sept 6-8, 2010, Colombo, Sri Lanka. pp. 1-5 ISBN: 978-1-4244-7204-8, <https://doi:10.1109/WOCN.2010.5587313>.
- 23) **Arvind Kumar**, Rajeev Tripathi and Rajeev Gupta, “Performance Enhancement of QoS Routing Protocol for Ad-hoc Network using Smart Antenna”, In proceeding of IEEE sponsored International Conference on Power, Control and Embedded System, ICPCES-2010, Nov 28th – Dec 1st 2010, MNNIT, Allahabad, India pp. 1-5 ,ISBN: 978-1-4244-8542-0, <https://doi:10.1109/ICPCES.2010.5698699>.
- 24) T. Siva Kumar, **Arvind Kumar** and Rajeev Gupta, “Use of Transaction Level Modeling in the design of a System on a Chip”, in proceedings of IEEE sponsored National Conference on Microelectronics and Communication, NCMEC-2009, April 8-9, held at SRM University, Kancheepuram Dist, and Tamil Nadu.
- 25) T.Siva Kumar and **Arvind Kumar**, “The Role of MSP430 in the Ubiquitous Computing Environments”, in proceedings of IEEE International Advance Computing Conference, March 6-7, 2009, held at Thapar University, Patiala, India. ISBN: 978-981-08-2465-5
- 26) Tarte, R.T., Shilpi, **Kumar, A.** (2023). “Improved Fuzzy Logic-Based Localization in Wireless Sensor Networks” In: Nagaria, R.K., Tripathi, V.S., Zamarreno, C.R., Prajapati,

- Y.K. (eds) VLSI, Communication and Signal Processing. VCAS 2022. Lecture Notes in Electrical Engineering, vol 1024. Springer, Singapore. https://doi.org/10.1007/978-981-99-0973-5_50.
- 27) Shilpi, Shukla, M., **Kumar, A.** (2021). "PAPR Reduction in OFDM for VLC System". In: Harvey, D., Kar, H., Verma, S., Bhadauria, V. (eds) Advances in VLSI, Communication, and Signal Processing. Lecture Notes in Electrical Engineering, vol 683. Springer, Singapore. https://doi.org/10.1007/978-981-15-6840-4_18 International Conference on, VLSI, Communication and Signal Processing (VCAS 2019), Oct. 21-23 2019, organized by ECED MNNIT Allahabad.
 - 28) Kumar S., Gautam P.R., Verma S., **Kumar A.** (2021) "An Energy-Efficient Localization Scheme Using Beacon Nodes for Wireless Sensor Networks" In: Advances in VLSI, Communication, and Signal Processing. Lecture Notes in Electrical Engineering, vol. 683, pp- 145-155 Springer, Singapore. https://doi:10.1007/978-981-15-6840-4_12. International Conference on, VLSI, Communication and Signal Processing (VCAS 2019) , Oct. 21-23 2019, organized by ECED MNNIT Allahabad
 - 29) Raj Gautam P., Kumar S., **Kumar A.** (2021) "Sensor Localization in WSNs Using Rotating Directional-Antenna at the Base Station" Advances in VLSI, Communication, and Signal Processing. Lecture Notes in Electrical Engineering, vol 683, pp 705-718 Springer, Singapore. https://doi:10.1007/978-981-15-6840-4_58
 - 30) Gautam P.R., Kumar S., Verma A., Rashid T., **Kumar A.** (2020) "Localization of Sensor Nodes in WSN Using Area Between a Node and Two Beacons" In: Advances in VLSI, Communication, and Signal Processing. Lecture Notes in Electrical Engineering, vol 587 pp 221-228, Springer, Singapore. https://doi:10.1007/978-981-32-9775-3_22.
 - 31) Verma A., Kumar S., Gautam P.R., **Kumar A.** (2020) "Stable Energy-Efficient Routing Algorithm for Dynamic Heterogeneous Wireless Sensor Networks" In Advances in VLSI, Communication, and Signal Processing. Lecture Notes in Electrical Engineering, vol. 587 pp- 151-160. Springer, Singapore. https://doi:10.1007/978-981-32-9775-3_15.
 - 32) Patra S., Kumar S., Verma S., **Kumar A.** (2020) "Design and Implementation of 32-bit MIPS-Based RISC Processor" In: Advances in VLSI, Communication, and Signal

Processing. Lecture Notes in Electrical Engineering, vol 587, pp 747-757, Springer, Singapore, https://doi:10.1007/978-981-32-9775-3_68

International Conference on VLSI, Communication and Signal Processing (VCAS 2018) November 29, 2018 to December 1, 2018i organized by ECED MNNIT Allahabad

- 33) Kumar A.,** Kumar S., Raj Gautam P., Verma A., Rashid T. (2019) "Performance Evaluation of Multi-operands Floating-Point Adder" In: Recent Trends in Communication, Computing, and Electronics. Lecture Notes in Electrical Engineering, vol 524. pp 537-546, Springer, Singapore, https://doi:10.1007/978-981-13-2685-1_51