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- **29 papers published- 10 +2(under Review) SCI and 7 Scopus which include work on machine learning, image processing and soft computing**
- **2 Book Chapter Published**
- **5 Patents Published & 1 Patent granted**

Papers published (Total =29, 7 Scopus and 10+2 SCI)

1. Kumar, V., Singh, H., **Saxena, K.,** Kapse, V. M., & Prasad, R. (2022). A Deep Learning based model for Prediction of RF Wave Attenuation due to Rain. Wireless Personal Communications. (**SCI**)
2. Kumar, V@., Singh, H., **Saxena, K**., Kapse, V. M., & Prasad, R. (2022). Smart Channel Modelling for Cloud and Fog Attenuation using ML for designing of 6G Networks at D and G Bands. Wireless Personal Communications. (**SCI**)
3. Singh, H., Kumar, V@., **Saxena, K**., & Prasad, R. (2022). Smart Channel Modelling for Rain Attenuation using ML for designing of 6G Networks at D and G Bands. Wireless Personal Communications. (**SCI**)
4. Singh, H., Kumar, V., **Saxena, K**., Boncho, B., & Prasad, R. (2022). ANN: A Deep Learning model for Prediction of Radio Wave Attenuation due to Clouds. Wireless Personal Communications. (**SCI**)
5. Vivek Kumar, Hitesh Singh, **Kumud Saxena**, Boncho Bonev, Ramjee Prasad. " Machine Intelligence method for rain classification by using signal strength for designing of 6G networks" Radioelektronika 2022, Němcovej 32 Košice 040 01 Slovakia (Under Review)[Implementation is in Knime]
6. Hitesh Singh, Vivek Kumar@, **Kumud Saxena**, Boncho Bonev, Ramjee Prasad. " Computational Intelligent method for Cloud Layer Classification using millimeter wave technology for designing of 6G network" Radioelektronika 2022, Němcovej 32 Košice 040 01 Slovakia (Under Review) [Implementation is in Knime]
7. Hitesh Singh, Vivek Kumar, **Kumud Saxena**, Boncho Bonev, Ramjee Prasad. " ANN: A Deep Learning model for Prediction of Radio Wave Attenuation due to Clouds " International Journal of Satellite Communications and Networking. (SCI-Under Review) [Implementation in Kears with TensorFlow]
8. Vivek Kumar, Singh, Hitesh**, Kumud Saxena**, Boncho Bonev, Ramjee Prasad. "A Deep Learning based model for Prediction of RF Wave Attenuation due to rain" International Journal of Satellite Communications and Networking. (SCI-Under Review) [Implementation in Kears with TensorFlow]
9. Vivek Kumar@, Hitesh Singh, **Kumud Saxena**, Boncho Bnev, Ramjee Prasad. " A journey from traditional to Machine Learnig of Radio wave attenuation caused by Rain: A State of Art" Wireless Personal Communications (**SCI**)
10. Singh, Hitesh, Vivek Kumar, **Kumud Saxena**, and Ramjee Prasad. " Radio Wave Attenuation due to Clouds from Traditional Models to ML Models – A State of Art" Wireless Personal Communications (2021): 1-19. (**SCI**)

11. Singh, Hitesh, Vivek Kumar, **Kumud Saxena**, and Ramjee Prasad. "A Smart Model for Prediction of Radio Wave Attenuation Due to Clouds and Fog (SMRWACF)." Wireless Personal Communications (2021) : 1-19. (**SCI**)

12. Hitesh Singh, Vivek Kumar, **Kumud Saxena**, Bonav Boncho, Ramjee Prasad, "Soft Clustering for Enhancing ITU Rain Model based on Machine Learning Techniques"Accepted in Wireless Personal Communications (Springer, Denmark) (**SCI**)

13. Hitesh Singh, Vivek Kumar, **Kumud Saxena**, Bonav Boncho, Ramjee Prasad, "ProposedModel for Radio Wave Attenuation due to Rain (RWAR)", Wireless PersonalCommunications (Springer, Denmark), DOI: https://doi.org/10.1007/s11277-020-07598-32020, pp. 1-17, 2020. ISSN: 0929-6212UGC Approved List of Journals (Journal No): 33023,IF: 1.2, H. Index: 48. (**SCI**)

14. Kumar, Vivek, Hitesh Singh, **Kumud Saxena**, Boncho Bonev, Ramjee Prasad. " An ANN Model for Predicting Radio Wave Attenuation Due to Rain and its Business Aspect" 29th NATIONAL CONFERENCE, TELECOM 2021; 28 – 29 October 2021, National Science and Technical Centre, 108 Rakovsky St., Sofia, IEEE, 2021.

15. Singh, Hitesh, Vivek Kumar, **Kumud Saxena**, Boncho Bonev, Ramjee Prasad. "Prediction of Radio Wave Attenuation due to Clouds using ANN and its business aspects" 29th NATIONAL CONFERENCE, TELECOM 2021; 28 – 29 October 2021, National Science and Technical Centre, 108 Rakovsky St., Sofia, IEEE, 2021.

16. Kumar, Vivek, Hitesh Singh, **Kumud Saxena**, Boncho Bonev, Ramjee Prasad. "Approximations for ITV Rain Model Using Machine Learning." In 2021 56th International Scientific Conference on Information, Communication and Energy Systems and Technologies (ICEST), pp. 159-162. IEEE, 2021. {**Scopus Indexed**}

17. Singh, Hitesh, Vivek Kumar, **Kumud Saxena**, Boncho Bonev, and Ramjee Prasad. "Prediction of Radio Wave Attenuation due to Cloud Using Machine Learning Techniques." In 2021 56th International Scientific Conference on Information, Communication and Energy Systems and Technologies (ICEST), pp. 163-166. IEEE, 2021. {**Scopus Indexed**}

18. Aditee Mattoo, **Kumud Saxena**, "Design of IOT Base Smart Illumination system in smart cities ", Proceedings of 3rd International Conference on Computing Informatics and networks, Lecture notes in networks and systems 167, https://doi.org/10.1007/978-981-15-9712-1_44, Springer (**Scopus**)

19. Hitesh Singh, **Kumud Saxena**, Vivek Kumar, Boncho Bonev, Ramjee Prasad, "An Empirical Model for Prediction of Environmental Attenuation of Millimeter Waves", Springer Nature-Wireless Personal Communications, https://doi.org/10.1007/s11277-020-07599-2, pp. 1-18,2020. ISSN: 0929-6212 UGC Approved List of Journals (Journal No): 33023, IF: 1.2, H.Index: 48. (**SCI**)

20. Hitesh Singh, Vivek Kumar, Boncho Bonev, **Kumud Saxena**, "An Intelligent Model for prediction of Attenuation caused by Rain based on Machine Learning Techniques", IC3A2020, AKTU Lucknow, 05-07, Feb, 2020.(**Scopus**)

21. **Kumud Saxena**, "An Implementation Of Face Image Retrieval Using Eigen-Faces," International Journal Of Scientific Technology Research, Vol. 8, Issue 10, October 2019, pp. 225-226.(**Scopus**)

22. **Kumud Saxena**, Shilpa Srivastava, "Variable Techniques for Ciphertext Retrieval through

Encrypted Data," International Journal of Innovative Technology and Exploring Engineering, Vol. 8 Issue-12, October 2019, pp. 3477-3479. **(Scopus)**

23. Hitesh Singh, Vivek Kumar, Boncho Bonev, **Kumud Saxena**, "A Novel Method for Prediction of Attenuation of Millimeter Waves by Fog and Smoke", IJRTE, Vol. 8, Issue.3,pp-2080-2085, 2019. **(Scopus)**

24. **Kumud Saxena**, Avinash Pokhriyal, Sushma Lehri, "WAFER :Wavelets Assisted Fuzzy Edge Enhancement", International Journal of Computer & Technology(Impact factor 1.16), ISSN: 2277-3061, Vol.14, No. 2, December 2014.

25. **Kumud Saxena**, Avinash Pokhriyal, Sushma Lehri, "SCIENCE: Soft Computing Based Image Enhancement for Contrast Enhancement", International Journal of Advanced Computing (Impact factor 2.32), ISSN: 2051-0845, Vol.47, Issue.1, June 2014

26. **Kumud Saxena**, Avinash Pokhriyal, Sushma Lehri, "Image Enhancement using Hybrid Fuzzy Inference System (IEHFS)", International Journal of Computer Applications (impact factor 3.26) 60/16, Dec 2012, DOI: 10.5120/9774-4333

27. **Kumud Saxena**, Avinash Pokhriyal, Sushma Lehri "Finding Best Basis for Fingerprint Image Enhancement using Wavelet Packets ", International Conference on Modelling of Engineering & Technological Problems, BMAS Engineering College, Agra, 14-16 Jan, 2009

28. **Kumud Saxena**, Avinash Pokhriyal "Analysis of Next Gen Wearable Smart Clothes". National Conference on Advances in Information Technology held in Institute of Engineering & Technology, Dr. B.R. Ambedkar University, Agra Feb 16, 2008

29. **Kumud Saxena**, Avinash Pokhriyal, Puneet Kumar, Gunjan Singh "The Use of Neural Network to Recognize Multimodal Biometric Template". 9th Conference of the International Academy of Physical Sciences organized by dept. of Mathematics, Agra and, International academy of Physical Sciences, Allahabad, 3-5 Feb, 2007

Book Chapter

1. Security and Privacy in IoT Device and Sensor Networks: "Computational Intelligent Techniques for Prediction of Environmental Attenuation of Millimeter Waves" Paperback ISBN: 9780128212554, eBook ISBN: 9780128232224, Imprint: Academic Press (Elsevier), 15th October 2020

2. Recent Trends in Document Authentication using Text Steganography, "Handbook of Computer Networks and Cyber Security: Principles and Paradigms", CNCS 2019, Springer.

Patent published

1. Optimized smart sensor based illumination light system, Patent No.202011054057 A
2. Printed Document Authentication, Patent No: 201911045538 A.
3. Smart Energy Effective Next Generation 6G Communication System, Patent No:202011001315
4. Accurate Microwave Measuring Rain Gauge Unhindered by Dust and debris. PatentApplication No. 202011007396 A

5. Light Weight Portable Helmet for the Protection from COVID – 19 , Application No.202011020603 A.