Profile Page

Name	:	Dr Neetu Sood
Designation	:	Associate Professor
Department	:	Electronics and Comm. Engg.
Qualification	:	PhD Electronics and Communication Engineering (Dr B R Ambedkar National Institute of Technology, Jalandhar) M.E. Electronics and Communication Engineering (Thapar Institute of Engineering and Technology, Patiala) B.E. Electronics and Communication Engineering (Sant Longowal Institute of Engineering and Technology)
Address	:	Department of Electronics and Communication Enggineering Dr B R Ambedkar National Institute of Technology Jalandhar, Punjab - 144011
Email	:	soodn@nitj.ac.in
Phone	:	0181-2690301 Extn. 2609

Research Interests :

Signal Processing, Plant Signaling, Wireless Sensors Networks, Wireless Communication Systems

Other Profile Links :

Google Scholar Link :

Neetu Sood Click Here

Journal Publications :

Year	Journal	Publication
June 2019	Biocybernetics and Biomedical Engineering Journal, Elsevier, Volume 39, Issue 2, April–June 2019, Pages 282-300	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood, " A novel fused coupled chaotic map based confidential data embedding-then-encryption of electrocardiogram signal"
2022	The Visual Computer, Springer	Mayank Kumar Singh,Indu Saini, Neetu Sood, "Log exponential shrinkage: a denoising technique for breast ultrasound images"
2022	Biosystems Engineering, Elsevier	Kavya Sai Yaddanapudi, Neetu Sood, and Indu Saini, " Abiotic stress classification through spectral analysis of enhanced electrophysiological signals of plants"
2022	Plant Physiology and Biochemistry, Elsevier	Kavya Sai Yaddanapudi, Neetu Sood, and Indu Saini, "Classification of various nutrient deficiencies in tomato plants through electrophysiological signal decomposition and sample space reduction"

2022	OPTIK, International Journal of Light and Electron Optik, Sciencedirect	Ruchika Arora, Indu Saini, Neetu Sood,"Multi-label segmentation and detection of COVID-19 abnormalities from chest radiographs using deep learning"
2021	International Journal of Systems, Control and Communications, InderScience,Vol.12 No.1, pp.72 - 89	Rajat Chauhan; Neetu Sood; Indu Saini, "PAPR reduction of MIMO-OFDM using galaxy inspired swarm-based PTS strategy"
2021	Recent Advances in Computer Science and Communications, Bentham Science, Volume 14 , Issue 4	Sandeep Verma, Neetu Sood, Ajay K Sharma, “Cost-effective cluster-based energy efficient routing for green wireless sensor network"
2021	Recent Advances in Computer Science and Communications, Bentham Science, Volume 14 , Issue 4	Amandeep Sohal, Ajay K Sharma, Neetu Sood, "An Energy Efficient Routing Approach to Enhance Coverage for Application- Specific Wireless Sensor Networks Using Genetic Algorithm"
2021	OPTIK, International Journal of Light and Electron Optik, Sciencedirect, Vol. 246,	Ruchika Arora, Indu Saini, Neetu Sood, "Analysis of chest x-ray images using deep learning approaches"
2020	International Journal of Computer Applications in Technology, Inderscience, Vol.63, No.1/2, pp.64 - 82	Mayank Kumar Singh,Indu Saini, Neetu Sood, "A multi-functional BCI system for exigency assistance and environment control based on ML and IoT"
2020	Measurement: Journal of the International Measurement Confederation, ScienceDirect, Vol. 152,	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood ,"Quality controlled ECG data compression based on 2D discrete cosine coefficient filtering and iterative JPEG2000 encoding"
2019	Applied Soft Computing, Elsevier	Sandeep Verma, Neetu Sood, Ajay K Sharma, "Genetic Algorithm-based Optimized Cluster Head selection for single and multiple data sinks in Heterogeneous Wireless Sensor Network"
2019	Peer to Peer Networking and Applications,Springer, July 2019, pp. 1-27	Sandeep Verma, Neetu Sood, Ajay K sharma, " A novelistic approach for energy efficient routing using single and multiple data sinks in heterogeneous wireless sensor network"
2019	Modern Physics Letter A, World Scientific, Modern Physics Letters A, 2019, Vol. 34, No. 29	Sandeep Verma, Neetu Sood, Ajay K Sharma, “QoS provisioning-based routing protocols using multiple data sink in IoT-based WSN” Modern Physics Letter A, World Scientific, https://doi.org/10.1142/S0217732319502353
2019	Multimedia Tools and Applications, Springer, May 2019, Volume 78, Issue 9, pp 11223–11261	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood, "Complexity sorting and coupled chaotic map based on 2D ECG data compression-then-encryption and its OFDM transmission with impair sample correction"
2018	Special Issue: Smart Cities and Smart Sensory Platforms, IET Wireless Sensor Systems, Vol. 8 Issue 6,December 2018, p. 284 – 294	Sandeep Verma, Neetu Sood, Ajay K Sharma, " Design of a novel routing architecture for harsh environment monitoring in heterogeneous WSN"
2017	Wireless Personal Communication, Springer, 1-22	Amandeep Sohal, Ajay K Sharma, Neetu Sood, “Enhancing Coverage Using Weight Based Clustering in Wireless Sensor Networks"
2017	Journal of Medical Systems, Springer, 41:187	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood , “An integrated approach using chaotic map & sample value difference method for electrocardiogram steganography and OFDM based secured patient information transmission”

2017	International Journal of system,Control and Communications, Inderscience, Vol.8, no. 1, pp.89 - 99	Pushpinder Singh,Saloni Pal, Neetu Sood, " PAPR reduction in wavelet packet-based OFDM using PSO-based PTS technique "
2017	Communications in Plant Sciences, Laboratory of Weed Science Sao Paulo State University. vol 7, issue 12, p.34-43	Kavya Sai Yaddanapudi, Neetu Sood, and Indu Saini , "A TESTIMONY OF INTER-PLANT COMMUNICATION THROUGH ELECTROPHYSIOLOGICAL SIGNAL ANALYSIS"
2016	Computers & Electrical Engineering Elsevier, Vol. 56, pp 30-45	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood," A 2D electrocardiogram data compression method using a sample entropy-based complexity sorting approach"
2016	Australasian Physical & Engineering Sciences in Medicine, Springer, Vol. 39, pp 833-855	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood, "A joint application of optimal threshold based discrete cosine transform and ASCII encoding for ECG data compression with its inherent encryption"
2015	International journal of Computer Networks & Communications (IJCNC),vol. 7, no. 5, pp. 39-55, September 2015.	Naveen Kumar, Neetu Sood, " Application of compressed sampling for spectrum sensing and channel estimation in cognitive radio "
2013	International Journal of Communication Networks and Distributed Systems (IJCNDS),Inderscience, Vol. 10, No. 1, pp 52-65	Neetu Sood,Ajay K Sharma, Moin Uddin, " On performance evaluation of OFDM-BPSK and -QPSK over Nakagami-m fading channel with EGC technique"
		Anukul Pandey, B S Saini, Butta Singh, Neetu Sood ,'

Conference Publications :

Year	Conference	Publication
October 2020	5th International Conference on Computing, Communication and Security (ICCCS)	Shalini Thapar, Neetu Sood, “Cluster-primarily based on multi-hop cooperative relaying based spectrum sensing in cognitive radio network
October 2020	5th International Conference on Computing, Communication and Security (ICCCS)	Yash Fulwani, Shalini Thapar, Neetu Sood, “Deep learning based secure MISO transmission"
May 2021	2nd International Conference on Secure Cyber Computing and Communications (ICSCCC 2021)	Ruchika Arora, Indu Saini, Neetu Sood, “Modified UNet++ Model: A Deep Model for Automatic Segmentation of Lungs from Chest X-ray Images”
May 2019	3rd International Conference on Intelligent computing and control system (ICICCS-2019)	Rajat chauhan, Neetu Sood & Indu Saini, “ Galatic Swarm Optimization- PTS Strategy to minimize PAPR in WP- OFDM system”
June 2019	3rd International conference on Electronics, communication and Aerospace Techonlogy (ICECA 2019)	Gouarv Joshi, Neetu Sood & Indu Saini, “ Comparative Analysis for optimizing on state current in a dual gate TFET”
July 2020	ICCCNT-2020, IIT Kharagpur	Nishu Malik, Sateesh Awasthi, Neetu Sood,” Centrality as a Friendship Selection Heuristic in Social Internet of Things
July 2020	ICCCNT-2020, IIT Kharagpur	Archana Kumari, Neetu Sood,” Optimum Waveguide and Pulse Shaping filter for GFDM System”
July 2020	1st IEEE International Conference on Computational Intelligence for Smart Power System and Sustainable Energy, CISPSSE 2020, Keonjhar, Odisha	Akshay Dogra, Indu Saini, Neetu Sood, “Impact of wireless cellular network on heart rate variability”

July 2019	4th International Conference on Communication and Electronics Systems (ICCES 2019), PPG Institute of Technology Coimbatore, India	Amandeep Kaur Sohal, Ajay K. Sharma and Neetu Sood, “A Hybrid Approach to Improve Full Coverage in Wireless Sensor Networks”
July 2018	2nd International Conference on Advanced Informatics for Computing Research (ICAICR-2018)	Anurag Kumar, Neetu Sood, Indu Saini , " Electrical Signal Analysis of Different Types of Oxygen Efficient Plants"
July 2018	2nd International Conference on Advanced Informatics for Computing Research (ICAICR-2018)	Prity Kumari, Deepti Kakkar and Neetu Sood, " Hybrid Min-Median-Max filter for Impulse Noise Removal from color Images"
December 2018	1st International Conference on Secure Cyber Computing and Communications (ICSCCC 2018)	Neha Gupta, Neetu Sood, Indu Saini, "Statistical Feature Based Comparison of EEG in Meditation for Various Wavelet"
August 2019	4th International Conference on Recent Advancements in Computer Communication and Computational Sciences, Aryabhatta College of Engineering & Research Center, Chachiyawas, Ajmer	Amandeep Kaur Sohal, Ajay K. Sharma and Neetu, “Energy Efficient Heterogeneous WCEP protocol for Enhancing Coverage Lifetime in WSNs
April, 2021.	Online International Conference on Women Researchers in Electronics and Computing (WREC’21)	Mayank Kumar Singh, Indu Saini, Neetu Sood, Jasleen Saini, “A Sub-band Anisotropic Diffusion Technique for de-speckling of Ultrasound Images of Breast Cancer”
April, 2021.	International Conference on Women Researchers in Electronics and Computing (WREC’21)	Kavya Sai, Neetu Sood, Indu Saini, “A Review on Plant Stress Detection and Analysis Through Electrophysiological Signals"
April, 2021.	International Conference on Women Researchers in Electronics and Computing (WREC’21)	Shrishti Gaur, Neetu Sood, “PHYSICAL LAYER SECURITY IN WIRELESS COMMUNICATION: AN OVERVIEW
April 2021	International Conference on Women Researchers in Electronics and Computing (WREC’21),	Ruchika Arora, Indu Saini, Neetu Sood, “Efficient Tuning of Hyper-parameters in Convolutional Neural Network for Classification of Tuberculosis Images”
April 2021	International Conference on Women Researchers in Electronics and Computing (WREC’21)	Kirti Singh, Indu Saini, Neetu Sood, “Cardiovascular and Cardiorespiratory Signals Complexity Analysis Using Different Techniques”
April 2021	International Conference on Women Researchers in Electronics and Computing (WREC’21)	Abhijieet Sahu, Mamta Khosla, Neetu Sood and Girish Wadhwa, “ Dual Cavity Triple Metal Gate-Underlap Dielectric- Modulated Charge Plasama Based TEFT for Biomolecules Recognition”
April 2019	3rd International Conference on Trends in Electronics and Informatics (ICOEI-2019)	Mayank Kumar Singh, Indu Saini & Neetu Sood, “Brain Computer Interface based smart environment control”
April 2019	3rd International Conference on Trends in Electronics and Informatics (ICOEI-2019)	Diksha, Indu Saini & Neetu Sood, “ Detection of Heart rate through speech using Mel Frequency Cepstrum Coefficients”
April 2021.	International Conference on Women Researchers in Electronics and Computing (WREC’21)	Faizan Nazir, Neetu Sood, “ A THEORETICAL FRAMEWORK FOR THE 6G WIRELESS COMMUNICATION STANDARD: Vision, Applications and Challenges”
2017	Nanotechnology for Instrumentation and Measurement, GBU, Uttar Pradesh	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood , "A Comparative Study on 1D & 2D ECG Data Compression Techniques"
2015	International Conference on Telecommunication Technology and Management (ICTTM)-2015	Arun Kumar, Neetu Sood, "Time Domain Sparse Channel Estimation for OFDM system using Adaptive Sparse Sensing Based Reweighted Zero Attracting Normalize Least Mean Forth algorithm"

2015	International Conference on Telecommunication Technology and Management (ICTTM)-2015	Deepak Palsania,Neetu Sood, "PAPR Reduction of SC-FDMA System Using NCT Technique"
2015	IEEE 2nd International Conference on Recent Trends in Information Systems, ReTIS 2015	Naveen Kumar, Neetu Sood, "Fast and efficient compressive sensing for wideband Cognitive Radio systems"
2015	International Conference on Signal Processing, Computing and Control, ISPCC 2015	Naveen Kumar, Neetu Sood, "A Fuzzy Neural Network based reasoning and learning approach for efficient spectrum management in cognitive radio"
2015	Proceedings of the 4th International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA) 2015	Naveen Kumar, Neetu Sood. "Application of Compressed Sensing in Cognitive Radio"
2014	2nd International Conference on Communication and Electronics Information (ICCEI 2014)	Abhijit Bhattacharyya, Neetu Sood, "Semianalytic BER Estimation of SC-QPSK under Nakagami-m Frequency Selective Fading Channel with Diversity Reception"
2012	International Conference on Power Science and Engineering (ICPSE 2012)	Sandeep Singh,Neetu Sood, "Analysis of Link Adaptation Algorithms Using Coding Scheme for OFDM Systems Under Frequency Selective Fading Environment"
2011	Annual IEEE India Conference: Engineering Sustainable Solutions, INDICON-2011	Nilashma Bharti, Arun Khosla, Neetu Sood, "Image reconstruction using cubic B-spline interpolation"
2011	International conference on Database and Data Mining	Shiv Kumar Singh, Neetu Sood and Ajay K Sharma , "Performance Evaluation of LDPC and Turbocoded OFDM System in Nakagami-m Fading"
2011	4th International Conference on Advanced Computer Theory and Engineering	Manish Mittal, Neetu Sood, Arun Khosla, "Carrier Frequency Offset Corrections in OFDM Systems by Blind Identification Algorithm"
2010	2nd IEEE International Advance Computing Conference, IACC-2010	Neetu Sood, Ajay K Sharma, Moin Udin, "BER Performance of OFDM-BPSK and -QPSK over Nakagami-m Fading Channels"
2009	IEEE International Advance Computing Conference, IACC 2009	Neetu Sood, Ajay K Sharma, Moin Udin, "BER performance of OFDM-BPSK and -QPSK over generalized Alpha-Mu fading distribution"

Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISSN No.	Year
Book Chapter	Next-generation technologically empowered telehealth systems	Elsevier	Amarah Zahra, Neetu Sood, S Roohan Farooq Lala and Shamshad Alam	978-0-323-98381-5	2022
Book Chapter	Bernoulli's Chaotic Map-Based 2D ECG Image Steganography: A Medical Data Security Approach	IGI-Global	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood	1522579524	2019
Book Chapter	Medical Data Security Tools and Techniques in E-Health Applications	IGI-Global	Anukul Pandey, B S Saini, Butta Singh, Neetu Sood	1522579524	2019

Book Chapter	Fog Removal Algorithms for Real-Time Video Footage in Smart Cities for Safe Driving	IGI- Global	Neetu Sood, Indu Saini, Tarranum Awasthi, Milin K Saini, Parul Bhoriwal, Tanveer Kaur	2330-3271	2019
Book Chapter	Nonlinear complexity sorting approach for 2d ECG data compression	IGI Global	Anukul Pandey, Butta SIngh, B S Saini, Neetu Sood	2327-7033	2016
Book Chapter	Analysis of electrocardiogram data compression techniques: A MATLAB-based approach	IGI-Global	Anukul Pandey, Butta SIngh, B S Saini, Neetu Sood	2327-7033	2016

Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
Principal Investigator	R & D	Design and Development of Anti-Eve Teasing Device for Women Safety	Ministry of Electronics and Information Technology	October 2018	April 2020	15 Lacs	Ongoing	Dr Indu Saini
Co- PI	R&D	Laser Based Smart Hardware Design for Power Saving	IEI R&D Cell	20-05-2019	20-02-2020	20,000	Completed	PI- Dr Indu Saini
Co- PI	R&D	To Develop Low Cost Sanitizer for Fruits, Vegetables and Packed Food items	TEQIP-III	04-05-2020	21-12-2020	1,15,000	Completed	PI- Dr Indu Saini
Co- PI	R&D	Modified Solar Power based vehicle for Physically challenged person	TEQIP-II NIT Jalandhar	2014	2015	19000	Completed	Dr Indu Saini

Events Organized :

Category	Type	Title	Venue	From	To	Designation
Self Financed Short Term Course	National	Electronics and Communication Systems Design Aspects	Department of ECE, NIT Jalandhar	25-05-2015	29-05-2015	Coordinator

One-week Industrial-Institute-Interaction training program sponsored by TEQIP-II	National	Emerging Trends of Research in Electronics and Communication	Department of Electronics and communication Engineering, NIT Jalandhar	01-12-2014	05-12-2014	Coordinator
BEATS 2012	International	2nd international Conference on Biomedical Engineering and Assistive Technologies	NIT Jalandhar	06-12-2012	07-12-2012	Member Organizing Commitee
STC (TEQIP-III)	National	Research Trends in Wireless Communication Systems	NIT, Jalandhar	25-05-2019	29-05-2019	Coordinator
Webinar	National	Design of Brain Controlled Applications	NIT Jalandhar	26-06-2020	26-06-2020	Corodinator
FDP (In association with Finland Labs)	National	Artificial Intelligence using deep learning & Machine learning	NIT, Jalandhar	09-12-2019	13-12-2019	Corodinator
Online STC (TEQIP-III)	National	Signal Processing, AI and Deep Learning	NIT Jalndhar	13-07-2020	17-07-2020	Corodinator
Online STC (TEQIP-III)	National	Gender Equality and Violence against Women during COVID-19 (GEVW-2020)	NIT Jalandhar	09-10-2020	13-10-2020	Corodinator
STC (Self-sponsored)	National	Advances in Communication and Signal Processing	Department of ECE, NIT Jalandhar	05-04-21	09-04-2021	Coordinator
Conference (TEQIP-III)	International	1st Online International Conference Women Researchers in Electronics and Computing	Department of ECE, NIT Jalandhar	22-04-2021	24-04-2021	Program General Chair

Professional Affiliations :

Designation	Organization
Member (Membership No. M-1595385-6)	Institution of Engineers, Kolkata, India
Life member (Membership No. L-770).	Punjab Academy of Sciences, Patiala, India

PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Pushpinder Singh	Wireless Communication	Ongoing	2020	Dr Indu Saini
Mukesh Kumar Kurdiya	Wireless Communication	Ongoing	2020	Dr Indu Saini

Mayank	Signal Processing	Ongoing	2019	Dr Indu Saini
Ruchika Arora	Machine Learning Approaches in Medical Image/Signal Analysis	Ongoing	2018	Dr Indu Saini
Kavya Sai Yaddanapudi	Plant Signalling	Ongoing	2018	Dr Indu Saini
Kirti Singh	Biomedical Signal Processing	Ongoing	2018	Dr Indu Sani
Sandeep Verma	Lifetime Optimization for a Hetrogeneous Wireless Sensor Network with multiple data sinks	Completed	2013	Dr Ajay Kumar Sharma (VC, IKG PTU)
Anukul Pandey	Electrocardiogram compression, Encryption and Its OFDM based Wireless Transmission & Reception	Completed	2013	Dr B S Saini & Dr Butta Singh(GNDU)
Amandeep Kaur Sohal	Design and Development of an optimized energy efficient algorithm for Wireless Sensor Network	Completed	2012	Dr Ajay Kumar Sharma (VC, IKG PTU)

PG Dissertation Guided :

Student Name	**Dissertation Title**	**Status**	**Year**	**Co-Supervisor**
Shalini Thapar	Spectrum Sensing Cognitive Radio Networks with Cluster Based Multi- Hop Co-operative Relaying and Optimization of Co-operative sensing Using AI	Completed	2021	
Shrishti Gaur	Performance Analysis of NOMA based Visible Light Communication	Completed	2021	
Faizan Nazir	Channel Quality Indicator Prediction in 5G systems using a feed forward neural network	Completed	2021	
Prateek Tiwari	Design an d Review of hetro-dielectric based Junctionless SOI-MOSFET	Completed	2021	Dr Mamta Khosla
Abhijeet Sahu	A charge Plama based Label- Free biomolecules Detector using Si Ge source Doped Double Gate Electrode Tunnel FET	Completed	2021	Dr Mamta Khosla
Archana Kumari	Design of Optimum Waveguide and Pulse Shaping filter for GFDM System	Completed	2020	
Nishu Malik	CENTRALITY AS A FRIENDSHIP SELECTION HEURISTIC IN SOCIAL INTERNET OF THINGS	Completed	2020	Dr Sateesh Awsthi
Akshay Kumar	REDUCING THE IMPACT OF MOBILE RADIATION ON VARIABILITY IN HEART RATE USING NEGATIVE ION GENERATOR	Completed	2020	Dr Indu Saini
Rajat Chauhan	PAPR reduction in OFDM , WP-OFDM and MIMO-OFDM using Swam Optimization based on PTS Technique	Completed	2019	Dr Indu Saini
Mayank Kumar Singh	Machine learning based Brain Computer Interfaced System with smart GUI and IoT for Assisting a disbale	Completed	2019	Dr Indu Saini
Diksha Kumari	Monitoring of Heart rate through spectral features of the speech signal	Completed	2019	Dr Indu Saini
Prity Kumari	High Density Impulse Noise removal from images using SM3F algorithm	Completed	2018	Dr Deepti Kakkar
Parul	Fog removal in videos by retinex algorithm combined with DWT	Completed	2018	
Anurag Kumar	Electrical signal analysis of different types of oxygen efficient plants	Completed	2018	Dr Indu Saini

Kavya Sai	A testimony of interplant communication through electrophysiological signal analysis	Completed	2017	

Patents :

Name	Reg./Ref. No.	Date of Award/Filling	Organization	Status
SAFETY DEVICE FOR WOMEN FOR INSTANT PREVENTION OF BAD TOUCH	201911045905	08-11-2021	Dr B R Ambedkar National Institute of Technology Jalandhar	Granted
PERSONAL WEARABLE TOUCH-FREE SANITIZER DISPENSING SYSTEM	202011045662	13-07-2022	Dr B R Ambedkar National Institute of Technology, Jalandhar	Granted

Admin. Responsiblities :

Position Held	Organization	From	To
Co-ordinator	Yoga and Meditation club	June 22	Till date
Co-coordinator	Yoga and Meditation club	Feb'20	Till date
Member	Women Cell	Feb'20	Till date

Award and Honours :

Title	Activity	Given by	Year
Outstanding woman in Engineering	VIWA-202	Centre for Advanced Research and Design of Venus International Foundation	2020
Bronze Medal	Convocation Graduate students (UG)	PTU, Jalandhar	2003