

Curriculum Vitae

Name Preeti
Designation Associate Professor
Department Electronics and Communication Engineering,
Organization Panjab University, Chandigarh
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QUALIFICATION

Doctorate: PhD in Electronics and Communication Engineering, 2013
Post-Graduation: M.E (Master of Engineering)-Electronics and Communication Engg., 2008
Graduation: B.E (Bachelor of Engineering)-Electronics and Communication Engg., 2003

SUBJECTS TAUGHT

Probability Theory and Random Processes, Fiber Optics Communication System, Signals and Systems, Digital Signal Processing, Wireless and Mobile Communication, Electromagnetic Theory.

RESEARCH AREAS

Optical Communication (wired), Optical Communication (wireless: FSO, VLC), Wireless Communication; Wireless Sensor Networks; Optical Biosensors, EEG Signal Processing.

RESEARCH STUDENTS

Ph.D. Guidance: 05(Awarded) + 02(Ongoing)

SN	Title	Candidate	Funding Agency	Thesis Status
1	Advanced Region Specific Neurofeedback System for Depression	Chamandeep Kaur, 2015	TEQIP-II	Awarded
2	Design of Multilevel Inverter System for voltage Enhancement	Parul Gaur, 2015	Salary (In-service)	Awarded
3	Design and Optimization of Hybrid Multilayer Receiver- initiated MAC protocol for energy harvesting based Wireless Sensor Networks	Pardeep Kaur, 2016	Salary (In-service)	Awarded
4	Design and Analysis of Visible Light Communication System using Multicarrier Modulation Techniques	Sanjeev Kumar, 2017	CSIR	Awarded
5	Design and Analysis of Epileptic EEG framework using Automated Artifact Removal Techniques	Amandeep Bisht, 2017	CSIR	Awarded
6	Wireless sensor Networks and Machine learning	Nitin Bhatia, 2023	Visvesvaraya Fellowship	Coursework
7	Visible Light Communication and 6G	Prince, 2024	Panjab University, Chandigarh	Coursework

M.E./M.Tech Guidance: 22(Awarded)+02(Submitted);

SN	Title	Candidate	Thesis Status
1	Transmitter Diversity and OAM Incorporated 40 Gbps Free Space Optical System	Somdeep Singh	Submitted
2	Automatic Cropping of Handwritten Fragments using Object Detection Algorithm	Aanchal Sharma	Submitted
3	Performance Analysis of Sensor Based Human Activity Recognition Using Deep Learning	Akriti Sharma	Degree Awarded
4	Crop Yield prediction using CNN-LSTM Model	Shamli Bharti	Degree Awarded
5	Design and Performance analysis of Multicast Routing Protocol for Vehicular AD-HOC network	Jyoti Thakur	Degree Awarded
6	Classification of Plant Leaf Disease using CNN Deep Learning Model	Guneet Sachdeva	Degree Awarded
7	Design and Analysis of Multi-Layer Medium Access Control Protocol for Green Wireless Sensor Networks	Aarti Kochaar	Degree Awarded
8	Design of Low Power Energy Harvesting System using Indoor Sources of Energy	Oshin Garg	Degree Awarded
9	Design and Analysis Of Multibeam WDM-FSO System Using Homodyne Detection under Scintillation Effect	Neha Luthra	Degree Awarded
10	Performance Analysis of Visible Light Communication System Using Spatial Modulation	Swati Sharma	Degree Awarded
11	Performance Analysis of MDM-OCDMA-FSO Transmission System under Atmospheric Turbulences	Sanyam Bansal	Degree Awarded
12	Isolation of Selective Forwarding Attack in Wireless Sensor Network using Enhanced Trust and Energy Awareness Secure Routing Protocol	Harkiranvir Kaur	Degree Awarded
13	"Comparative Analysis of Optical Amplifier and Relay-assisted WDM-FSO system under Rain & Haze Weather Conditions".	Navneet Dayal	Degree Awarded
14	Performance Analysis of Multibeam WDM-FSO System under Clear & Haze Weather Conditions and Scintillation Effect	Marvi Grover	Degree Awarded
15	Delineation of ECG Characteristic Points Using Wavelet Transform	Balwinder Singh	Degree Awarded
16	Weight Pattern based Adaptive Constant Modulus Algorithm for PAPR Reduction in OFDM System.	Mandeep Kaur	Degree Awarded
17	Performance Analysis of EEG Signal using MWT for Emotion Recognition	Swati Vaid	Degree Awarded
18	Performance Analysis of Hybrid Configuration Techniques to Mitigate FWM Effect In WDM Systems	Manisha Ajmani	Degree Awarded
19	Performance Analysis of EDFA Based WDM System using Bidirectional Pumping	Mishal Singla	Degree Awarded
20	Performance Analysis of FSO link Under clear, hazy And rainy weather Conditions	Aditi Malik	Degree Awarded
21	Preparation of SnO ₂ based sensitive film for gas sensing application	Shailendra Singh	Degree Awarded
22	Image data compression using modified fast HAAR wavelet transform with SPIHT	Navjot Kaur	Degree Awarded
23	Synthesis and Characterization of MOF-Graphene Composites	Sakshi Arora	Degree Awarded
24	BER Analysis of Incoherent SAC-OCDMA System using ZVCC in a Noisy Environment	Swati Sharma	Degree Awarded

PUBLICATIONS:

Journals: 40 Book Chapters: 21 Conference Proceedings: 23

i-10 index: 27(Google Scholar)

h-index: 17(Google Scholar); 14(Scopus); 09(Web of Science)

Citations: 1252 (Google Scholar); 727(Scopus); 384(Web of Science)

SELECTED PUBLICATIONS IN JOURNALS

1. Kumar, S., Singh, P.,” Joint PAPR and Non-linear Distortion Mitigation in OQAM-FBMC Based Visible Light Communication System” *Wireless Pers Commun*, 2024, 135(3):1-18, doi: 10.21203/rs.3.rs-2422863/v1, Springer [**SCIE IF: 1.9**]
2. Somdeep Singh, Preeti Singh and Pardeep Kaur, “Transmitter diversity and OAM incorporated 40 Gbps free space optical system”, *J. Opt. Commun.* <https://doi.org/10.1515/joc-2024-0017>, May 14, 2024 De Gruyter [**SCOPUS**].
3. Bisht A, Singh P, Kaur C, Agarwal S, Ajmani M. “Progress and Challenges in Physiological Artifacts' Detection in Electroencephalographic Readings” *Curr Med Imaging*. 2022; 18(5):509-531. doi: 10.2174/1573405617666210908124704. PMID: 34503420. Bentham [**SCIE; IF: 1.4**].
4. Kaur, C., Singh, P., Bisht, A. *et al.* Recent Developments in Spatio-Temporal EEG Source Reconstruction Techniques. *Wireless Pers Commun*, 2022, 122, 1531–1558. <https://doi.org/10.1007/s11277-021-08960-9>, Springer [**SCIE IF: 2.701**].
5. Kumar, S., Singh, P. Effect of shadowing and background radiation on optical OQAM-FBMC based visible light communication system. *Optical and Quantum Electronics* 54, 61 (2022). <https://doi.org/10.1007/s11082-021-03437-2>, Springer [**SCIE IF: 3.0**].
6. Neha Rani, Preeti Singh, Pardeep Kaur, "Mitigation of Scintillation effects in WDM-FSO system using Homodyne detection," *Optik*, Volume 248, 2021, 168165. <https://doi.org/10.1016/j.ijleo.2021.168165> Elsevier [**SCI IF: 2.840**]
7. Kaur C., Bisht A., Singh P., Joshi G., EEG Signal denoising using hybrid approach of Variational Mode Decomposition and wavelets for depression", *Biomedical Signal Processing and Control*, 65 , art. no. 102337, 2021 (10 pages). <https://doi.org/10.1016/j.bspc.2020.102337> , Science Direct [**SCIE IF: 5.1**].
8. Kaur C, Singh P, Sahni S., EEG Artifact Removal System for Depression Using a Hybrid Denoising Approach., *Basic Clinical Neuroscience*. 2021 Jul-Aug;12(4):465-476. doi: 10.32598/bcn.2021.1388.2. Epub 2021 Jul 1. PMID: 35154587; PMCID: PMC8817173. Springer [**SCOPUS**].
9. Amandeep Bisht, Preeti Singh, " Detection of muscle artifact epochs using entropy based M-DDTW technique in EEG signals," *Biomedical Signal Processing and Control*, Volume 68, 2021, 102653. <https://doi.org/10.1016/j.bspc.2021.102653> Science Direct [**SCIE IF: 5.1**].
10. Sanjeev Kumar, Preeti Singh, "Spectral Efficient Asymmetrically Clipped Hybrid FBMC for Visible Light Communication", *International Journal of Optics*, vol. 2021, Article ID 8897928, 8 pages, 2021. <https://doi.org/10.1155/2021/8897928> [**SCIE IF: 1.7**].
11. Kumar, S., Singh, P. Filter Bank Multicarrier Modulation Schemes for Visible Light Communication. *Wireless Pers Commun* 113, 2709–2722 (2020). <https://doi.org/10.1007/s11277-020-07347-6> [**SCIE IF: 1.671**].
12. Bisht, A., Singh, P. Identification of Single and Multiple Ocular Peaks in EEG Signal Using Adaptive Thresholding Technique. *Wireless Pers Commun* 113, 799–819 (2020). <https://doi.org/10.1007/s11277-020-07253-x> [**SCIE IF: 1.671**].
13. Kaur, P., Singh, P. & Sohi, B.S. Adaptive MAC Protocol for Solar Energy Harvesting Based Wireless Sensor Networks in Agriculture. *Wireless Pers Commun* 111, 2263–2285 (2020). <https://doi.org/10.1007/s11277-019-06985-9> [**SCIE IF: 2.701**].

14. Kaur, Pardeep; Singh, Preeti; B.S.Sohi, "Traffic Models for Energy Harvesting Based Wireless Sensor Networks", in *Recent Advances in Electrical & Electronic Engineering* (Formerly Recent Patents on Electrical & Electronic Engineering), Volume 13, Number 2, 2020, pp. 219-226(8). <https://doi.org/10.2174/1872212113666190306145721> [SCOPUS].
15. Sukesha Sharma, Preeti Singh, Oshin Garg & Pooja Tuteja (2021) Indoor light energy harvesting using infrared LED, *International Journal of Environmental Analytical Chemistry*, 101:15, 2717-2727, DOI: 10.1080/03067319.2020.1711890 [SCIE IF: 2.731].
16. Kochhar, A., Kaur, P., Singh, P. et al. MLMAC-HEAP: A Multi-Layer MAC Protocol for Wireless Sensor Networks Powered by Ambient Energy Harvesting. *Wireless Pers Commun* 110, 893–911 (2020). <https://doi.org/10.1007/s11277-019-06762-8> [SCIE IF: 2.701].
17. Kaur C, Singh P, and Sahni S, "Towards Efficacy of EEG Neurofeedback from Traditional to Advanced Approach: A Review", *Biomed Pharmacol J*, June, 2019;12(2) [SCOPUS]
18. Kaur C, Singh P, Sahni S, Punia C. "Advanced Spatially Specific Neurofeedback for Symptoms of Depression and Its Electroencephalographic Correlates" *Altern Ther Health Med*. 2019 May;25(3):54-63. PMID: 31160546. [SCIE IF: 1.5]
19. Kaur C, Singh P, Sahni S. "Electroencephalography-Based Source Localization for Depression Using Standardized Low Resolution Brain Electromagnetic Tomography - Variational Mode Decomposition Technique", *Eur Neurol*. 2019; 81(1-2):63-75. doi: 10.1159/000500414. epub 2019 May 21. PMID: 31112946 [SCIE IF: 2.4].
20. Sanjeev Kumar, Preeti Singh, "A Comprehensive Survey of Visible Light Communication: Potential and Challenges" *Wirel. Pers. Commun*, vol., May 20, 2019 [SCIE IF: 2.701]
21. Ajmani, M., Singh, P. & Kaur, P. Hybrid Dispersion Compensating Modules: A Better Solution for Mitigating Four-Wave Mixing Effects. *Wireless Pers Commun* 107, 959–971 (2019). <https://doi.org/10.1007/s11277-019-06311-3> [SCIE IF: 2.701]
22. Ghalot, R., Madhu, C., Kaur, G. , Singh, P. Link Estimation of Different Indian Cities Under Fog Weather Conditions. *Wireless Pers Commun* 105, 1215–1234 (2019). <https://doi.org/10.1007/s11277-019-06142-2> [SCIE IF: 2.701]
23. Ritu Gupta, Tara Kamal Singh, Preeti Singh, "Performance of OFDM: FSO Communication System with Hybrid Channel Codes during Weak Turbulence, *Journal of Computer Networks and Communications*", vol. 2019, Article ID [SCIE].
24. Kaur, P., Sohi, B.S., Singh, P. Recent Advances in MAC Protocols for the Energy Harvesting Based WSN: A Comprehensive Review. *Wireless Pers Commun* 104, 423–440 (2019). <https://doi.org/10.1007/s11277-018-6028-3> [SCIE IF: 2.701]
25. Ritu Gupta, Tara Singh Kamal, Preeti Singh, "Performance of OFDM: FSO Communication System with Hybrid Channel Codes during Weak Turbulence", *Journal of Computer Networks and Communications*, vol. 2019, Article ID 1306491, 6 pages, 2019. <https://doi.org/10.1155/2019/1306491> [SCOPUS]
26. Gupta, R., Kamal, T.S., Singh, P. Concatenated LDPC-TCM Codes for Better Performance of OFDM-FSO System Using Gamma–Gamma Fading Model. *Wireless Pers Commun* 106, 2247–2260 (2019). <https://doi.org/10.1007/s11277-018-5939-3>. [SCIE IF: 2.701]
27. A. Kochhar, P. Kaur, P. Singh, and S. Sharma, "Protocols for wireless sensor networks: A survey," *J. Telecommun. Inf. Technol.*, vol. 2018, no. 1, April 2, 2018. <https://doi.org/10.26636/jtit.2018.117417> [SCOPUS]
28. M. Grover, P. Singh, and P. Kaur, "Multibeam WDM-FSO System : An Optimum Solution for Clear and Hazy Weather Conditions," *Wirel. Pers. Commun.*, 2017 [SCIE IF: 2.701]
29. N. Dayal, P. Singh, and P. Kaur, "Long Range Cost-Effective WDM-FSO System Using hybrid optical amplifier," *Wirel. Pers. Commun.*, 2017 [SCIE IF: 2.701]
30. M. Grover, P. Singh, and P. Kaur, "Mitigation of Scintillation Effects in WDM FSO System using Multibeam Technique," *J. Telecommun. Inf. Technol.*, vol. 2017/2, pp. 69–74, 2017.[SCOPUS]

31. N. Dayal, P. Singh, and P. Kaur, "Relay-Assisted WDM-FSO system: A better solution for communication under rain and haze weather conditions," *J. Telecommun. Inf. Technol.*, vol. 2017/4, pp.54-59, 2017 [SCOPUS].
32. Chamandeep Kaur, Preeti Singh, " EEG Derived Neuronal Dynamics during Meditation: Progress and Challenges, Advances in Preventive Medicine, Hindawi, 2015 <http://dx.doi.org/10.1155/2015/614723> [PUBMED].
33. Swati Vaid, Preeti Singh, Chamandeep Kaur, " Classification of Human Emotions using Multiwavelet Transform based Features and Random Forest Technique, *Indian Journal of Science and Technology*, Vol 8(28), 70577, October 2015 DOI: 10.17485/ijst/2015/v8i28/70797, ISSN (Print) : 0974-6846,ISSN (Online) : 0974-5645 [SCOPUS]
34. Manisha Ajmani, Preeti Singh, " Comparative Analysis of DCF and OPC as Means to Minimize FWM in WDM System" *Indian Journal of Science and Technology*, Vol 8(27), 70577, October 2015, ISSN (Print) : 0974-6846,ISSN (Online) : 0974-5645 [SCOPUS]
35. Aditi Malik, Preeti Singh, " Free Space Optics: Current Applications and Future Challenges", *International Journal of Optics*, Hindawi, vol.2015, pp.1-7, 2015 [SCOPUS]
36. Preeti, Abhishek Shrivastava, " Optical Biosensor Based on Microbendings Technique: An Optimized Mean to Measure the Bone Strength, *Advances in Optical Technologies*, Hindawi, vol.2014, pp.1-7, 2014 [SCOPUS].
37. Aditi Malik, Preeti Singh, " Comparative Analysis of Point to Point FSO System Under Clear and Haze Weather Conditions", *Wireless Personal Communications*, Springer, Vol.78, No.3, 2014. pp 483–492 [SCIE IF: 2.701].

EXTENSION ACTIVITIES AND RESEARCH INTERACTION

- Chaired sessions in various International and national conferences like IEEE RAECS-2014(Chandigarh), IEEE RAECS-2015(Chandigarh), Springer ICCID-2016 (Dehradun), ICICCD-2017(Dehradun), ICIIE 2020 (Chandigarh), IC-MAME 2021(Chandigarh), IWBBIO-2022 (Gran Canaria, Spain) etc.
- Invited talks at various institutes/Faculty Development programmes organized by NITTTR Chandigarh, DCRUST, Murthal (Sonapat), BEL Panchkula etc.
- Attended training programmes at institutes like CSIR-NAL, Bangalore, NITTTR Chandigarh, PEC Chandigarh, Panjab University Chandigarh, NIT Uttarakhand etc.
- Lead Editor in the special issue "The Future of Opto-Electronics: Device Architecture, Novel Materials, and Applications" in the Journal : International Journal of Optics
- Guest Editor in the special issue" Smart and Wearable Antenna Systems: Design Technologies, Optimization and Applications in the Journal: International Journal of Antennas and Propagation
- Organized as Coordinator/Co-Coordinator/Team member major programmes/events like:
 - Seminar/training on System Design using Optiwave and workshop on "Virtual Lab" conducted by Virtual Lab team, IIT Roorkee respectively
 - Workshop on Recent Trends in Signal processing and Cognitive Skills, design and critical thinking on....and 20.11.2018 respectively.
 - Webinar on Problem Solving and NEP with focus on Innovation and Entrepreneurship on 19.01.2021 and 22.01.2021 respectively
 - Amateur Radio Communication: Role in Disaster Management& Procedure for HAM and Gender Equality and Women's Rights on Feb. 17, 2022 and 20.07.2021 respectively.
 - Degree Award Ceremony and Orientation program-2015 for first year students, UIET
 - M2M Workshop-2018 in Collaboration with CDoT and Chandigarh Science Congress-2021at PU Chandigarh
 - Campus Smart India Hackathon(Institutes Innovation Council)-2022, 2023,2024

MEMBERSHIP AND OTHERS

- Member of various departmental committees like Academic/ Administrative/ Technical Committee/ ME(ECE) Admission Committee/Time table Committee(ECE)/Summer Training/Cultural /Academic and Literary Committee, RDC in ECE, RMC in ECE etc.
- Member of Organizing/Scientific Committee of International IEEE Conferences ICAMSE-2019(Chandigarh), ICAMSE-2020(Chandigarh)
- Life Member, Indian Microelectronics Society
- Presiding Officer during General Election to Lok Sabha 2019
- President, Institutes Innovation Council(UIET)- 2022,2023
- SPOC,UIET, PU- Smart India Hackathon-2022,2023,2024
- Member, Institutes Innovation Council(PU)-2024

[PREETI]