

## Profile Page



Name : Dr B S Saini

Designation : Professor

Department : Electronics and Comm. Engg.

Qualification : PhD Signal Processing of Heart Rate Variability (NIT Jalandhar)  
M.Tech Electronics & Communication Engg. (REC Kurukshetra)  
B.E Electronics & Communication (Gulbarga University)  
Intermediate Non-Medical (PSEB)  
High School Science, Maths, English, Hindi, Social Studies (CBSE)

Address : Dept. of Electronics & Communication Engg.  
Dr B R Ambedkar National Institute of Technology  
Jalandhar, PUNJAB - 144011

Email : sainibs@nitj.ac.in

Phone : 9872660337

### **Research Interests :**

Biomedical Signal/Image Processing, Microprocessors and Microcontrollers, Embedded System

### **Journal Publications :**

Year	Journal	Publication
2021	The Egyptian Journal of Neurology, Psychiatry and Neurosurgery	N Aggarwal, BS Saini, S Gupta. "The impact of clinical scales in Parkinson's disease: a systematic review"
2021	Biomedical Engineering: Applications, Basis and Communications	Anukul Pandey, Barjinder Singh Saini, Butta Singh. "ELECTROCARDIOGRAM DATA COMPRESSION TECHNIQUES IN 1D/2D DOMAIN"
2020	Measurement	Anukul Pandey, Barjinder Singh Saini, Butta Singh, Neetu Sood. "Quality controlled ECG data compression based on 2D discrete cosine coefficient filtering and iterative JPEG2000 encoding"
2020	International Journal of Machine Learning and Cybernetics	Atul Kumar Verma, Indu Saini, Barjinder Singh Saini. "A new BAT optimization algorithm based feature selection method for electrocardiogram heartbeat classification using empirical wavelet transform and Fisher ratio"
2019	Iran Journal of Computer Science, Springer	Ram Sewak Singh, Barjinder Singh Saini, Ramesh Kumar Sunkaria. "Arrhythmia Detection Using Time-Frequency Features of Heart Rate Variability and Back Propagation Neural Network"

2019	Multimedia Tools and Applications pp 1–38	T. Kaur, B. S. Saini, S. Gupta “An adaptive fuzzy K-nearest neighbor approach for MR brain tumor image classification using parameter free bat optimization algorithm”
2019	Multimedia Tools and Applications, Springer, Volume 78, Issue 9, pp 11223–11261	Pandey, A., Saini, B.S., Singh, B., Sood, N “Complexity sorting and coupled chaotic map based on 2D ECG data compression-then-encryption and its OFDM transmission with impair sample correction”
2019	Neural Computing and Applications, Volume 30, Issue 4, pp 1317–1340	T. Kaur, B. S. Saini, S. Gupta “A joint intensity and edge magnitude-based multilevel thresholding algorithm for the automatic segmentation of pathological MR brain images”
2019	Biocybernetics and Biomedical Engineering, vol.39,no.2 pp.282-300	A Pandey, B Singh, BS Saini, N Sood, "A novel fused coupled chaotic map based confidential data embedding-then-encryption of electrocardiogram signal"
2018	Innovation and Research in BioMedical Engineering, 39 (1), 54-68	R. S. Singh, B. S. Saini, R. K. Sunkaria, Time-varying spectral coherence investigation of cardiovascular signals based on energy concentration in healthy young and elderly subjects by the adaptive continuous Morlet wavelet transform
2018	Biomedical Engineering: Applications, Basis and Communications, 30(2), 1-9	Ram Sewak Singh, Barjinder Singh Saini, Ramesh Kumar Sunkaria, Assessment of cardiac heart failure and cardiac artery disease by the higher order spectra
2018	International Journal of Image and Graphics, World Scientific, 18(01), 1850003	Atul Kumar Verma, Barjinder Singh Saini, Taranjit Kaur, Image Denoising Using Alexander Fractional Hybrid Filter
2018	Biocybernetics and Biomedical Engineering, Elsevier, 38, 409-424	T. Kaur, B. S. Saini, S. Gupta, An optimal spectroscopic feature fusion strategy for MR Brain tumor classification using Fisher Criteria and Parameter Free BAT optimization algorithm
2018	International Journal for Multiscale Computational Engineering, Status: 16(5): 465–486	Ram Sewak Singh, Barjinder Singh Saini, Ramesh Kumar Sunkaria “Classification of cardiac heart disease using reduced chaos features and 1-norm linear programming extreme learning machine”
2018	International Journal for Multiscale Computational Engineering, Vol. 16, No. 5, 465-486	Ram Sewak Singh, Barjinder Singh Saini, Ramesh Kumar Sunkaria, (2018). “Classification of cardiac heart disease using reduced chaos features and 1-norm linear programming extreme learning machine”
2018	Australasian Physical & Engineering Sciences in Medicine, <a href="https://doi.org/10.1007/s13246-018-0642-y">https://doi.org/10.1007/s13246-018-0642-y</a> , 1-21	Atul Kumar Verma, Indu Saini, Barjinder Singh Saini, Alexander fractional differential window filter for ECG denoising
2018	Culuja Medical Journal, 91(2), 166-175	Ram Sewak Singh, Barjinder Singh Saini, Ramesh Kumar Sunkaria, Detection of coronary artery disease by reduced features and extreme learning machine
2018	Vol. 16, no. 6, 1850049.	Verma A K, Saini I., Saini B S.,” The baseline wandering noise removal from ECG signal using forward-backward Riemann Liouville fractional integral-based empirical wavelet transform approach
2018	Vol. 41, no. 2, pp. 519-539	Verma A K, Saini I., Saini B S. , “Alexander fractional differential window filter for ECG denoising
2017	Journal of Medical Science and Technology, 6(2), 5-19	R. S Singh, B. S. Saini, R. K. Sunkaria, Power spectral study of heart rate variability Time Series by the Adaptive Modified Continuous Morlet Wavelet Transform
2017	Applied Medical Informatics, 39(3-4), 49-66	Ram Sewak SINGH, Barjinder Singh SAINI , Ramesh Kumar SUNKARIA, Power spectral analysis of short-term heart rate variability in healthy and arrhythmia subjects by the adaptive continuous Morlet wavelet transform

2017	Current Trends In Signal Processing, vol. 7, no. 2, pp. 13-21	Poonam Poonia, B. S. Saini, Taranjit Kaur, “An Improved Power Line Interference Reduction Approach Based On Combination Of Mirror Extension And Iir Filtering Through A Data Driven Mechanism”
2017	International Journal of computational system Engineering–Inderscience,	T. Kaur, B. S. Saini and S. Gupta, “A comparative study on Kapur’s and Tsallis entropy for multilevel magnetic resonance image thresholding using Particle Swarm optimization algorithm”,
2017	vol. 7, no. 2, pp. 37-45	Krishnakant Chaubey, Barjinder Singh Saini, Atul Kumar Verma, “Inter-patient Heartbeat Classification Using Higher Order Statistics and Symbolic Dynamics of ECG Signal”,
2017	vol. 7, no. 2, pp. 46-58	Priya Gupta, Brajinder Singh Saini, R. K. Sunkaria, Anukul Pandey “Stationary Wavelet and Recursive Least Square Filtering Based Fetal ECG Data Extraction from Composite Abdominal Signal”
2017	IET Image Processing,11,620-632	T. Kaur, B. S. Saini and S. Gupta,A new Quantitative metric for MR brain tumor grade classification using sample space density measure of analytic intrinsic mode function representation
2017	Neural Computing and Applications,1-14	T. Kaur, B. S. Saini and S. Gupta,A novel feature selection method for brain tumor MR image classification based on the Fisher Criterion and Parameter Free Bat Optimization
2017	Journal of Medical Systems, 41,1-20	A. Pandey, B. S. Saini, B. Singh and N. Sood, An integrated approach using chaotic map and sample value difference method for electrocardiogram steganography and OFDM based secured patient information transmission
2017	Journal of Applied Research and Technology, Elsevier	Atul Verma, B S Saini, Forward Backward Processing Technique for Image Denoising Using FDZP 2D Filter
2017	International Journal of Medical Engineering and Informatics, Inderscience, 9, 299-315	K. Rawal, B. S. Saini and I. Saini, Effect of age and postural related changes on cardiac autonomic function in the pre-menopausal and post-menopausal women
2016	Neural Computing and Applications, 1-24	T. Kaur, B. S. Saini and S. Gupta, A Joint intensity and edge magnitude based multilevel thresholding algorithm for the automatic segmentation of pathological MR brain images
2016	Biocybernetics and Biomedical Engineering, 36, 355-365	A. Singh, BS Saini, D. Singh, A New Baroreflex Sensitivity Index based on Improved Hilbert-Huang Transform for assessment of Baroreflex under Supine and Standing Postures
2016	Australasian Physical and Engineering Science in Medicine,39,557-569	A. Singh, BS Saini, D. Singh, An Adaptive Technique for Multiscale Approximate (MAEbin) Threshold (r) selection: Application to Heart Rate Variability (HRV) and Systolic Blood Pressure Variability (SBPV) under Postural Stress
2016	Medical & Biological Engineering & Computing, Springer, 54,723-732	A. Singh, BS Saini, D. Singh, An alternative approach to approximate entropy threshold value (r) selection: application to heart rate variability and systolic blood pressure variability under postural challenge
2016	Computers and Electrical Engineering, Elsevier, 56, 30-45	A. Pandey, B. S. Saini, B. Singh, and N. Sood, A 2D electrocardiogram data compression method using a sample entropy-based complexity sorting approach
2016	Australasian Physical & Engineering Sciences in Medicine, Springer, 39, 833-855	A. Pandey, B. Singh, B. S. Saini, and N. Sood, A joint application of optimal threshold based discrete cosine transform and ASCII encoding for ECG data compression with its inherent encryption
2016	Computer and Electrical Engg, Elsevier, 53, 244-262	G. Sethi, B. S. Saini, and D. Singh, Segmentation of Cancerous Regions in Liver Using an edge based and phase congruent region enhancement method
2016	Biocybernetics and Biomedical Engg, Elsevier, 36, 42-55	G. Sethi, and B. S. Saini, Computer aided diagnosis system for abdomen diseases in computer tomography images

2016	Journal of Medical Engineering and Technology, Taylor and Francis, 40, 223-238	K. Rawal, B. S. Saini and I. Saini, Design of tree structured matched wavelet for HRV signals of menstrual cycle
2016	International Journal of Medical Engineering and Informatics, Inderscience, 8, 347-359	Dharmendra Gurve, Barjinder Singh Saini, Indu Saini, An Improved Lossy And Lossless Combined ECG Data Compression Using ASCII Character Encoding
2016	International Journal of Medical Engineering and Informatics, Inderscience, 9, 73-86	Katragadda Vamsi Krishna, Barjinder Singh Saini, Medical Image up-sampling using a correlation based sparse representation model
2016	International Journal of Biomedical engineering and Technology, Inderscience, 21, 322-342	G. Sethi, and B. S. Saini, Computer Aided Abdomen Disease Diagnosis using Curvelet based Texture Analysis with Progressive Classification
2016	International Journal of Medical Engineering and Informatics, Inderscience,	Trunajal Jambholkar, saini B S and saini I, An adaptive thresholding technique for QRS-complex detection in ECG signal based on Empirical wavelet transform
2015	International journal of digital communication and analog signals,1, 9-19	R. S Singh, B. S. Saini, R. K. Sunkaria, Spectral Analysis of Heart Rate Variability Signals using Stockwell Transform
2015	Signal & Image Processing: An International Journal (SIPIJ), 6 (3), 43-54	Atul Kumar Verma and Barjinder Singh Saini, Alexander Fractional Integral Filtering of Wavelet Coefficients for Image Denoising
2015	Australasian Physical & Engineering Sciences in Medicine, Springer, 38, 509-523	K. Rawal, B. S. Saini and I. Saini, Adaptive correlation dimension method for analyzing heart rate variability during menstrual cycle
2015	Australasian Physical & Engineering Sciences in Medicine, 38, 671-688	G. Sethi, and B. S. Saini, Abdomen disease diagnosis in CT images using flexiscale curvelet transform and improved genetic algorithm
2015	Fluctuation and Noise Letters, 14, 1550031-1- 15	Amritpal Singh, BS Saini, and Dilbag Singh, Multiscale Joint Symbolic Transfer Entropy for Quantification of Causal Interactions between Heart Rate and Blood Pressure Variability under Postural Stress
2015	Biomedical Engineering: Application Basis and Communication, World Scientific, 27, 1550047-1- 1550047-9	G. Sethi, and B. S. Saini, Segmentation of abdomen diseases using active contours in CT images
2010	International Journal of Medical Engineering and Informatics, Inderscience, 2, 177-194	B. S. Saini, Dilbag Singh, and Vinod Kumar, Optimal Lomb transform variant in HRV assessment
2008	IETE Journal of Research, 54, 209-216	Dilbag Singh,B. S. Saini and Vinod Kumar, Heart rate variability-A bibliographical survey

## Conference Publications :

Year	Conference	Publication
2021	2021 Smart Technologies, Communication and Robotics (STCR)	Amishi Vijay, Barjinder Singh Saini."Fully-Automatic Segmentation of Gliomas using MR Images"
2021	Proceedings of International Conference on Women Researchers in Electronics and Computing	Simran Kaur, Barjinder Singh Saini." An Evaluation Based on Diabetic Retinopathy"

2021	Proceedings of International Conference on Women Researchers in Electronics and Computing	Nikita Aggarwal, Jasleen Saini, BS Saini, Savita Gupta."Different Classification Approaches for Early Detection of Parkinson's Disease"
2021	Proceedings of International Conference on Women Researchers in Electronics and Computing	Radhika Malhotra, Jasleen Saini, Barjinder Singh Saini, Savita Gupta." Improving Brain Tumor Segmentation with Data Augmentation Strategies"
2021	Proceedings of International Conference on Women Researchers in Electronics and Computing	Amishi Vijay, Jasleen Saini, BS Saini."A Review of Brain Tumor Image Segmentation of MR Images Using Deep Learning Methods"
2021	Proceedings of International Conference on Women Researchers in Electronics and Computing	Pragya Shukla, Jasleen Saini, BS Saini. "Computer Aided Tuberculosis Detection, A Review"
2021	2021 Fourth International Conference on Electrical, Computer and Communication Technologies (ICECCT)	Tushar Shivam, BS Saini, Ramesh K Sunkaria, Ravi Ranjan. "High-Performance Analysis of Recessed Gate AlN/?-Ga2O3 HEMT"
2020	2nd International Conference on Innovative Mechanisms for Industry Applications (ICIMIA)	Indu Saini, BS Saini. "Physiological Characteristics Classification by Optical Pulse Sensor using Arterial Pulse Waves"
2020	Mobile Radio Communications and 5G Networks: Proceedings of MRCN 2020	Akshay Kumar Dogra Tanima, Indu Saini, BS Saini." Emotions Recognition Based on Wrist Pulse Analysis"
2019	International Conference on Intelligent computing and control systems.	Sukhdev singh, R K Sunkaria and B S Saini on Atrial fibrillation and premature contraction classification using CNN.
2019	International Conference on Intelligent computing and control systems.	Kapil Kumar, R K Sunkaria and B S Saini on PVC ectopic beat detection using genetic based support machine and features of QRS wave.3rd
2019	International Conference on Electrical, Electronics, Communication & Robotics Engg.	Paresh Upadhyay, B S Saini and R K Sunkaria on Microwave photonic comb filterwith continuous tenability
2018	IEEE International Conference on Intelligent Circuits and Systems, ICICS	Rawal. K., Sethi. G. and Saini. B.S., Saini on Effect of heart rate variations in the menstrual cycle using linear method
2018	IEEE International Conference on Advances in computing, communication control and networking	Norkit Lepcha, Barjinder Singh Saini and Indu Saini on GLCM and PCA based Image Steganography using Chaos-based Encryption
2018	International Conference on Advances in computing, communication control and networking	Neha Singh and Barjinder Singh Saini on An Improved Convolutional Neural Network for Classification of Small Patches of Granite Tiles
2018	International Conference on Intelligent Circuits and Systems.	Sethi, G., Rawal, K. and Saini, B.S. on Computer aided diagnosis from CT images using wavelet features with progressive classification
2017	Nanotechnology for Instrumentation and Measurement, GBU, Uttar Pradesh	A. Pandey, B. S. Saini, B. Singh, and N. Sood, A Comparative Study on 1D & 2D ECG Data Compression Techniques
2016	International conference on emerging trends in engineering and technology, 11-12 June 2016, Goa	Barjinder Singh Saini, Amritpal Singh, Dilbag Singh, Phase synchronization analysis of heart rate variability and systolic blood pressure variability under postural stress
2016	IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2016), Chennai	D. Gurve, B. S. Saini and I. Saini, An improved lossless ECG data compression using ASCII character encoding

2016	International conferences on emerging trends in electronics and electrical engineering (ICETEEE), May 28-29 2016, Pattaya, Thailand	G. Sethi, and B. S. Saini, Abdomen disease classification in CT images
2015	ACM International Conference Proceeding Series, Sep 25-27 2015, Allahabad	Krishna, K.V., Saini, B.S., Super resolution image reconstruction by Adaptive Auto regressive Model
2014	3rd International Conference on Biomedical Engg. and Assistive Technologies BEATS 2014, Feb 14-15 2014, UIET, Chandigarh	Taranjit Kaur, B S Saini, Savita Gupta, Diseased MRI Image Segmentation using Shannon Entropy and Particle Swarm Optimization Algorithm
2014	3rd International conference on Biomedical Engineering and Assistive Technologies, BEATS 2014, Feb 14-15 2014, UIET, Chandigarh	K Rawal, B S Saini, Non linear analysis for measuring Heart rate variability during different phases of menstrual cycle in young healthy women
2014	3rd International Conference on Biomedical Engg. and Assistive Technologies BEATS 2014, Feb 14-15 2014, UIET Chandigarh	G. Sethi, and B. S. Saini, Texture classification using GLCM and multi-resolution method
2014	3rd International Conference on Biomedical Engg. and Assistive Technologies BEATS 2014, Feb 14-15 2014, UIET, Chandigarh	A. Singh, B.S. Saini, D. Singh, Multi-scale transfer entropy analysis to quantify relative importance of baroreflex and non-baroreflex mechanisms
2014	2nd International Conference on Communication and Electronics Information, (ICCEI 2014), Jan 2-3 2014, Melbourne, Australia	B. S. Saini and A. Pandey, Effect of wireless network radiation on heart rate variability
2013	International Conference on Computer Applications in Electrical Engineering-Recent Advances (CERA 2013), Oct 3-5 2013, IIT Roorkee	Saloni Pal and Saini B S, Improved level set approach for image segmentation using regional information
2013	3rd International Conference on physics science and technology, Dec 29-30 2012, Hongkong	Barjinder Singh Saini, Ravi Raj, Indu Saini, Locally adaptive bilateral clustering for image denoising and sharpness enhancement
2013	Advanced Magnetic Resonance Imaging Sequences for Brain Tumors-Review	Taranjit Kaur, B S Saini,
2012	International Conference on Information Security and Artificial Intelligence, Dec 28-30 2011, Dubai, UAE	Krishan Pal Singh Yadav, B S Saini, Study of the ageing affects on HRV measures in healthy subjects
2012	International conference on Electronics, Communication and Instrumentation e-manthan 2012, April 6-7 2012, SRGI Jhansi	Rajiv Parkash, B. S. Saini, R. K. Sunkaria, ECG image compression using bi-orthogonal filter and SPIHT
2012	2nd International conference on Biomedical Engineering and Assistive Technologies (BEATS 2012), Dec 6-7 2012, NIT Jalandhar	A. Singh, D. Singh, B.S. Saini, Beat-to-beat baroreflex sensitivity estimation using windowed cross-correlation technique
2012	Assessment of dynamic cerebral auto-regulation using signal processing techniques: a review	A. Singh, B.S. Saini, D. Singh,
2012	2nd International conference on Biomedical Engineering and Assistive Technologies (BEATS 2012), Dec 6-7 2012, NIT Jalandhar	K. Rawal, B. S. Saini, Data Fusion of Time Frequency Analysis methods with application to Biomedical Signals
2012	2nd International conference on Biomedical Engineering and Assistive Technologies (BEATS 2012), Dec 6-7 2012, NIT Jalandhar	K. Rawal, B. S. Saini, Study of Menstrual Cycle and its effects on Autonomic Nerve Function
2012	2nd International conference on Biomedical Engineering and Assistive Technologies (BEATS 2012), Dec 6-7 2012, NIT Jalandhar	G. Sethi, B.S. Saini and D. Singh, Comparative Performance Analysis of Image Segmentation Techniques
2012	2nd International conference on Biomedical Engineering and Assistive Technologies (BEATS 2012), Dec 6-7 2012, NIT Jalandhar	G. Sethi, B.S. Saini and D. Singh, Texture Analysis Methods - A Brief Review

2011	International conference on Database and Data Mining -ICDDM-2011, March 25-27 2011, China	Rakesh Kumar and B. S. Saini, improved image denoising technique using neighboring wavelet coefficient of optimal wavelet with adaptive thresholding
2011	International Conference on Advanced Computing and Communication , April 8-10 2011, NIT Hamirpur	Vineet Kumar, B. S. Saini, R. K. Sunkaria, An Adaptive Selection of IMF for R-peak Detection in ECG Based on Empirical Mode Decomposition
2010	1st International Conference on Biomedical Engineering and Assistive Technologies (BEATs-2010), Dec 17-19 2010, NIT Jalandhar	Vineet Kumar, B. S. Saini, R. K. Sunkaria, ECG Data Compression: A Review
2010	1st International Conference on Biomedical Engineering and Assistive Technologies (BEATs-2010), Dec 17-19 2010, NIT Jalandhar	Amritpal Singh, B. S. Saini, Dilbag Singh, Heart Rate Variability Signal Processing and Interpretation - A Review
2010	1st International Conference on Biomedical Engineering and Assistive Technologies (BEATs-2010), Dec 17-19 2010, NIT Jalandhar	Gaurav Sethi, B S Saini and D. Singh, Performance analysis of image restoration techniques using Fourier & Wavelet transform
2010	1st International Conference on Biomedical Engineering and Assistive Technologies (BEATs-2010), Dec 17-19 2010, NIT Jalandhar	Amritpal Singh, B S Saini, Dilbag Singh, Analysis of scaling behavior of HRV based on global and local exponents derived from DFA and wavelet transform
2010	1st International Conference on Biomedical Engineering and Assistive Technologies (BEATs-2010), Dec 17-19 2010, NIT Jalandhar	G. Sethi, B. S. Saini and D. Singh, Biomedical Signal Processing using transformation techniques
2010	1st International Conference on Biomedical Engineering and Assistive Technologies (BEATs-2010), Dec 17-19 2010, NIT Jalandhar	Rakesh Kumar, B. S. Saini, Arun Khosla, Dilbag Singh and Indu Saini, Image denoising using neighboring wavelet coefficients with adaptive thresholding technique
2009	Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference, Sep 2-6 2009, Minnesota, USA	Saini, B.S., Singh, D., Kumar, V., Deepak, K.K., Singh, J., Improved HRV characterization using OCDWT
2008	Proceedings of World Academy of Science, Engineering & Technology, Dec 17-19, 2008, Bangkok, Thailand	B S Saini, Dilbag Singh, Moin Uddin, and Vinod Kumar, Improved power spectrum estimation for RR-interval time series
	Mobile Radio Communications and 5G Networks: Proceedings of MRCN 2020	Akshay Kumar Dogra, Indu Saini, BS Saini. "Emotions Recognition Based on Wrist Pulse Analysis"

### Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISSN No.	Year
	HRV: A Powerful Tool in Medical Diagnosis	IGI Global	Kirti Rawal, Gaurav Sethi, Barjinder Singh Saini, Indu Saini	ISBN 9781522597872 (hardcover)   ISBN 9781522597889 (ebook)	2020

	Analysis of electrocardiogram data compression techniques: A MATLAB-based approach	IGI Global	Anukul Pandey, Barjinder Singh Saini, Butta Singh, Neetu Sood	ISBN 9781799812043 (hardcover)   ISBN 9781799812050 (ebook)	2020
	Electrocardiogram Dynamic Interval Feature Extraction for Heartbeat Characterization	IGI-Global	Atul Kumar Verma, Indu Saini, Barjinder Singh Saini	ISBN 9781522579526 (hardcover)   ISBN 9781522579533 (ebook)	2019
	Optimization Techniques for the Multilevel Thresholding of the Medical Images	IGI-Global	Taranjit Kaur, Barjinder Singh Saini, Savita Gupta	ISBN 9781522579526 (hardcover)   ISBN 9781522579533 (ebook)	2019
	Medical Data Security for Bioengineers	IGI-Global	Butta Singh, Barjinder Singh Saini, Dilbag Singh and Anukul Pandey	ISBN 9781522579526 (hardcover)   ISBN 9781522579533 (ebook)	2019
	Medical Data Security Tools and Techniques in E-Health Applications	IGI-Global	A. Pandey, B. Singh, B. S. Saini, and N. Sood	ISBN 9781522579526 (hardcover)   ISBN 9781522579533 (ebook)	2019
	Bernoulli's Chaotic Map-Based 2D ECG Image Steganography: A Medical Data Security Approach	IGI-Global	A. Pandey, B. S. Saini, B. Singh and N. Sood	ISBN 9781522579526 (hardcover)   ISBN 9781522579533 (ebook)	2019



	Electrocardiogram Beat Classification Using BAT-Optimized Fuzzy KNN Classifier	IGI-Global	Atul Kumar Verma, Indu Saini, Barjinder Singh Saini	ISBN 9781522579526 (hardcover)   ISBN 9781522579533 (ebook)	2019
	Medical Data Security for Bioengineers	IGI Global	Butta Singh, Barjinder Singh Saini, Dilbag Singh, Anukul Pandey	Hershey, Pennsylvania 17033-1240, USA	2018
	Analysis of HRV during the Menstrual Cycle and Postmenopause	IGI Global	K Rawal, B S Saini and I Saini	Computational Tools and Techniques for Biomedical Signal Processing pp. 228-241	2017
	Nonlinear complexity sorting approach for 2d ECG data compression	IGI-Global	A. Pandey, B. Singh, B. S. Saini, and N. Sood		2016
	Analysis of electrocardiogram data compression techniques: A MATLAB-based approach	IGI-Global	A. Pandey, B. S. Saini, B. Singh and N. Sood		2016
	Analysis of HRV during the Menstrual Cycle and Postmenopause	IGI-Global	K Rawal, B S Saini and I Saini		2016
	Optimized Multi Threshold Brain Tumor Image Segmentation Using Two Dimensional Minimum Cross Entropy Based on Co-occurrence Matrix	Springer International Publishing	T. Kaur, B. S. Saini, and S. Gupta		2016
	Analysis of electrocardiogram data compression techniques: A MATLAB-based approach	IGI Global	Anukul Pandey, Barjinder Singh Saini, Butta Singh, Neetu Sood	ISBN 9781799812043 (hardcover)   ISBN 9781799812050 (ebook)	

### Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
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		Soft Computing based Techniques for Modeling of Engg. & Medical imaging Systems	MHRD			8.00 lacs	Completed	Arun Khosla
		VSAT-Enabled Mobile e-Learning Terminals	MHRD			13.76lacs	Completed	Dilbag Singh and Prof. H K verma
		FIST Program 2013	DST			155 lacs	ongoing	Dr Arun Khosla, Dr Mamta Khosla, Dr Balwinder Raj
		Evidence-based Technological Interventions Strategies for Learning and Rehabilitation of Individuals with Autism Spectrum Disorder	MHRD			1.87 CRORE	Selected in IMPRINT -II	Arun Khosla, Mamta Khosla

### Events Organized :

Category	Type	Title	Venue	From	To	Designation
	National	Need for IPRs for Engineers and Researchers and new career opportunities in IPR	NIT Jalandhar	02-06-2015	02-06-2015	
STC	National	One week short term course on Electronics & Communication System Design Aspects,	NIT Jalandhar	25-05-2015	29-05-2015	
STC	National	One week short term course on Emerging Trends of Research in Electronics and Communication,	NIT Jalandhar	01-12-2014	05-12-2014	
Expert talk	National	Expert talk on Industry Expectation from Students,	NIT Jalandhar	29-10-2014	29-10-2014	

	National	Two weeks FDP/STTP on ICT for Computing & Signal Processing	NIT Jalandhar	03-06-2013	14-06-2013	
STC	National	Two weeks short term course on C++ Programming Language,	NIT Jalandhar	29-04-2013	10-05-2013	
Conference	International	2nd International Conference on Biomedical Engineering and Assistive Technologies (BEATS-2012)	NIT Jalandhar	06-12-2012	07-12-2012	
Conference	International	1st International Conference on Biomedical Engineering and Assistive Technologies (BEATS-2010)	NIT Jalandhar	17-12-2010	19-12-2010	
	National	One week summer school on Instrumentation and Signal Processing	NIT Jalandhar	21-06-2010	25-06-2010	
	National	Two days expert talk on Embedded Systems for Biomedical Applications & VLSI	NIT Jalandhar	17-05-2010	18-05-2010	
	National	One week winter school on Instrumentation and Signal Processing,	NIT Jalandhar	11-01-2010	15-01-2010	
	National	One week short term course on Modern Practices in Measurement & Instrumentation Engineering	NIT Jalandhar	13-07-2009	17-07-2009	

### Professional Affiliations :

Designation	Organization
	Life Membership IETE
	Fellow IEI
	Membership IEEE

### PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Nikita	Biomedical Image/Signal Processing	Ongoing	2019	Dr Savita Gupta
Anukul Pandey	Electrocardiogram Compression, Encryption and its OFDM based Wireless Transmission & Reception	Completed	2019	Dr Neetu Sood & Dr Butta Singh
Ram Sewak Singh	Spectral and Chos investigation of heart rate variability time series	Completed	2019	Dr. R. K Sunkariya

Radhika Malhotra	Survival prediction in High Grade Gliomas using Magnetic Resonance Imaging	Ongoing	2018	Dr Savita Gupta
Taranjit Kaur	Brain Tumor Characterization using MR Imaging and Spectroscopy	Completed	2017	Dr. Savita Gupta
Kirti Rawal	Analysis of Heart Rate Variability in Menstrual Cycle of Women	Completed	2016	Nil
Gaurav Sethi	Analysis of Abdominal CT Images for Tissue Characterization	Completed	2016	Nil
Amritpal Singh	Assessment of Cardiovascular Variability in Supine and Standing Postures	Completed	2015	Dilbag Singh
Atul Kumar Verma	ECG Signal Analysis and Classification	Completed	-	Dr. Indu Saini

## PG Dissertation Guided :

Student Name	Dissertation Title	Status	Year	Co-Supervisor
Pragya Shukla	Tuberculosis Detection And Analysis Using Normalized X-ray Images Through Deep Learning CNN Model	Completed	2021	
Amishi Vijay	Fully automatic segmentation of brain tumor using MR Images	Completed	2021	
Tushar Shivam	Front End Methodology For Subsystem Integration And Rtl Quality Check & Design & Analysis Of High Performance Recessed Gate AlN/?-Ga 2 O 3 HEMT	Completed	2021	Dr R K Sunkaria
Simran kaur	Diabetic Retinopathy Detection Using Prognosis Of Microaneurysm	Completed	2021	
Twinkle	HYBRID FRAMEWORK OF FUSION METHODS FOR THE MULTI-MODAL FUSION OF CT/MRI, MRI/PET & CT/PET BRAIN IMAGES	Completed	2020	
Tanima	Analysis Of Three Doshas - Vata, Pitta and Kapha in Various Physiological Conditions	Completed	2020	Dr Indu Saini
Rajiv	Texture feature analysis algorithm for copy move forgery detection	Completed	2020	Dr R K Sunkaria
Sukhdev Singh	Atrial fibrillation and premature contraction classification using CNN	Completed	2019	Dr R K Sunkaria
Kapil kumar	PVC ectopic beat detection using genetic based support machine and features of QRS wave	Completed	2019	Dr R K Sunkaria
Paresh Upadhyay	Microwave photonic comb filter with continuous tunability	Completed	2019	Dr R K Sunkaria
Abhilasha Aggarwal	Design of coaxial cavity resonator bandpass filter for spacecraft checkout applications	Completed	2019	Shaji V Sebastian
Parveen	An Efficient Real Time Video Stitching With Water Marking Using Scale Invariant Feature Transform Speeded ,Speeded up Robust Features & Random Sample Consensus Algorithm	Completed	2018	
Neha Singh	An improved convolution neural network for classification of small patches of granite tiles	Completed	2018	Dr Indu Saini
Norkit Lepcha	GLCM and PCA based image steganography using Chaos-based encryption	Completed	2018	Dr Indu Saini

## Patents :

Name	Reg./Ref. No.	Date of Award/Filling	Organization	Status
AUTOMOTIVE ADAPTIVE ELECTROCARDIOGRAM QRS PATTERN DESIGN FOR DATA COMPRESSION	201931041139 A	11/10/2019	OFFICIAL JOURNAL OF THE PATENT OFFICE	Filled

## Admin. Responsibilities :

Position Held	Organization	From	To
Head of the Department	National Institute of technology	Sept. 2013	Jan 2016
Estate Officer	National Institute of technology	Sept. 2010	Sept. 2011
Controller of Examination	National Institute of technology	Sept, 2013	Jan 2015
Faculty-in-charge Security	National Institute of Technology	Sept. 2012	Sept. 2013
Faculty-in-charge Electrical Works	National Institute of Technology	Sept. 2012	Sept. 2013
Associate Dean (P&D)	National Institute of Technology	Feb 2016	24-01-2017
Flying Squad	National Institute of Technology	2016	Till Date
Dy proctor	National Institute of Technology	May 2012	June 2013
Asstt. Proctor	National Institute of Technology	2008	2012
Faculty coordinator-Anti Ragging squad	National Institute of Technology	2010	till date
Head of the Department	National Institute of Technology	April 2017	till date
Techniti 12	National Institute of Technology	Feb. 2013	Feb. 2013
Techniti 11	National Institute of Technology	Feb 2012	Feb 2012
Member core committee revision of curriculum of Ist yr	National Institute of Technology	May 2017	till date
Faculty Advisor (Mentor) for student academic counseling under TEQIP II	National Institute of Technology	2015	till date
Faculty Advisor –Chess	National Institute of Technology	Sept. 2014	Sept. 2015
Member staff grievence cell	National Institute of Technology	2012	2013
F/Incharge Venue UTKANSH 10	National Institute of Technology	2010	2010
NO procurement TEQIP II	National Institute of Technology	May 2013	Sept. 2014
NO Civil works TEQIP II	National Institute of Technology	Nov. 2016	March 2017
Coord. Lab Audit (HUM)	National Institute of Technology	2017	till date
Coord. Evaluation for Tech. Asstt. EC	National Institute of Technology	2015	2015
Member Secretary Purchase procedure/ Rules committee	National Institute of Technology	2017	2017
Member Scrutiny for post of Asstt. Registrar/Audit officer	National Institute of Technology	2017	2017
Chairman EC Building	National Institute of Technology	2016	till date
Dy. NO Acad.	National Institute of Technology	Oct. 2012	May 2013
Presiding Officer NIMCET-15	National Institute of Technology	2015	2015
Coord. Venue Convocation & Coord. Venue NMEICT	National Institute of Technology	2015	2015
Coord. Venue Convocation & Coord. Venue NMEICT	National Institute of Technology	2013	2013
Coord. Venue Convocation & Coord. Venue NMEICT	National Institute of Technology	2011	2011

Coord. Venue Convocation & Coord. Venue NMEICT	National Institute of Technology	2012	2012
Coord.ECE Students grievances redressal cell	National Institute of Technology	Nov. 2015	till date
Convener HAC	National Institute of Technology	2010	2011
Coord. Venue Alumni meet	National Institute of Technology	2013	2017
Dean of Planning and Development	National Institute of technology	Jan 2018	till date
Head of the Department	National Institute of technology	March 2017	Jan 2019