

HARJEET SINGH

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Objective

Seeking an opportunity to contribute my extensive experience and expertise in academic leadership to a dynamic university environment. I have been leading graduate and postgraduate engineering institutes for more than 22 years. I have held positions as Head of Department and Dean of Academic Affairs, and I am skilled at promoting academic achievement and all-around student development. My papers in reputable international journals attest to my dedication to continuous improvement and research. I'm prepared to use my administrative skills and enthusiasm for teaching to further the goals and objectives of a progressive university.

Experience (Total Experience – More than 22 Years)

- 1. Assistant Professor** **10/04/2026 – Present**
Department of Electronics and Communication Engineering
IKGPTU Jalandhar (Main Campus)
- 2. Associate Professor cum HOD** **20/08/2024- 08/04/2026**
Department of CSE, Baba Farid College of Engineering and Technology Bathinda – Punjab .
- 3. Associate Professor** **05/04/2024 – 14/08/2025**
Department of Electronics and Communication Engineering
Lovely Professional University, Phagwara, Punjab
- 4. Assistant Professor -ECE** **20/11/2009 – 31/10/2023**
Baba Hira Singh Bhattal Institute Of Engineering & Technology(A Govt. Establishment),
Distt. Sangrur, Punjab -India
- 5. Assistant Professor** **01/07/2009 - 19/11/2009**
North West Institute of Engineering & Technology
Distt. Moga, Punjab - India
- 6. Senior Lecturer** **21/06/2008 - 31/06/2009**
North West Institute of Engineering & Technology
Distt. Moga, Punjab - India
- 7. Lecturer** **31/08/2006 - 20/06/2008**
Adesh Institute of Engineering & Technology
Distt, Faridkot, Punjab-India
- 8. Lecturer** **29/12/2004 - 30/08/2006**
Malwa Polytechnic College, Faridkot, Punjab -I
- 9. Lecturer** **23/7/2003 - 28/12/2004**
Adesh Polytechnic, Muktsar, Punjab

Education Qualification

- Ph.D. – Electronics and Communication Engineering.** August 2019
I.K. Gujral Punjab Technical University, Jalandhar.
- M.Tech – Electronics and Communication Engineering- First Division** December 2007
Guru Teg Bahadur Khalsa Institute of Engineering & Technology
Affiliated with Punjab Technical University, Jalandhar
- B.Tech – Electronics and Instrumentation Engineering.-First Division** May 2002
Adesh Institute of Engineering and Technology, Faridkot

Research Experience

Ph.D. Thesis Topic: - “Efficient channel estimation for OFDM in wireless communication system”.

This thesis presents an efficient MIMO-OFDM system with adaptive modulation and pilot pattern based sparse channel estimation, demonstrating superior spectral efficiency compared to LS, MMSE, and DFT-based approaches. Utilizing compressed sensing, the proposed technique effectively reduces mutual coherence in measured matrices, optimizing pilot patterns through an improved shuffled frog leaping algorithm (ISFLA). Implementation results reveal improved performance in terms of MSE and BER. Additionally, the study addresses challenges and issues in OFDM systems for wireless communication, analyzing LS and MMSE techniques and proposing an ISFLA-based pilot allocation for frequency-selective fading systems. Future work aims to develop more robust techniques for channel estimation, particularly focusing on scalability with larger numbers of subcarriers.

Patents Published/ Granted/ Copy Right

1. **Name:** Solar Panel Tracking System for Optimized Energy Harvesting Efficiency.
Application No.: 202441083965,
Status : Published .
2. **Name :** Lightweight portable smart irrigation device with visual interface for complex data Analysis.
Application No: 458955-001 ,
Status : Design Patent Granted
3. **Name:** Software for QR-Enabled Document Printing and Smart Tracking.
Application No :- SW-34215/2025-CO
Status : Copyright

Research Publications

Publications: International Journals

1. Harjeet Singh, "Enhanced pilot allocation in MIMO-OFDM systems using the enhanced shuffled frog leaping algorithm," *Discover Electronics (Springer)*, vol. 2, art. no. 9, Feb. 2025.
2. Harjeet Singh (2025), "Improving smart home energy management using genetic algorithms," *International Journal of Research Culture Society*, vol. 9, no. 2, pp. 71-79, Feb. 2025 (UGC approved Journal)
3. Harjeet Singh et al. (2020). "Cryptographic Algorithms for Secure Internet of Things." *International Journal of Control and Automation*, 13(14), pp. 1010-1018. (Scopus journal).
4. Harjeet Singh, & Savina Bansal (2017). "Channel Estimation with ISFLA Based Pilot Pattern Optimization for MIMO OFDM System." *AEU - International Journal of Electronics and Communications*, 81, pp. 143-149. [DOI: 10.1016/j.aeue.2017.07.024] (ISSN: 1434-8411), *SCI Impact Factor 2.115*.

5. Harjeet Singh, & Savina Bansal (2017). "Channel Estimation using Gray Coded Pilot." *Journal of Information and Optimization Sciences (ESCI)*, 38(7), pp. 827-839. [DOI: 10.1080/02522667.2017.1372132].
6. Harjeet Singh, & Savina Bansal (2017). "Feedback Based Channel Estimation for Time Varying Multipath System." *WSEAS Transactions on Communications (ISSN:1109-2742)*, 16(29), pp. 272-280. (Scopus rating (2016): SJR 0.119).
7. Harjeet Singh, & Savina Bansal (2016). "Comparison of Channel Estimators for OFDM Channel Estimation." *International Journal of Computer Applications (0975 – 8887)*, pp. 41-44.
8. Harjeet Singh, & Savina Bansal (2017). "Improvement in Time Varying Multipath Channel Estimation." *Indian Journal of Science and Technology*, 10(31), [DOI: 10.17485/IJST/2017/v10i31/113875].
9. Harjeet Singh (2013). "Improvement of Bit Rate Transmission using Higher Order Soliton Pulse." *International Journal of Advanced Research in Computer and Communication Engineering*, 2(12), pp. 4721-4725.
10. Harjeet Singh et al. "Performance Enhancement of Channel Estimation Technique in Broadcast and Multicast Mode." *International Journal on Recent and Innovation Trends in Computing and Communication (ISSN: 2321-8169)*, 5(6), pp. 422-425.
11. Harjeet Singh et al. "Enhancement of Routing Discovery and Data Sending Efficiency using Hybrid Based Approach." *International Journal of Engineering and Management Research*, 7(3), May-June 2017, pp. 436-440. UGC approved Journal (Serial).
12. Harjeet Singh et al. (2016). "Design Review on High-Swing, High Performance CMOS Operational Amplifier." *International Journal of Computer Applications (0975 – 8887) & International Conference on Advances in Emerging Technology (ICAET 2016)*, pp. 1-3.
13. Harjeet Singh et al. "Analysis of MOS Capacitor Loaded Circular Microstrip Antenna." *IJRIME Volume1 Issue3 ISSN-2249-1619*, pp. 92-99.
14. Harjeet Singh. (2019). "A Review on Channel Estimation." *International Journal of Research and Analytical Reviews, UGC approved Journal (43602)*, 6(1), pp. 202-204.
15. Harjeet Singh et al. (2021). "Application of Renewable Energy Resources for Sustainable Dairy Development." *International Journal of Research in Engineering and Science*, 9(10), pp. 83-86.
16. Harjeet Singh et al. (2021). "Solar Photovoltaic System in Depth Study in the Dairy Farm." *Science, Technology and Development (UGC approved Journal)*, 10(10), pp. 61-68.

Publications: International Conferences

17. Harjeet Singh and Lakhveer Kaur (2025), "Role of Machine Learning in Medical Operations and Cancer Treatment: Trends and Challenges", 4th International Conference Innovation in Computing by Chandigarh Engineering College, Landran (Mohali)-Punjab
18. Harjeet Singh & Savina Bansal (2017). "Channel Estimation using Gray Coded Pilot." Presented at the first international conference on Smart Technologies in Computer and Communication (Smart-Tech-2017) Organized by Amity University Rajasthan in association with Computer Society of India on 27-29 March-2017.
19. Harjeet Singh & Savina Bansal (2017). "Improvement in Time Varying Multipath Channel Estimation." Presented at the 5th International Conference on Advancements in Engineering and Technology (ICAET-2017), March 2017, India, pp. 124-126. (Awarded as best paper).
20. Harjeet Singh et al. (2017). "Students Attendance Management System using RFID and GSM Module." Presented at the 5th International Conference on Advancements in Engineering and Technology (ICAET-2017), March 2017, India, pp. 138-139.

21. Harjeet Singh & Savina Bansal (2017). "Comparison of Channel Estimators for OFDM Channel Estimation." Presented at the 4th International Conference on Advancements in Engineering and Technology (ICAET-2017), March 2016.
22. Harjeet Singh & Savina Bansal (2014). "Error Probability with Pilot Symbols for Frequency Selective OFDM Wireless System." Presented at the 8th International Conference on Advanced Computing and Communication Technologies (ICACCT™-2014).
23. Harjeet Singh et al. (2008). "Speech Communication Using DSP in VoIP." Presented at the 5th International Conference on Intelligent Systems & Networks (ISN-2008) organized by Computational Intelligence Lab (CI-LAB), Institute of Science and Technology, Klawad, Yamuna Nagar, Haryana (INDIA).
24. Harjeet Singh et al. (2008). "Hybrid Filter Optimization in Speech Compression." Presented at WECON-2008 at Chitkara Institute of Engineering & Technology, Rajpura, Punjab, pp. 373-376.
25. Harjeet Singh (2019). "Mobility Impairments on Traditional Channel Estimation Scheme." Presented at the 7th International Conference on Advancements in Engineering & Technology (ICAET-2019), March 15 & 16, 2019.

Publications - National Conferences

26. Harjeet Singh and Savina Bansal "Performance Evaluation of Channel Estimators for Time Delay Spreading OFDM System." Presented at the National Conference on Advance Communication Technologies (NCACT-2015), UEC, Ujjain, India, pp. 35-38.
27. Harjeet Singh. "VoIP: A Healthy Technology in Heterogeneous Network." Presented at the National Conference on Communication & Networking, March 2008, Sant Longowal Institute of Engineering & Technology Longowal (Sangrur).
28. Harjeet Singh. "Role of DSP in VoIP." Presented at the IEEE sponsored National Conference on Application of Intelligent System (AIS-2008), Hindu College of Engineering, Sonapat.
29. Harjeet Singh. "Improvement of Bit Rate Transmission from 10Gb/sec to 40Gb/sec using Higher Order Soliton Pulse in Optical Fiber Communication System." Presented at the National Conference MAIMT Jagadhi-2007, Yamuna Nagar Haryana, sponsored by AICTE.
30. Harjeet Singh. "Voice Communication over Data Network." Presented at the National Conference at Shaheed Udham Singh College of Engineering and Technology (SUSCET), Tangori, on Recent Trends in Electronics and Communication, April 2008, pp. 413-417.
31. Harjeet Singh. "Analysis of Speech Compression using Window Function." Presented at the National Conference on Recent Advancement in Communication & Electronics, January 27-28, 2012.

Book Chapter Publication

1. Harjeet Singh et. Al., "Role of Machine Learning in Medical Operations and Cancer Treatment: Trends and Challenges", Innovation in Computing, CRC Press -2025
DOI:10.1201/9781003652755
2. Harjeet Singh, & Savina Bansal (2018). "Pilot Subcarrier Based Channel Estimation in OFDM System." Advanced Computational and Communication Paradigms. Lecture Notes in Electrical Engineering, Springer, Singapore, 475, pp. 84-91. [eBook ISBN: 978-981-10-8240-5 & Series ISSN: 1876-1100], Springer. Indexing in Scopus

Conference / Workshop organised

1. **Organized a 2-Day Workshop** titled “*Revolutionizing Healthcare: The Impact of Artificial Intelligence on Diagnosis*”, held on **10th and 11th January 2025** at **Baba Farid College of Engineering & Technology**, in collaboration with **AIIMS, Bathinda** and **Central University of Punjab, Bathinda**, under the **AICTE-Vibrant Advocacy for Advancement and Nurturing of Indian Languages (VANI)** initiative. **Grant Sanctioned: ₹2,00,000**
2. **Workshop Title:** “*AI and Deep Learning for Early Cancer Detection through Medical Imaging*”
Theme: *HealthCare & MedTech in Punjabi*
Role: Coordinator
Duration: 2-Day Workshop (10th–11th September 2025)
Institution: Baba Farid College of Engineering & Technology, Bathinda
Sponsored by: AICTE under the VAANI Scheme 2025-26
Grant Sanctioned: ₹2,00,000
3. Organized a One-Week International Workshop on “*The Impact of Generative AI in STEM: Redefining Research and Professional Practice*”, held from 16th to 22nd July 2025, under the Interdisciplinary Symposia Series 2025. This collaborative academic initiative was jointly conducted by the Central University of Punjab, Bathinda, Malaviya National Institute of Technology, Jaipur, Baba Farid College of Engineering and Technology, Bathinda, and the MathTech Thinking Foundation, Fazilka, India.

Short Term Courses Attended

1. Research Methodology & Data Analysis Using SPSS 18.0
Place: BGIET, Lehragaga
Duration: 1 Week (21-25 May, 2012)
Sponsoring Agency: AICTE Sponsored
2. Sustainable Development in Present Indian Scenario
Place: BHSBIET, Lehragaga
Duration: 2 Weeks (09-20 September, 2013)
Sponsoring Agency: NITTTR Chandigarh (AICTE Recognized)
3. Environment Engineering and Management through ICT
Place: BHSBIET, Lehragaga
Duration: 1 Week (03-07 March, 2014)
Sponsoring Agency: NITTTR Chandigarh (AICTE Recognized)
4. Alternating Energy Sources- Challenges and Opportunities
Place: BHSBIET, Lehragaga
Duration: 1 Week (02-06 June, 2014)
Sponsoring Agency: NITTTR Chandigarh (AICTE Recognized)
5. National Skills Qualification Framework, Community College & Skill Development Scheme of GOI through ICT
Place: BHSBIET, Lehragaga
Duration: 1 Week (21-25 July, 2014)
Sponsoring Agency: NITTTR Chandigarh (AICTE Recognized)
6. OFC Networks and Troubleshooting
Place: Applied Sciences Deptt. NITTTR, Chandigarh
Duration: 1 Week (11- 15 Jan, 2016)
Sponsoring Agency: NITTTR Chandigarh
7. Power Supply, UPS, Inverter and SMPS

- Place: Electronic Service Centre NITTTR, Chandigarh
 Duration: 1 Week (19-25 July 2017)
 Sponsoring Agency: NITTTR Chandigarh
8. Moodle Learning Management System
 Place: Department of IT, Guru Nanak Dev Engineering College, Ludhiana
 Duration: 1 Week (27 April - 1 May 2020)
 Sponsoring Agency: GNDEC, Ludhiana in collaboration with Spoken Tutorial, IIT Bombay
9. Modeling and Simulation using MATLAB
 Place: Mechanical Engineering Department, NITTTR, Chandigarh
 Duration: 1 Week (18 – 22 May 2020)
 Sponsoring Agency: NITTTR, Chandigarh
10. Certificate Course on Research Methodology
 Place: A.R Burla Mahila Varishtha Mahavudyalaya, Solapur
 Duration: 15 Days (16/05/2020 to 31/05/2020)
 Sponsoring Agency: A.R Burla Mahila Varishtha Mahavudyalaya, Solapur
11. Advances in Antenna Design Techniques and Simulations using CST Studio Suite
 Place: Department of ECE, NITTTR, Chandigarh
 Duration: 1 Week (22 – 26 June 2020)
 Sponsoring Agency: NITTTR, Chandigarh
12. Emerging Trends in Engineering & Technology
 Place: GZSCET, Deptt. of ECE, MRSPTU, Bathinda
 Duration: 1 Week (06 – 10 June 2020)
13. Control System & Sensors Technology
 Place: J.C Bose University of Science & Technology, YMCA Faridabad
 Duration: 1 Week (16 – 21 Sept. 2020)
 Sponsoring Agency: AICTE Training and Learning (ATAL) Academy

Seminars/Webinars Attended

1. Manav Jeevan kae Mulayakan ka Adhar(The Basics of Human Value).
 Organized by: Babu Banarasi Dass National Institute of Technology and Management
 Date: 9 May 2020
2. How to create and conduct ICT based classroom quizzes?
 Organized by: BSVS Education Learning Centre, Nagpur
 Date: 13 May 2020
3. International Webinar on Hunger Cycle.
 Organized by: Dr. M.G.R Education and Research Institute (Deemed to be University)
 Date: 14 May 2020
4. Online Learning and its Positive & Negative impact on Future Generation Education.
 Organized by: International School of Management Patna
 Date: 14 May 2020
5. Webinar on Research Gateway.
 Organized by: Annai University of Arts & Science, Tiruchirappalli
 Date: 15 May 2020
6. Post Pandemic Financial Stress in Indian Business Sector.
 Organized by: Institute of Management Sciences, University of Lucknow
 Date: 15 – 16 May 2020

Guest Lecture/ Webinar Delivered

1. Webinar on MATLAB programing for beginners at School of Engineering and Technology CT University, Ludhiana India.

Guided Work

Post Graduate Thesis (M.Tech-ECE) = 02

Graduate Major Project Work = 100+

Administrative Responsibilities

1. Dean Academics affairs (More than 13 years, BHSBIET, Lehragaga)
2. Head of Electronics and Communication Engineering Department (More than 8 years)
3. Hostel Warden Boys (More than 10 years, BHSBIET, Lehragaga).
4. Reviewer of research papers (Telecommunication Systems- Springer)
5. Incharge of Institutes AICTE & University affiliation process. (www.aicte-india.org)
6. Successfully handled the development of all electronics engineering labs, infrastructure, independently handling AICTE work, University work, and inspections.
7. Superintendent examinations/ Observer examination (MRSPTU Bathinda / PSBTE&IT) /Member of Technical Board institutes affiliation committee.

Professional Membership

1. The Indian Society for Technical Education
2. The Institution of Engineering's
3. IAENG international Association of Engineers
4. Greenfield Advanced Research Publishing House (GARPH) (**Member No. 120143**)

Personal Information

1. Father's Name: S. Darshan Singh.
2. Date of Birth : 27/08/1978
3. Nationality : India
4. Religion : Sikh
5. Gender : Male
6. Marital Status : Married
7. Languages known: Hindi, English, and Punjabi.

Declaration: I declare that the above information is correct and nothing has been concealed/ distorted.



Dr. Harjeet Singh