

Resume



Name : Dr. Pushendra Singh
Designation : Assistant Professor
Department : Electronics & Communication Engineering
Qualification : PhD (IIT Delhi), MTech (IIT Kanpur), BE (Hons, GEC Rewa)
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Other Profile Links

Research Gate Link :

Personal Web Link :

Google Scholar Link :

Research Profile

Research Interests : Data/Signal/Time-series modeling, simulation and analysis; COVID-19 modeling and prediction; Machine learning; Deep learning and AI; Signal processing; Image processing; Time-frequency analysis; Biomedical Signal Processing; Nonlinear and nonstationary data analysis; Numerical methods; Signal Processing Applications

Brief Research Profile : Dr. Singh currently works at Department of ECE, National Institute of Technology Hamirpur. He does research in Analysis and Applied Mathematics; Fourier theory and zero-phase filtering based Fourier Decomposition Method (FDM) for adaptive signal decomposition, representation and analysis; biomedical signal processing; time-series and other data such as COVID-19 modeling, prediction and analysis. He is currently working on a research 'Time-Frequency Analysis and Applications'

Qualification

Name of the Degree	Year Of Passing	Institute/University
PhD	2016	IIT Delhi
M.Tech.	2003	IIT Kanpur
BE (Hons.)	2000	Government Engineering College Rewa (MP)

Publications

Year	Journal	Publication	Indexed In
2019	Circuits, Systems and Signal Processing	Some studies on multidimensional Fourier theory for Hilbert transform, analytic signal and AM-FM representation, pp. 1--28; https://doi.org/10.1007/s00034-01-01133-x	SCI
2018	Royal Society Open Science	Novel Fourier Quadrature Transforms and Analytic Signal Representations for Nonlinear and Non-stationary Time Series Analysis, R. Soc. open sci. 5: 181131, pp. 1--26	SCI
2018	IEEE Transactions on Neural Systems & Rehabilitation Engineering	A novel Signal Modeling Approach for Classification of Seizure and Seizure-free EEG Signals, vol. 26, issue 5, pp. 925--935.	SCI
2018	Soil Dyn. Earthq. Eng.	Discussion of "An orthogonal Hilbert-Huang transform and its application in the spectral representation of earthquake accelerograms" by Tian-Li Huang, Meng-Lin Lou, Hua-Peng Chen, Ning-Bo Wang [Soil Dyn. Earthq. Eng. 104 (2018), 378--389], 108C, pp. 196	SCI
2017	Proceedings of the Royal Society of London A: Mathematical, Physical and Engineering Sciences	The Fourier Decomposition method for nonlinear and non-stationary signal analysis, 473 (2199), pp.1--27, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5378250/	SCI
2017	Circuits, Systems and Signal Processing	Breaking the Limits: Redefining the Instantaneous Frequency, vol. 37, issue 8, pp. 3515--3536	SCI
2017	Journal of Mechanics in Medicine and Biology	Classification of focal and nonfocal EEG signals using features derived from Fourier-based rhythms, vol. 17, no. 7 (2017) 1740002, pp. 1--16, https://doi.org/10.1142/S0219519417400024	SCI
2016	Circuits, Systems and Signal Processing	Fourier-Based Feature Extraction for Classification of EEG Signals Using EEG Rhythms, 35 (10), pp. 3700--3715	SCI
2014	Applied Mathematics and Computation	Some studies on nonpolynomial interpolation and error analysis, 244, pp. 809--821	SCI
2012	Journal of Modern Optics	Filter performance of reduced sized defect photonic crystals based on single-negative materials, 59 (7), 601--610	SCI
2012	Signal, Image and Video Processing	Time delays and angles of arrival estimation using known signals, 6 (2), 171--178	SCI
2018	Journal of the Franklin Institute	On the Approximate Discrete KLT of Fractional Brownian Motion and Applications, vol. 355, issue 17, 8989--9016	SCI
2020	Biomedical Signal Processing and Control	An efficient removal of power-line interference and baseline wander from ECG signals by employing Fourier decomposition technique, vol. 57, 101741, 2020	SCI
2020	Biomedical Signal Processing and Control	Detection of apnea events from ECG segments using Fourier Decomposition Method, Biomedical Signal Processing and Control 61 (2020) 102005.	SCI
2020	Chaos, Solitons & Fractals Volume 138, September 2020, 110023	Modeling and prediction of COVID-19 pandemic using Gaussian mixture model	SCI
2020	Digital Signal Processing (2020),102830, doi: https://doi.org/10.1016/j.dsp.2020.102830	Novel Generalized Fourier Representations and Phase Transforms	SCI
2020	Journal of Neuroscience Methods (2020) 108945	A novel approach for automated alcoholism detection using Fourier decomposition method	SCI

Year	Journal	Publication	Indexed In
2020	IEEE Communications Letters (2020) , doi: 10.1109/LCOMM.2020.3041722	AF-MNS: A Novel AM-FM Based Measure of Non-Stationarity	SCI
2021	ISA Transactions (2021), https://doi.org/10.1016/j.isatra.2021.02.016	Generalized SIR (GSIR) epidemic model: An improved framework for the predictive monitoring of COVID-19 pandemic	SCI
2021	Biomedical Signal Processing and Control, vol. 68, July 2021, 102678, https://doi.org/10.1016/j.bspc.2021.102678	Efficient detection of myocardial infarction from single lead ECG signal	SCI
2021	Biocybernetics and Biomedical Engineering 41 (2), 690-703	Hand movement recognition from sEMG signals using Fourier decomposition method	SCI
2021	Physical and Engineering Sciences in Medicine	An efficient method for identification of epileptic seizures from EEG signals using Fourier analysis	SCI
2021	Biocybernetics and Biomedical Engineering	Automated Detection of COVID-19 from CT scan using Convolution Neural Network	SCI

Edited Book/Book Chapter

Type	Title	Publisher	Authors	ISBN/ISSN No.	Year
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Research Projects

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
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Research Supervision

Programme Name	Scholar Name	Research Topic	Status	Year	Co-Supervisor
M.Tech	Abhimanyu Singh Udawat	Detection of Atrial Fibrillation from Single Lead ECG Signals	Completed	2021	
M.Tech	Anmol Sharma	Classification of EEG Signals for brain tumor detection using FDM and SVM	Completed	2021	
M.Tech	Nitesh Kumar	Classification of Supraventricular Arrhythmia using Fourier Decomposition Method and Machine Learning	Completed	2021	
M.Tech	Prerna Chaudhary	Prediction Models for the Monitoring of COVID-19 Pandemic	Completed	2021	

Patents

Name	Reg./Ref.No.	Date Of Award/Filing	Organization	Status
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Teaching

Programme Name	Subjects Taught	From	To	Credits
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Administrative Responsibilities

Position Held	Organization	From	To	Remarks
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Expert Talks

Title	Place	Year	Description
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Professional Activities

Name of Activity	Role	Duration	Organization
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Courses Organized

Category	Type	Title	Venue	From	To	Designation
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Date :

Place :

Signature