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Area of Interest/Specialization: Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, Object Detection

WoS/ Scopus Journal Publications

1. Kumar, A., & Bhalla, S. (2026). H-Net: A Transformer Based Multistage Fusion Convolutional Neural Network for Underwater Object Detection in Complex Environments. *Applied Soft Computing*, 115083. <https://doi.org/10.1016/j.asoc.2026.115083> (SCIE, IF: 6.6)
2. Bhalla, S., Kushwaha, R., & Kumar, A. (2025). HydR-CNN: advancing underwater object detection using a multi-stage framework with hybrid R-CNN and pyramid vision transformer with augmented convolution. *The European Physical Journal Plus*, 140(6), 1-33. <https://doi.org/10.1140/epjp/s13360-025-06498-4> (SCIE, IF: 2.9)
3. Bhalla, S., Kumar, A., & Kushwaha, R. (2024). Feature-adaptive FPN with multiscale context integration for underwater object detection. *Earth Science Informatics*, 17(6), 5923-5939. <https://doi.org/10.1007/s12145-024-01473-6> (SCIE, IF: 3.0)
4. Bhalla, S., Kumar, A., & Kushwaha, R. (2025). Analysis of recent techniques in marine object detection: a review. *Multimedia Tools and Applications*, 84(19), 20339-20437. <https://doi.org/10.1007/s11042-024-19782-9> (SCOPUS)

Chapter Publications

1. Kumar, A., & Bhalla, S. (2025). Exploring brain tumor detection through artificial intelligence. In *Revolutionizing Medical Systems using Artificial Intelligence* (pp. 93-120). Academic Press. <https://doi.org/10.1016/B978-0-443-32862-6.00005-5> (ELSEVIER, SCOPUS)
2. Bhalla, S., & Kumar, A. AI-Driven Approaches for Hate Speech Detection: Methods and Challenges. In *Generative Artificial Intelligence* (pp. 104-125). CRC Press. <https://doi.org/10.1201/9781003565703> (SCOPUS)

International Conference Publications

1. Bhalla, S., Kumar, A., & Kushwaha, R. (2023, July). Comparative analysis on brain stroke prediction using machine learning. In 2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT) (pp. 1-6). IEEE. <https://doi.org/10.1109/ICCCNT56998.2023.10308218> (SCOPUS)

2. Bhalla, S., Kumar, A., & Kushwaha, R. (2024, August). A Novel Underwater Marine Dataset with Diverse Scenarios for Robust Object Detection. In *Proceedings of the 2024 Sixteenth International Conference on Contemporary Computing* (pp. 1-11), <https://doi.org/10.1145/3675888.3676019> (SCOPUS)
3. Bhalla, S., Kumar, A., & Kushwaha, R. (2025). Evaluation of Deep Learning-Based Underwater Object Detection Algorithms. *Innovative Computing and Communications*, 4, 257 https://doi.org/10.1007/978-981-96-7131-1_18 (SCOPUS)
4. Bhalla, S., Rastogi, P., Kaur, H., & Baig, K. (2025, April). Deep Learning Techniques for Skin Lesion Identification and Categorization: Enhancing Diagnostic Precision and Treatment Outcomes. In *2025 Seventh International Conference on Computational Intelligence and Communication Technologies (CCICT)* (pp. 406-415). <https://doi.org/10.1109/CCICT65753.2025.00069> (SCOPUS)
5. Bhalla, S., Kaur, S., Medhi, A., & Kumar, A. (2026). Underwater image enhancement and object detection using vision transformers. In *Artificial Intelligence and Sustainable Innovation* (pp. 341-346). CRC Press. <https://doi.org/10.1201/9781003654049> (SCOPUS)
6. Kaur, H., Chauhan, V., Bhalla, S., & Raheja, S. (2025, April). An Analysis of Genetic Disorders using Artificial Intelligence (AGD-AI). In *2025 Seventh International Conference on Computational Intelligence and Communication Technologies (CCICT)* (pp. 543-550). IEEE. <https://doi.org/10.1109/CCICT65753.2025.00088> (SCOPUS)
7. Verma, K., Bhalla, S., Kaur, S., & Singh, J. (2026). Vivisyn: An AI-powered collaborative group chat platform. In *Artificial Intelligence and Sustainable Innovation* (pp. 475-481). CRC Press. <https://doi.org/10.1201/9781003654483> (SCOPUS)
8. Verma, K., Singh, U., Bhalla, S., & Verma, V. (2025, June). GenAI Health Assistant for Disease Management and Imaging. In *International Conference on Data Analytics & Management* (pp. 440-453). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-032-03769-5_33 (SCOPUS)
9. Chauhan, A., Singh, A., Kumar, M., Verma, K., Raheja, S., & Bhalla, S. (2025, June). Technological Trend in Quadcopter: Analysis and Application. In *International Conference on Data Analytics & Management* (pp. 61-76). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-032-03751-0_6 (SCOPUS)
10. Shikha Bhalla, Kritika, Savneet Kaur, Upasana Singh, “MeBot” in the Sixteenth International Conference on Computing, Communication and Networking Technologies (ICCCNT), held at IIT Indore during 6th-11th July, 2025, IEEE, (SCOPUS). **Status: Presented**
11. Ms. Kritika, Dr. Himani, Ms. Shikha , XPEN- A Voice Powered Expense Tracker Full Stack Web Application” in 4th International Conference on Computing Informatics and Networks (ICCIN-2022), BPIT

National Conference Publications

1. Vashnavi Tariyal, Gunjan Sharma and Shikha Bhalla, Quantum Cryptography: Future of Today” in proceedings of 10th National Conference TIPSCON 2020.
2. Shikha Bhalla, A Review on Manet Routing Protocols” in proceedings of 9th National Conference TIPSCON 2019.

International Journal Publications

1. Kashish Tandon, Chinmay Takkar, Ruhi Raj Singh, Gaurav Kumar Singh, Shikha ...
International Journal of Creative Research Thoughts 11 (5), i1-i6
2. Bhardwaj, S. (2013). Ann for node localization in wireless sensor network. *International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering*, 2(5), 1724-1731
3. Nagrath, P., Kumar, A., & Bhardwaj, S. (2010). Authenticated routing protocol based on reputation system for adhoc networks. *International Journal on Computer Science and Engineering*, 2(9), 3095-3099.

Patents Published

1. **Title:** PROCESSING DEVICE FOR AGRICULTURAL PRICE FORECASTING AND DEMAND ESTIMATION

Design Number: 491497-001

Date: 17/02/2026

Name of the Applicant (s): Dr. Anand Nayyar Dr. Rachna Jain Dr. Shikha Bhalla Ms. Kritika Ms. Shipra Raheja Ms. Debleena Mitra.

2. **Title:** AI BASED IQ LEVEL DETECTION DEVICE

Design Number: 468429-001

Date: 04/08/2025

Name of the Applicant (s): Dr. Shimpy Goyal Ms. Kritika Ms. Shikha Bhalla Dr. Ksh. Krishna B Singha Dr. Shruti Khare Dr. Pooja Sharma Mr. Anurag Patel Dr Aditi Sharma

3. **Title:** PORTABLE SIGN LANGUAGE DISPLAY DEVICE FOR CLASSROOM USE

Design Number: 436207-001

Date: 30/10/2024

Name of the Applicant (s): Dr. Rachna Jain Dr Anand Nayyar Ms. Shipra Raheja Ms. Shikha Bhalla Ms. Kritika

4. **Title:** AI BASED ATM MACHINE

Design Number: 413472-001

Date: 13/04/2024

Name of the Applicant (s): Sundeep Raj Dr. Shimpy Goyal Dr. Priyanka Saini Prachi Gupta
Manik Batra Shikha Bhalla Ms. Kritika Ms. Pooja

5. **Title:** SMART INHALER

Design Number: 409623-001

Date: 07/03/2024

Name of the Applicant (s): Dr. Anand Nayyar Dr. Rachna Jain Ms. Shipra Chhabra Ms.
Nidhi Gaur Ms. Varsha Shrivastava Ms. Shikha Bhalla

Workshop /Seminar/ Training Program/Short Term Course/FDP:

- Attended 3 days FDP on Universal Human Values (UHV-I) organized by IQAC and UHV Cell, GTBIT in collaboration with AICTE from 28th May-30th May, 2026
- Attended 5 days online Short-Term Course on " Modern educators AI toolbox for productivity enhancement ", NITTTR, Chandigarh" organized by Department of IT and ECE, at Guru Tegh Bahadur Institute of Technology in association with NITTTR from 18-05-2026 to 022-05-2026.
- Attended 2 weeks FDP on “Machine Learning in Healthcare” organized by E & ICT Academy, IIT Kanpur (A Joint initiative of MeitY & IIT Kanpur) from 15-12-2025 to 29-12-2025
- Attended 2 weeks FDP on “Generative AI” organized by E & ICT Academy, IIT Kanpur (A Joint initiative of MeitY & IIT Kanpur) from 1-12-2025 to 15-12-2025
- Attended 5 days FDP on the topic “Research Trends in Recent Technologies: Computational Intelligence and Cyber Security” organized by IT department of Bhagwan Parshuram Institute of Technology, Rohini, held from 1st April 2024 to 5th April 2024
- Attended 1 week FDP on the topic “Artificial Intelligence and Machine Learning” organized by Gautam Buddha University, Greater Noida, from 8th April – 13th April, 2024
- Attended 5 days FDP on “Research Trends in Machine Learning & Security” organized by Dept. of CSE, JIMS Engineering Management Technical Campus in collaboration with Secure Computing Laboratory, SC & SS, Jawaharlal Nehru University, New Delhi held from 29th July to 2nd August 2024.
- Attended 5 days online Short-Term Course on "Deep Learning for Engineering Application" organized by GTBIRC and Department of IT, at Guru Tegh Bahadur Institute of Technology in association with NITTTR from 02-09-2024 to 06-09-2024.
- Attended 5 days FDP on “Generative AI and its impact on Computing Application 2025”, organized by School of Computer Science Engineering and Technology, Bennett University and School of Emerging Science and Technology, Gujrat University, India from 24th -28th March 2025.
- Attended 5 days FDP on “IOT with Drones” organized by E & ICT Academy, IIT Kanpur (A Joint initiative of MeitY & IIT Kanpur) from 28-01-2025 to 01-02-2025.

- Attended 5 days FDP on “Scientific Programming Using Python & MATLAB” organized by EMATIX Embedded & Software Solutions Inc. in collaboration with Guru Tegh Bahadur Institute of Technology, from 21st to 25th May 2025.
- Attended 5 days FDP on “Advance Excel with Data Visualization” organized by E & ICT Academy, IIT Kanpur (A Joint initiative of MeitY & IIT Kanpur) from 14-10-2024 to 19-10-2024.
- Attended 5 days FDP on the topic “Artificial Intelligence” under TechSaksham Program from 30th January, 2023- 3rd Feb, 2023
- Attended 5 days FDP on the topic “Fast Emerging Research Domain for Future Trends of Advanced Computation” organized by Dr. B.C. Roy Engineering College, , Durgapur from February 6th -February 10th, 2023
- Attended workshop on “Design Thinking, Critical Thinking, and Innovation Design” organized by Galgotias University, Greater Noida, held on 28th January 2023