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EDUCATION:
(1) PhD–IIT Delhi, 21 July 2011–09 August 2016
(2) MTech–IIT Kanpur, July 2001–04 April 2003
(3) BE–(First class with Honors,) Government Engineering College Rewa (M.P.),

PROFESSIONAL EXPERIENCES:
(11) **June 14, 2023 onward:** Associate Professor, School of Engineering, JNU Delhi
(10) **April 29, 2020–April 28, 2021:** Faculty incharge, Student discipline NIT Hamirpur, HP
(9) **April 29, 2020–Sept. 14, 2020:** Nodal officer, Ministry of Electronics & IT (MEITY) NIT Hamirpur, HP
(8) **Feb. 25, 2020–Sept. 14, 2020:** Faculty incharge, Alumni resource generation NIT Hamirpur, HP
(7) **June 2019 onward:** Assistant professor, NIT Hamirpur, HP
(6) **June 16, 2019–November 3, 2019:** Deputy Registrar (Academic), NIT Hamirpur, HP
(5) **June 2017–May 2019:** Assistant professor, Bennett University, Greater NOIDA
(4) **August 2010–May 2017:** Assistant professor, JIIT, NOIDA
(3) **July 2011–August 2016:** Research Scholar, IIT Delhi
(2) **April 2003–August 2010:** Project Leader, STMicroelectronics Pvt. Ltd., Noida
(1) **July 2001–April 2003:** Teaching Assistant, IIT Kanpur

Ph.D. THESIS:
Title: *Some studies on a generalized Fourier expansion for nonlinear and nonstationary time series analysis.*
(i) Registration date: 21-07-2011 (ii) Submission date: 07-01-2016 (iii) Date of Thesis Defence: 09-08-2016 (iv) Award date: 19-08-2016
Supervisors: Prof. S. D. Joshi (HOD of EE, IITD), Prof. R. K. Patney (Ex-HOD of EE, IITD), and Prof. Kaushik Saha, IIT Delhi (Ex-Chief Technology Officer, Samsung R&D Institute Delhi–India)

M.Tech. THESIS:
Title: *Time delays and angles of arrival estimation using known signals.*
Supervisor: Prof. Pradip Sircar (IITK)

Featured in top 2% scientists worldwide:

1. **2021–2025:** I have been featured in the list of **top 2 percent scientists worldwide** since 2021. This list has been compiled after extensive research using Scopus author profiles by **Stanford University, USA**, and published by **Elsevier**. This year list is available online at: `https://doi.org/10.17632/btchxktzyw.8`

Awards:
2001: GATE all India rank (AIR) 87, GATE Fellowship (MHRD) 2001–2003
2007: "Best Project Team Award" for the project titled STm5700 for automotive applications at STMicroelectronics Pvt. Ltd. on July 26, 2007.
2022: Received "2022 Outstanding Review Editor" award by International Journal "Frontiers in Signal Processing".

Previous Selections:
BSNL JTO–2000, written IES–2000, BARC–2001, IIIT Naya Raipur–2017, IITRAM Ahmedabad–2017, NIT Hamirpur-2019, JNU Delhi-2023

Editorial board
(i) An Editor (2022-2025) of "IETE Journal of Research", which is an SCI journal published by Taylor & Francis
(ii) Review Editor (2021-2025) for "Biomedical Signal Processing" in "Frontiers in Signal Processing".

Some important scientific contributions:

1. We have proposed Unified Quantum Mechanics (UQM), a groundbreaking framework that reformulates quantum mechanics using real-valued operators, challenging the century-long reliance on complex numbers since Schrödinger (1926) and Dirac (1928). Leveraging the Hilbert Transform, UQM unifies real and complex quantum theories, potentially simplifying computations. The real-valued Dirac equation replaces the imaginary unit, maintaining relativistic accuracy in a non-local domain. Our real quantum field theory (QFT) extends this approach, offering new perspectives for particle physics and cosmology.
2. Mathematics is the mother of all the sciences, engineering, and technology, and the **normed division algebras in all finite dimensions** are the holy grails of mathematics. The real world is 3D, and surprisingly a 3D normed division algebra does not exist! We present a generalization of the complex numbers and **normed division algebras in all finite dimensions** along with interesting insights into the geometry of the vectors in the corresponding spaces. The proposed generalized hypercomplex numbers and the approach to derive it may open the floodgates for higher-dimensional algebra, which may find greater utility in various applications in the near future across science, engineering, and technology. The paper is published in a good journal PLOS ONE, and title is "On the hypercomplex numbers and normed division algebras in all dimensions: A unified multiplication," PLOS ONE, 19 (10), e0312502, 2024, `https://doi.org/10.1371/journal.pone.0312502`, `https://doi.org/10.1371/journal.pone.0312502`.
3. The Fourier series and Fourier transform are essential parts of undergraduate teaching in all branches of engineering and sciences across all universities. Fourier representation is one of the most important theories of modern analysis and has become an indispensable tool in exploring almost every recondite question in modern physics to understand the physical reality of the universe. Recently, we provided "Proper Definitions of Dirichlet Conditions and Convergence of Fourier Representations" for convergence of the Fourier series and Fourier transform. For many decades, the correct definitions of Dirichlet conditions have been inadvertently omitted in the literature, especially in millions of copies of standard textbooks and research articles. So incorrect Dirichlet conditions have been taught to students in all branches of engineering, science, and other disciplines worldwide in all universities. Our proposed work has been published in **IEEE Signal Processing Magazine, 39 (5), 77–84, 2022, DOI:** `https://doi.org/10.1109/MSP.2022.3172620` **(impact factor 15.204 (2022))** which is one of the most influential journals in the area of communication, signal and image processing. The one who would not adapt this work may understand and teach incorrectly, as it has been so far worldwide. Thus adapting this work to disseminate correct Dirichlet conditions by all universities worldwide in undergraduate teaching and learning is indispensable.
4. Recently in February 2021, we proposed **"General Parameterized Fourier Transform: A Unified Framework for the Fourier, Laplace, Mellin and Z Transforms,"** ***IEEE Transactions on Signal Processing*** **(2022)**, `https://doi.org/10.1109/TSP.2022.3152607`. This work eliminates almost all limitations of these transforms, applicable to much larger class of signals/functions, and provide solutions to many problems which cannot be solved by existing Fourier, Laplace, Mellin and Z Transforms. This work is also applicable to many other integral transforms such as continuous wavelet transform (CWT), discrete wavelet transform, fractional FT (FrFT), linear canonical transform

(LCT), Abel transform, Fourier sine and cosine transform, Hankel transform, Hartley transform, Hermite transform, Hilbert transform, Jacobi transform, Laguerre transform, Legendre transform, Mellin transform, Poisson kernel, Radon Transform, Weierstrass transform, S-transform, etc.

5. The Hilbert transform (HT, 1905) and Gabor analytic signal (GAS, 1946) representation are important tools for modeling and analysis of engineering systems and physical phenomenon in numerous applications. We proposed novel Fourier quadrature transforms (FQTs) and corresponding analytic signal representations as effective alternatives of the HT and GAS representation, respectively. **The Royal Society of London** has accepted and published mathematical representations after the names of Fourier and Singh as **"Fourier-Singh analytic signal"** (FSAS) representations. This study is freely available to read and download from `http://rsos.royalsocietypublishing.org/content/5/11/181131`

6. For many decades, there was a perception in the literature (more than 20,000 research papers) that Fourier theory is not suitable for nonlinear and nonstationary time-series and other data analysis. Against the established perception, we proposed the Fourier decomposition method (FDM) and demonstrated its efficacy for nonlinear and nonstationary data analysis in many applications. Results have been published in the **Royal Society of London** and link of the paper is: `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5378250/`

7. The Hilbert transform (HT) is a very popular representation proposed in 1905. The HT has been taught in mathematics, physics, engineering and sciences across the world in both UG and PG courses. We proposed a new representation designated as "**phase transform (PT)**" where the HT is a special case of this transform. This work has been slowly adopted by many institutes (like IIT, IIIT, NIT, and other Institutes/Universities) across the world in both UG and PG courses of studies. It has been published by the good journal of Elsevier "Digital Signal Processing". Link of the paper to study and download is: `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7416779/`

8. A non-stationarity of random processes is well defined, however, there was no clear definition of non-stationarity of deterministic signals in the literature. Using the AM-FM representation, we defined the non-stationarity and obtained measure of non-stationarity (MNS) for deterministic signals. We have shown that even finite duration signals can be stationary. Results are published in "IEEE Communications Letters" DOI `10.1109/LCOMM.2020.3041722`

9. We established a connection between discrete cosine transform (DCT) and the discrete-time fractional Brownian motion process (dfBm). This shows that DCT basis acts as discrete Karhunen-Loeve transform (DKLT) for these processes in the approximate sense which is useful in numerous applications. Results published in the **Journal of the Franklin Institute**, and link of the paper is: `https://www.sciencedirect.com/science/article/pii/S0016003218305970`

10. Carson and Fry (1937) introduced the concept of variable frequency or instantaneous frequency (IF) as a generalization of the constant frequency. The IF is the time derivative of the instantaneous phase, and it is well defined only when this derivative is positive. If this derivative is negative, the IF creates problem because it does not provide any physical significance, and thus in the literature IF is defined only for monocomponent signals. However, all practical signals are multicomponent and IF is not defined for these multicomponent signals. We proposed a mathematical solution which eliminates this IF problem by redefining the IF such that it is valid for all monocomponent as well as multicomponent signals of nonlinear and nonstationary nature. Results published in the Springer Nature journal and link of the paper is: `https://link.springer.com/article/10.1007/s00034-017-0719-y`

11. We proposed the generalization of three classical theorems (error analysis in polynomial interpolation, Hermite polynomial interpolation, and Taylor's theorem) for error analysis in non-polynomial interpolation. Results published in the Elsevier journal and link of the paper is: `https://doi.org/10.1016/j.amc.2014.07.049`

12. Pythagoras theorem (6th century, B.C.) in Euclidean geometry is well-known and it is valid only for orthogonal vectors. We extended this results and proposed the theorem for non-orthogonal vectors as well. Thus, we proposed Linearly Independent Non-Orthogonal yet Energy Preserving (LINOEP) class of vectors and presented the results in a well-posed mathematical theorem, where Pythagoras theorem is a special case of the proposed one.

RESEARCH INTERESTS:
Quantum Foundations; Quantum Mechanics; Quantum Computing; Machine learning; Deep learning and AI; Signal processing; Image processing; Data and Time-series modeling, simulation and analysis; COVID-19 pandemic modeling and prediction; Time-frequency analysis; Biomedical Signal Processing; Nonlinear and nonstationary data analysis; Numerical methods; Signal Processing Applications; Audio engineering; Telecommunication; set-top-box & TV systems validation, certification and analysis, 4G-5G mobile communication.

PATENTS:

1. Fatimah B., Singh P., Singhal A., Pachori R. B., "System and Method for Biometric Identification Using ECG Signals", Australian patent number: 2021106695, Granted on 21 December 2021.
2. Singh P., Singhal A., Fatimah B., Gupta A., "System and Method for Nonlinear and Non-stationary Time-series Analysis Using Adaptive Fourier–Gauss Decomposition ", Application number: 202241005003, Indian patent filed on 01/29/2022.
3. Singh P. "SYSTEM AND METHOD FOR NONLINEAR AND NON-STATIONARY DATA ANALYSIS" (Application No. 201811010442 A) Date of filing of Application: 21/03/2018, Publication Date: 27/09/2019.

Projects:

1. Worked on one project as a mentor sponsored by DST: DST-SYST-2021 titled "NON-INVASIVE LOW-COST CARDIAC SOUND SIGNAL PROCESSING SYSTEM FOR HUMAN HEART HEALTH MONITORING" of Rs. 1845272.
2. Project on COVID-19: Completed a project on Modeling and prediction of COVID-19 pandemic. This project was sponsored and supported by NIT Hamirpur (HP) India
3. Industrial Projects: I have completed more than 12 projects related to Setup box, Music player and Smart Television of many million Dollars at STMicroelectronics Pvt. Ltd. during 2004 to 2010.

Refereed SCI/Peer-reviewed Journal Publications:

1. P. Singh, P. Singh, A. Gupta, "A Pedagogical Reconceptualization of Complex Numbers as Two-Dimensional Real Numbers: A Signal Processing Perspective," IEEE Signal Processing Magazine, Volume 43 , Issue 1, 2026, `https://doi.org/10.1109/MSP.2025.3634107` [impact factor (2024) 10.3].
2. P. Singh, "Quantum Dynamics in Real Hilbert Space: Algebraic Isomorphism and Symplectic Geometry of the Schrödinger Equation," Annals of Physics, Volume 487, 170368, 2026, `https://doi.org/10.1016/j.aop.2026.170368` [impact factor (2024) 3].
3. N.K. Mishra, P. Singh, A. Gupta, S.D. Joshi, "PP-CNN: probabilistic pooling CNN for enhanced image classification," *Neural Computing and Applications*, 37 (6), 4345–4361, 2025, `https://doi.org/10.1007/s00521-024-10862-3`, [impact factor (2023) 4.5].
4. A. Gupta, P. Singh, P. Aggarwal, S.D. Joshi, "Unified Framework for Linear Scale Invariant Signals, Systems, and Transforms: A Tutorial," *Digital Signal Processing*, 104880, 2025, `https://doi.org/10.1016/j.dsp.2024.104880`, [impact factor (2021) 2.92].
5. P. Singh, A. Gupta, S.D. Joshi, "On the hypercomplex numbers and normed division algebras in all dimensions: A unified multiplication," *PLOS ONE*, 19 (10), e0312502, 2024, `https://doi.org/10.1371/journal.pone.0312502`, [impact factor (2022) 3.7].
6. P Singh, A Singhal, B Fatimah, A Gupta, S.D. Joshi "On the Convergence of Fourier Representations and Schwartz Distributions," *Franklin Open*, 2024, 100155, `https://doi.org/10.1016/j.fraope.2024.100155`

7. B. Fatimah, A. Singhal, P. Singh, ECG arrhythmia detection in an inter-patient setting using Fourier decomposition and machine learning, Medical Engineering & Physics, vol. 124, February 2024, 104102, https://doi.org/10.1016/j.medengphy.2024.104102, [impact factor (2022) 2.2].

8. M Mondal, B Das, B Lall, P Singh, SD Roy, SD Joshi, "Feature Independent Filter Pruning by Successive Layers Analysis," Computer Vision and Image Understanding, vol. 236, November 2023, 103828. https://doi.org/10.1016/j.cviu.2023.103828, [impact factor (2022) 4.5].

9. P. Singh, A. Singhal, B. Fatimah, A. Gupta, "A novel PRFB decomposition for nonstationary time series and image analysis," Signal Processing, vol. 207, June 2023, 108961. https://doi.org/10.1016/j.sigpro.2023.108961, [impact factor (2021) 4.729].

10. V. Mehla, A. Singhal, P. Singh, "An efficient classification of focal and non-focal EEG signals using adaptive DCT filter bank," Circuits, Systems & Signal Processing, vol. 42, pp. 4691–4712, 2023. https://doi.org/10.1007/s00034-023-02328-z [impact factor (2021) 2.311].

11. Singh P., Singhal A., Fatimah B., Gupta A., Joshi S.D., "Proper Definitions of Dirichlet Conditions and Convergence of Fourier Representations," ***IEEE Signal Processing Magazine***, 39 (5), 77–84, 2022, doi: https://doi.org/10.1109/MSP.2022.3172620, [**impact factor (2021) 15.204**].

12. B. Fatimah, P. Singh, A. Singhal, R.B. Pachori, "Biometric Identification from ECG Signals using Fourier Decomposition and Machine Learning," ***IEEE Transactions on Instrumentation & Measurement***, vol. 71, 17 August 2022, https://doi.org/10.1109/TIM.2022.3199260, [impact factor (2021) **5.332**].

13. Fatimah B., Singhal A., Singh P., "A multi-modal assessment of sleep stages using adaptive Fourier decomposition and machine learning," *Computers in Biology and Medicine*, vol. 148, 105877, 2022, https://doi.org/10.1016/j.compbiomed.2022.105877, [impact factor (2021) **6.698**].

14. M. Mondal, B. Das, S.D. Roy, P. Singh, B. Lall, S.D. Joshi, "Adaptive CNN filter pruning using global importance metric," Computer Vision and Image Understanding, vol. 222, 2022, 103511, https://doi.org/10.1016/j.cviu.2022.103511, [impact factor (2021) 4.886].

15. A.S. Udawat, P. Singh, "An Automated Detection of Atrial Fibrillation from Single-lead ECG using HRV Features and Machine Learning," Journal of Electrocardiology, vol. 75, November–December 2022, pp. 70-81 2022, https://doi.org/10.1016/j.jelectrocard.2022.07.069 [impact factor (2021) 1.38].

16. Singh P., Gupta A., Joshi S.D., "General Parameterized Fourier Transform: A Unified Framework for the Fourier, Laplace, Mellin and Z Transforms," ***IEEE Transactions on Signal Processing***, vol. 70, pp. 1295–1309, 2022, https://doi.org/10.1109/TSP.2022.3152607 [impact factor (2021) 4.875].

17. B. Fatimah, P. Aggarwal, P. Singh, A. Gupta, "A Comparative Study for Predictive Monitoring of COVID-19 pandemic," *Applied Soft Computing*, vol. 122, 108806, 2022, https://doi.org/10.1016/j.asoc.2022.108806, [impact factor (2021) **8.263**].

18. P. Aggarwal, N.K. Mishra, B. Fatimah, P. Singh, A. Gupta, S.D. Joshi, "COVID-19 Image Classification using Deep Learning: Advances, Challenges and Opportunities," *Computers in Biology and Medicine*, vol. 144, 105350, May 2022, https://doi.org/10.1016/j.compbiomed.2022.105350 [impact factor (2021) **6.698**].

19. Singh P., Gupta A., "Generalized SIR (GSIR) epidemic model: An improved framework for the predictive monitoring of COVID-19 pandemic," *ISA Transactions*, vol. 124, 31–40, May 2022, https://doi.org/10.1016/j.isatra.2021.02.016 [impact factor (2021) **5.911**].

20. Singh P., Singhal A., Fatimah B., Gupta A., Joshi S.D., "AF-MNS: A Novel AM-FM Based Measure of Non-Stationarity," *IEEE Communications Letters*, 25 (3) (2021), 990–994, DOI:https://doi.org/10.1109/LCOMM.2020.3041722 [impact factor (2021) 3.533].

21. Fatimah B., Singh P., Singhal A., Pramanick D., Pranav S., Pachori R.B., "Efficient detection of myocardial infarction from single lead ECG signal," *Biomedical Signal Processing and Control*, vol. 68, July 2021, 102678, https://doi.org/10.1016/j.bspc.2021.102678 [impact factor (2021) **5.076**].

22. Mishra N.K., Singh P., Joshi S.D., "Automated Detection of COVID-19 from CT scan using Convolution Neural Network," *Biocybernetics and Biomedical Engineering*, 41(2): 572–588, 2021. https://doi.org/10.1016/j.bbe.2021.04.006 [impact factor (2021) **5.687**].

23. Fatimah B., Singh P., Singhal A., Pachori R.B., "Hand movement recognition from sEMG signals using Fourier decomposition method," *Biocybernetics and Biomedical Engineering*, vol. 41, issue 2, April–June 2021, pp. 690–703, https://doi.org/10.1016/j.bbe.2021.03.004, [impact factor (2021) **5.687**].

24. Mehla V., Singhal A., Singh P., R.B. Pachori "An efficient method for identification of epileptic seizures from EEG signals using Fourier analysis," *Physical and Engineering Sciences in Medicine*, 44, 443-–456 (2021), https://doi.org/10.1007/s13246-021-00995-3 [impact factor (2021) **7.099**].

25. Mehla V., Singhal A., Singh P., "A novel approach for automated alcoholism detection using Fourier decomposition method," *Journal of Neuroscience Methods*, vol. 346 (2020) 108945, https://doi.org/10.1016/j.jneumeth.2020.108945 [impact factor (2021) 2.987].

26. Singh P., "Novel Generalized Fourier Representations and Phase Transforms," **Digital Signal Processing**, 106 (2020), 102830, https://doi.org/10.1016/j.dsp.2020.102830, [impact factor (2021) 2.92].

27. Singhal A., Singh P., Lall B., Joshi S.D., "Modeling and prediction of COVID-19 pandemic using Gaussian mixture model," *Chaos, Solitons and Fractals* 138 (2020) 110023, https://doi.org/10.1016/j.chaos.2020.110023 [impact factor (2021) **9.922**].

28. Fatimah B., Singh P., Singhal A., Pachori R.B., "Detection of apnea events from ECG segments using Fourier Decomposition Method," *Biomedical Signal Processing and Control*, 61 (2020) 102005, https://doi.org/10.1016/j.bspc.2020.102005, [impact factor (2021) **5.076**].

29. Singhal A., Singh P., Fatimah B., Pachori R.B., "An efficient removal of power-line interference and baseline wander from ECG signals by employing Fourier decomposition technique," *Biomedical Signal Processing and Control*, 57 (2020) 101741, https://doi.org/10.1016/j.bspc.2019.101741 [impact factor (2021) **5.076**].

30. Singh P., Joshi S.D., "Some studies on multidimensional Fourier theory for Hilbert transform, analytic signal and AM-FM representation," *Circuits, Systems and Signal Processing*, 38 (12), 5623–5650, 2019, https://doi.org/10.1007/s00034-019-01133-x [impact factor (2021) 2.311].

31. Singh P., "Novel Fourier Quadrature Transforms and Analytic Signal Representations for Nonlinear and Non-stationary Time Series Analysis," **Royal Society Open Science** (R. Soc. open sci. 5 (11): 181131, pp. 1-26). http://dx.doi.org/10.1098/rsos.181131, (2018) [impact factor (2021) 3.653].

32. Gupta A., Joshi SD, Singh P., "On the Approximate Discrete KLT of Fractional Brownian Motion and Applications," **Journal of the Franklin Institute**, 355 (17), 8989–9016, 2018, https://doi.org/10.1016/j.jfranklin.2018.09.023, [impact factor (2021) 4.246].

33. Gupta A., Singh P, Karlekar M., "A novel Signal Modeling Approach for Classification of Seizure and Seizure-free EEG Signals," **IEEE Transactions on Neural Systems & Rehabilitation Engineering**, 26 (5), 925–935, 2018, DOI: https://doi.org/10.1109/TNSRE.2018.2818123, [impact factor (2021) 4.528].

34. Singh P., 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 Wanga [Soil Dyn. Earthq. Eng. 104 (2018), 378–389], 108C (2018) p. 196, https://doi.org/10.1016/j.soildyn.2018.02.031 [impact factor (2021) 4.25].

35. Singh P., Joshi S.D. Patney R.K., and Saha K., "The Fourier Decomposition method for nonlinear and non-stationary signal analysis," **Proceedings of the Royal Society of London A: Mathematical, Physical and Engineering Sciences** (2017), 473 (2199), 20160871, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5378250/, https://doi.org/10.1098/rspa.2016.0871 [impact factor (2021) 3.213].

36. Singh P., "Breaking the Limits: Redefining the Instantaneous Frequency," *Circuits, Systems and Signal Processing*, (2017), 37 (8), 3515–3536, https://doi.org/10.1007/s00034-017-0719-y, [impact factor (2021) 2.311].
37. P. Singh, R.B. Pachori, "Classification of focal and nonfocal EEG signals using features derived from Fourier-based rhythms," *Journal of Mechanics in Medicine and Biology*, 17 (7), (2017) 1740002, https://doi.org/10.1142/S0219519417400024, [impact factor (2020) 0.897].
38. Singh P., Joshi S.D. Patney R.K., and Saha K., "Fourier-Based Feature Extraction for Classification of EEG Signals Using EEG Rhythms," *Circuits, Systems & Signal Processing*, 2016, 35 (10), 3700–3715, https://doi.org/10.1007/s00034-015-0225-z, [impact factor (2021) 2.311].
39. Singh P., Joshi S.D. Patney R.K., and Saha K., "Some studies on nonpolynomial interpolation and error analysis," *Applied Mathematics and Computation*, (2014), 244, 809–821, https://doi.org/10.1016/j.amc.2014.07.049 [impact factor (2021) 4.397].
40. Mishra A., Awasthi S. K., Singh P., Malaviya U., Ojha S. P., "Filter performance of reduced sized defect photonic crystals based on single-negative materials," *Journal of Modern Optics*, (2012), 59 (7), 601–610, https://doi.org/10.1080/09500340.2011.648221 [impact factor (2020) 1.464].
41. Singh P., Sircar P., "Time delays and angles of arrival estimation using known signals," *Signal, Image and Video Processing*, (2012), 6 (2), 171–178, https://doi.org/10.1007/s11760-011-0213-0, [impact factor (2021) 1.583].

Conference publications:

1. Singh P., Singhal A., Fatimah B., Gupta A., "An Improved Data Driven Dynamic SIRD model for Predictive Monitoring of COVID-19," (ICASSP 2021, IEEE Signal Process. Society's flagship conference, rank A1) IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021, pp. 8158–8162, doi: 10.1109/ICASSP39728.2021.9414762, 6–11 June 2021, Toronto, Ontario, Canada.
2. P. Singh, A. Singhal, B. Fatimah, "Instantaneous Fundamental Frequency Estimation from Speech using Fourier Decomposition Method," 2022 IEEE International Conference on Signal Processing and Communications (SPCOM), pp. 1-5, 11-15 July 2022, IISC Bangalore, doi: 10.1109/SPCOM55316.2022.9840851
3. A. Singhal, A. Qamar, S. Kunal, MP Girish, M. Vaduganathan, S. Arora, R. Yadav, V. Batra, P. Singh, B. Fatimah, A. Gupta, M.D. Gupta, "Ambient Fine Particulate Matter and COVID-19 in India," Pattern Recognition and Data Analysis with Applications. Lecture Notes in Electrical Engineering, (2022), vol 888. Springer, Singapore. https://doi.org/10.1007/978-981-19-1520-8_50
4. V.K. Mehla, A. Singhal, P. Singh, "EMD-based discrimination of mental arithmetic tasks from EEG signals", 2020 IEEE 17th India Council International Conference (INDICON), pp. 1–4, 10-13 Dec. 2020, New Delhi, India, 10.1109/INDICON49873.2020.9342095
5. Singh P., Singhal A., Gupta A., "Time-Frequency Analysis of Gravitational Waves" 2018 International Conference on Signal Processing and Communications (SPCOM), 197–201, 16–19 July 2018, https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8724396.
6. P. Singh, A. Singhal S.D. Joshi, "An Efficient ML Frequency Estimation of a Sinusoid Using the Secant Method," (pp. 1–5) IEEE International Conference on Advanced Networks and Telecommunications Systems, 17–20 December 2017, Bhubaneswar, Odisha, India, 10.1109/ANTS.2017.8384150
7. P. Singh, I. Srivastava, A. Singhal, and A. Gupta, "Baseline wander and power-line interference removal from ECG signals using Fourier decomposition method," International Conference on Machine Intelligence and Signal Processing, December 22-24, 2017 at IIT Indore, India, https://doi.org/10.1007/978-981-13-0923-6_3.
8. Singh P. and Singhal A., "Frequency Estimation of a Sinusoidal Signal," Signal Processing and Communication (ICSC), 2016 International Conference on (IEEE), 26-28 Dec. 2016, JIIT Noida, DOI: https://doi.org/10.1109/ICSPCom.2016.7980599.

9. Singh P., Srivastava P.K., Patney R.K., Joshi S.D. and Saha K., "Nonpolynomial Spline Based Empirical Mode Decomposition," *2013 International Conference on Signal Processing and Communication (IEEE)* (2013) pp. 435-440, 10.1109/ICSPCom.2013.6719829.
10. Upadhyay M., Awasthi S. K. and Shukla S. N., Singh P., "Wavelength Selective Switching Application of One Dimensional Defect Photonic Crystal," *2015 2nd International Conference on Opto-Electronics and Applied Optics (IEM OPTRONIX)*, Vancouver, BC, Canada, 15–17 Oct. 2015, DOI: 10.1109/OPTRONIX.2015.7345527

Book chapter publications:

1. A.S. Udawat, A. Singhal, A. Kumar, P. Singh, "ECG Sensor-Based Devices for Cardiac Disease Diagnosis," Non-Stationary and Nonlinear Data Processing for Automated Computer-Aided Medical Diagnosis, Elsevier, 2026, https://shop.elsevier.com/books/non-stationary-and-nonlinear-data-processing-for-automated-computer-aided-medical-diagnosis/tripathy/978-0-443-31426-1
2. Mehla V. K., Kumar A., Singhal A., Singh P., Kumar M., Komaragiri R. S., "Classification of Epileptic Seizure in EEG Signal Using Support Vector Machine and EMD," Handbook of Research on Advancements of Artificial Intelligence in Healthcare Engineering, 80–95, (2020), (IGI Global), 10.4018/978-1-7998-2120-5.ch005.
3. Pal J., Singh P., Banerjee S., "Identification of loosening of bolts in a steel plane frame structure using Fourier decomposition method," In: Dutta S., Inan E., Dwivedy S. (eds) Advances in Rotor Dynamics, Control, and Structural Health Monitoring, 393–406 (2020). Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-15-5693-7_29
4. Mehla V. K., Kumar A., Singhal A., Singh P., "Noise removal and classification of EEG signals using the Fourier decomposition method", Modelling and Analysis of Active Biopotential Signals in Healthcare, Volume 1, pp. 6–1 to 6–27 (2020), https://doi.org/10.1088/978-0-7503-3279-8ch6.
5. Singh P., Srivastava I., Singhal A., Gupta A. (2019) Baseline Wander and Power-Line Interference Removal from ECG Signals Using Fourier Decomposition Method. In: Tanveer M., Pachori R. (eds) Machine Intelligence and Signal Analysis. Advances in Intelligent Systems and Computing, vol 748. Springer, Singapore. https://doi.org/10.1007/978-981-13-0923-6_3

Other publications, arXiv preprints and communicated to journal:

1. P. Singh, "The Unit Uniform Background: A Distributional Dual to the Dirac Delta with Applications," IEEE Techrxiv, 2025.
2. P. Singh, "Real-Valued Quantum Computation via the Hilbert Transform in Unified Quantum Mechanics," IEEE Techrxiv, 2025.
3. P. Singh, "State-Dependent Quantum Uncertainty and Vanishing Bounds via Hilbert Transform in Unified Quantum Mechanics," IEEE Techrxiv, 2025.
4. P. Singh, "The Hilbert Transform as an Operator-Theoretic Imaginary Unit: Algebraic and Spectral Realization," IEEE Techrxiv, 2025.
5. P. Singh, "Real Quantum Field Theory in Unified Quantum Mechanics via the Hilbert Transform," IEEE Techrxiv, 2025.
6. P. Singh, "A Spectral Solution of the Real Wave Equation in Unified Quantum Mechanics," IEEE Techrxiv, 2025.
7. P Singh, "The Real Dirac Equation in Unified Quantum Mechanics," IEEE Techrxiv, 2025.
8. P. Singh, "Unified Quantum Mechanics: Real and Complex Quantum Theories via Real Operators Derived from the Hilbert Transform," 2025. P Singh
9. P. Singh, "Quantum Dynamics in Real Space: Algebraic Isomorphism and Symplectic Geometry of the Schrödinger Equation," IEEE Techrxiv, 2025.

10. P. Singh, "The Reality Principle for Differential Equations for Linear and Nonlinear Systems," IEEE Techrxiv, 2025.
11. P Singh, "A Bijective Mapping Between Spherical and Cartesian Coordinates via Quotient Spaces," IEEE Techrxiv, 2025.
12. P Singh, SN Pandit, P Singh, SD Joshi, "The Duality Between Generalized Inner Products and Gram–Schmidt Orthogonalization," IEEE Techrxiv, 2025.
13. P Singh, SN Pandit, A Gupta, "Smooth Atlases for the n-Sphere: Comparing Standard and Transition Band Approaches via Stereographic Projections," IEEE Techrxiv, 2025.
14. P Singh, "On Abelian Lie Group Structures on Punctured n-Spheres," IEEE Techrxiv, 2025.
15. P Singh, "On Universal Spherical Multiplication and Generalized Cauchy–Riemann Equations," IEEE Techrxiv, 2025.
16. P. Singh, "Comments on the Representations of Instantaneous Frequency using the Hilbert Transform, Direct Quadrature and Hilbert Quadrature," 2017, hal-01570332, `https://hal.archives-ouvertes.fr/hal-01570332`.
17. Singh P., "Time-Frequency analysis via the Fourier Representation," (2016), arXiv:1604.04992 [cs.IT].
18. Singh P., "LINOEP vectors, spiral of Theodorus, and nonlinear time-invariant system models of mode decomposition," (2015), arXiv:1509.08667v1 [cs.IT].
19. Singh P., Joshi S.D. Patney R.K., and Saha K., "The Hilbert spectrum and the Energy Preserving Empirical Mode Decomposition," (2015), arXiv:1504.04104 [cs.IT].
20. Singh P., Joshi S.D. Patney R.K., and Saha K., "The Taylor's nonpolynomial series approximation," (2015), hal-01229594.
21. Singh P., Joshi S.D. Patney R.K., and Saha K., "The Linearly Independent Non Orthogonal yet Energy Preserving (LINOEP) vectors," (2014), arXiv:1409.5710 [math.NA].
22. Tyagi B. V., , Tyagi K. D., Dagar S., Singh P., Gunjan, B. Suresh, "Application of Neural Network to Overcome Blind Time Problem in CTFM Sonar," *IJCST*, (2012), 3 (2), 880–882 ISSN : 0976–8491 (Online) , ISSN : 2229-4333 (Print).

PhD Supervision:
Currently, supervising two PhD students (one at IIT Delhi and one at JNU). Two PhD students have completed their thesis.

1. Virender Kumar Mehla (E18SOE805, July 22, 2018–June 2021 from BU-GN UP): Representation and analysis of biomedical signals using Fourier decomposition method
2. Milton Mondal (2016EEZ8498, January 02, 2017–April 26, 2023 from IIT Delhi) Filter Pruning for Compact and Efficient Convolutional Neural Networks
3. Narendra Kumar Mishra (2018EEZ8568, December 28, 2018–2025, IIT Delhi) Signal Processing and Deep Learning based Multimodal analysis of Biomedical Signals
4. Ms. Ankita (23/11/PE/01, Reg. 235230029704, On going at JNU)

M.Tech. Supervision:
Following students have completed their M.Tech. in my supervision

1. Abhimanyu Singh Udawat (19M436, Aug 2020–30 June 2021): Detection of Atrial Fibrillation from Single Lead ECG Signals
2. Anmol Sharma (16MI406, Aug 2020–30 June 2021): Classification of EEG Signals for brain tumor detection using FDM and SVM
3. Nitesh Kumar (16MI426, Aug 2020–30 June 2021): Classification of Supraventricular Arrhythmia using Fourier Decomposition Method and Machine Learning

4. Prerna Chaudhary (16MI435, Aug 2020–30 June 2021): Prediction Models for the Monitoring of COVID-19 Pandemic
5. Mayank Shahria (17MI436, Jul 2021–07 June 2022): Covid-19 Disease Identification from Chest CT Images using Discrete Wavelet Transform and CNN
6. Naveen Verma (17MI435, Jul 2021–07 June 2022): Detection of Crackles and Wheezes in Respiratory Sound Dataset by Deep Learning
7. Neeraj Kumar (20MEC106, Jul 2021–07 June 2022): Detection of Covid Patients From X-Ray/CT Scan Using Different CNN Models
8. Vaibhav Deep (17MI453, Jul 2021–07 June 2022): Automatic detection of epileptic seizure using SVM-2K algorithm
9. Aniket (184511, July 2022–May 2023): Deep Learning-Based Detection of CHF Using FDM and Phase Transform
10. Satvik Sharma (184553, July 2022–May 2023): Hairline Bone Fracture Detection using Deep Learning
11. Sarita Kumari (184544, July 2022–May 2023): Removal of Ocular Artifacts from Multivariate EEG signals using FDM
12. Vikash Kumar Gupta (184525, July 2022–May 2023): ECG Heartbeat Classification using Phase Transform and 1D CNN
13. Kamal Meena (19/11/EE/007, July 2023–May 2024): Analysis and Design of Patch Antenna for 5G Application

B.Tech. Project Supervision:
More than 50 students have completed their B.Tech. projects in my supervision.

Courses taught:
(1) Electrical Circuit Analysis and its Lab (2) Electronics Devices & Circuits and its Lab (3) Signals and Systems and its Lab. (4) Digital Signal Processing and its Lab (5) Analogue communication and its Lab (6) Digital communication and its Lab (7) Communication systems and its Lab (8) Control Systems engineering (9) Audio, image and TV fundamentals and its Lab (10) Linear Algebra (11) Embedded systems and its Lab (2018) (12) Detection and Estimation Theory (13) Wavelet transform & its applications (14) Image processing (15) Time series analysis (16) Introduction to quantum computing

Reviewer of journals:
IEEE Transactions on Systems, Man, and Cybernetics: Systems; Circuits, Systems & Signal Processing (CSSP); IEEE Transactions on Geoscience and Remote Sensing; IEEE Transactions on Neural Systems and Rehabilitation Engineering; IEEE transaction on signal processing; Digital Signal Processing; Signal Processing; Signal, Image and video Processing, nature scientific reports.

Skill sets (worked on):
- Programming languages: Python, MATLAB, R, C, C++, VB.NET, UNIX Shell, Tcl Scripting, and LaTeX
- RTOS OS21, OS20, and Linux
- Operating Systems Windows and Linux
- Tools: Clear case (Version Maintenance Tool), ST20, ST40, Clear-DDTS & clear quest (Defect Tracking Tool)
- Equipment Handling APWIN (Audio Precision designed for audio engineers who need the highest performance, lowest distortion and greatest flexibility possible in their audio analyzer.), DekTec DVB-T, DVB-S Modulator, DekTec Packet Injector, Logic Analyzer, frequency counter, CRO & multi-meter

- Basic understanding of communication systems such as GSM, CDMA, WCDMA, WIMAX, 4G LTE, DVB-S & DVB-S2, DVB-T & DVB-T2, DVB-C & DVB-C2
- Experience on System, H/W and SOC validation and testing
- Experience on audio system and device driver developments
- Audio certifications, data analysis, time-frequency analysis and quality measurements

Professional/educational training organized/delivered:

- Delivered an expert lecture on "Advancements in Fourier representations and applications" held during July 02 to August 03, 2022, organized by Department of ECE, JIIT NOIDA, India
- Delivered an expert lecture on "2nd workshop on application of MATLAB in Engineering and Sciences" held during December 15–19, 2021, organized by Department of Mathematics & Scientific Computing, NIT Hamirpur, India
- Presented an expert talk on "Application of Machine Learning in Image Processing," organized by IETE Students Forum of UEM Jaipur on 19th June 2021
- Organized five days "Workshop On Recent Trends in Signal Processing and Machine Learning with their Applications" 8–12 March 2021 at Department of Electronics & Communication Engineering, NIT Hamirpur (HP) India
- Presented an expert talk on "Fourier Decomposition based Methods for Signal Processing" in "Workshop On Recent Trends in Signal Processing and Machine Learning with their Applications" 8–12 March 2021 at Department of Electronics & Communication Engineering, NIT Hamirpur (HP) India
- Presented an invited talk on "Image Processing" in TEQIP-III Sponsored One Week Online Short Term Training Program (STTP) on "Machine Vision, Data Acquisition System and Smart Sensors" Duration: 21–25 December, 2020 at Department of Electrical Engineering Rajkiya Engineering College Banda Atarra, Banda, (U. P.)
- Presented an invited talk (first/keynote speaker) on "Fourier Decomposition based Methods for Signal Processing" in QIP Sponsored Short Term Course (STC) on "Computational Methods in Signal Processing and Machine Learning" during 14–19 December, 2020 at Department of Electrical Engineering, IIT Indore.
- Presented an invited talk on "Fourier Decomposition based Methods for Biomedical Signal Processing" in TEQIP-III Sponsored Short-Term Course on Current Trends in Biomedical Signal and Image Processing (20–22 October, 2020) at IIT Indore.
- Presented a webinar on "The Fourier Decomposition Method for Nonlinear and Non-stationary Data Analysis" organized by CoE Signal Processing, CMR Institute of Technology Bangalore, October 17, 2020.
- Delivered an invited talk on "Biomedical Signal Analysis and Classification Using Fourier Decomposition and ML/DL Network (AI)" in SHORT TERM TRAINING PROGRAM on Artificial Intelligence & 5G Communication Technology October 5 -10, 2020 Sponsored by AICTE Quality Improvement Scheme (AQIS) Organized by Department of Electronics & Communication Engineering, Poornima College of Engineering, Jaipur.
- Delivered an invited talk on "Fourier Theory as a Pre-processing for Machine Learning and Deep Learning" in AICTE SPONSORED ONE-WEEK ONLINE SHORT-TERM TRAINING PROGRAMME, 21-26 September 2020, MGIT Hyderabad.
- Delivered an invited on "The Fourier theory for nonlinear and nonstationary time series analysis" for FDP on State-of-the-art: Communications, Circuits and Intelligent Systems, 18-23 July, 2016, JIIT NOIDA.
- Contributed to tech week (February 03–09, 2010) as a presenter for STMicroelectronics Greater Noida.
- Organized one day workshop on Virtual Labs at JIIT Noida, 128, 2013.

- Member of Organizing Committees (1) 2013 International Conference on Signal Processing and Communication (IEEE) (2) 2016 International Conference on Signal Processing and Communication (IEEE).
- Member of technical program committee, international conference on intelligent communication and computational techniques, Manipal University jaipur, 22–23 December 2017.

Professional/educational training received:

- Attended Total Quality management (TQM), one day training at STMicroelectronics Pvt. Ltd. NOIDA, 15th September, 2005.
- Attended training on effective written communication online, two days training at STMicroelectronics Pvt. Ltd. NOIDA, 3rd and 14th July, 2006.
- Attended training on "Perl programming", two days training at STMicroelectronics Pvt. Ltd. NOIDA, 05-06 December, 2006.
- Attended training on "Stress management", one day training at STMicroelectronics Pvt. Ltd. NOIDA, 11th April, 2007.
- Attended training on "Linux Kernel & Device drivers", two days training at STMicroelectronics Pvt. Ltd. NOIDA, 15-16 April, 2010.
- Attended one day workshop on Wavelets and its application in signal processing, held on 20 April, 2011.
- Attended two days workshop on Aakash for education, IIT Bombay, 10-11 November, 2012.
- Attended 2013 International Conference on Signal Processing and Communication (IEEE).
- Attended one day workshop on Virtual Labs, IIT Delhi, 8th March 2013.
- Attended two days workshop on Empowerment of Students & Teachers through Synchronous & Asynchronous Instruction, IIT Bombay, 2013.
- Attended two weeks ISTE workshop on "Signals and Systems" under the national mission on education through ICT (MHRD, Govt. of India), 02-12 January, 2014.
- Attended two weeks ISTE workshop on "Control Systems" under the national mission on education through ICT (MHRD, Govt. of India), 02-14 December, 2014.
- Attended two days workshop on "Low voltage and Low power VLSI design" held on 22-23 August 2014 at JIIT Noida.
- Attended two days workshop on "SOS Toolbox" held on 08-09 March 2014 at Greater NOIDA extension centre of Indian Institute of Technology Roorkee.
- Attended one week faculty development programme (FDP) on, wireless sensor networks, from 21 July to 26 July, 2014.
- Attended international workshop on statistical and numerical trends in sciences and engineering, 1 January, 2015.
- Attended one week faculty development programme (FDP) on Functional analysis and its application, from 23 July to 18 July, 2015.
- Attended one week faculty development programme (FDP) on Communication engineering: Recent trends, from 11 July to 16 July, 2016.
- Attended two days workshop on Numerical methods using Scilab, from 8 April to 9 April, 2016.
- Attended 2016 International Conference on Signal Processing and Communication (IEEE).

Experience at IIT Kanpur:

August 2001 – March 2003: Teaching Assistant (TA), at IITK, I have been responsible for checking home assignments, providing lab instructions and helping instructor in conducting examinations of B.Tech. students.

Experience at STMicroelectronics Pvt. Ltd. NOIDA, April 2003 – August 2010 (7.5 Years)
Project Leader: STMicroelectronics Pvt. Ltd. I worked as Project Leader on Home Entertainment and Display (HED) Group for Set-Top-Box, TV design and developments.
Role as Project Leader: (Audio Subsystem Validation and Certification): Collection of the Audio requirements from the marketing team as per latest technology and customer demands. Analyzing feasibility and suggesting audio subsystem features that need to be incorporated in new coming SOCs and STB reference system design and reviewing schematics of the reference system design, which is going to be used by customers as a reference for their final product design. Validation of audio H/w IP's. Preparation of validation objective specifications and its test cases, testing and verification of various audio codec's (MPEG2, MP3, HEAC v2, DOLBY, DTS, WMA Pro) and preparing validation test reports. Performing audio certification and compliance testing, obtaining chip level audio certification from different audio standards on different SOCs. For internal and external customer uses, preparing application notes and certification test reports. Resolving customer issues related to the audio subsystem implementation (HW & SW), delivering Software Development Kit on ST's SOCs and reference design of STB, helping customers to get system/product level audio certification on various Audio Standards on their STB product designs. In, Dec. 2009, we at ST got MS10 certifications provided by DOLBY on STi7105 (world's first MS10 certified STB SOC).

Also had worked on following designations with their activities STMicroelectronics Pvt. Ltd
System Lab. Engineer:

- Validation of H/W Audio IP's (PCM Player, PCM Reader, SPDIF Player, I2S to SPDIF converter, SPDIF to I2S converter, ADC and DAC) on SOC of DVD, Set-Top-Box and TV
- Audio signal quality measurements (THD+N Ratio, SNR, IMD, BW or Frequency response, Dynamic range, Crosstalk or Channel separation) of DVD, TV and STB SOC's audio output.

S/W Engineer II:

- Audio S/W developments for STB devices
- Schematic review of up-coming STB devices
- Supervised one M.E. project of title "Audio Data Acquisition Using NI DAC and LabVIEW" of student of THAPAR University.

Senior S/W Engineer:

- Certification of audio Standards (Dolby, DTS, HE-AAC v2 and SRS VIQ): Any device that bears a Dolby/DTS logo is required to go through a compliance test process to insure that it meets the respective technical requirements. These tests verify correct decoder/encoder performance in both specialized properties such as bass management, dialog normalization, and down mixing, as well as in normal analog characteristics like signal-to-noise ratio, crosstalk, and THD+N ratio.
- Quality measurements of audio output on STB devices
- System bandwidth measurements, analysis and profiling of different audio codec's in STB devices by using ST BUS analyzer
- Support to customers (BOSE, SONY, HANDON, KAON and SAMSUNG) for resolving their issues related to Audio quality and certifications.

Projects:
Worked on the following projectsSTMicroelectronics Pvt. Ltd
Title: SOC (STm5700) Flexible DVD A/V Decoder with MPEG-4 & DDX:
Description: I have been responsible for the schematic review, audio IP's validation, measurement of audio quality, certification of audio codec's of different standards (Dolby Digital full support for 2.1, 5.1, 6.1 & 7.1 channel o/p, DTS5.1, DTS-ES & DTS 96/24, WMA & MLP for DVD's) and post-processes (Dolby Prologic II, and SRS True volume) managements.
Title: Audio standards Certifications:
Description: Performed Audio Certification of DOLBY, DTS, HEACv2, WMA Pro, and SRS Post processing on various SOC's STi7100, 7109, 7108, 7101, 7103, 7200, 7105, 7167, 7111, 7141, 7162, 7104, 5202, 5203,

5205, 5267, 5211, and 5262.

Title: Digital wave's generator:

Description: Developed Algorithms and written program in C for generating very high quality digital signals (Sine wave, Frequency Sweep, Amplitude Sweep, Logarithmic Frequency and Amplitude Sweep, multi-tone and square waves) in PCM and WAVE format with flexible options of 8 to 32 bits per-sample, mono to multi-channels with option of uniform and triangular PDF (probability density function) dithering of output signal. Performed quality analysis of generated waves using FFT and spectrogram.

Interests:

Reading, Chess, Cooking, Skating, Running

Referees:

- Prof. S. D. Joshi, Professor (Ex-HOD), Dept of Electrical Engineering, IIT Delhi. Hauz Khas, New Delhi-110 016, INDIA. Mobile:+91-9818807156; email: sdjoshi@iitd.ac.in and sdjoshi1@gmail.com
- Prof. Anubha Gupta, Professor, Dept of ECE, IIIT Delhi, Office: B-609 (R&D Block). Okhla phase 3, New Delhi-110 020, INDIA. Mobile:+91-8826066166; email: anubha@iiitd.ac.in
- Prof. Kaushik Saha, Dept of Electrical Engineering, IIT Delhi. Mobile: +91-9811064398; email: ksaha@iitd.ac.in; ksaha_2000@hotmail.com
- Prof R. K. Patney, Professor & Ex HOD, Dept of Electrical Engineering, IIT Delhi. Hauz Khas, New Delhi-110 016, INDIA. Mobile:+91-9891591052; email: rkpatney@iitd.ac.in

Personal details:

- Father's Name : Late Shri Shivadhar Singh
- Mothers's Name : Smt. Ramlali Singh
- Date of Birth : 8th July 1977
- Languages Known : English, Hindi, and Sanskrit

Other Profile Links:

Google-Scholar link: `https://scholar.google.com/citations?hl=en&user=ktYmzQwAAAAJ`
ResearchGate link: `https://www.researchgate.net/profile/Pushpendra_Singh22`
ORCID: `http://orcid.org/0000-0001-5615-519X`
Scopus Author ID: `https://www.scopus.com/authid/detail.uri?authorId=57216534266`

"A teacher makes the world better and enjoys the journey of probing, learning, teaching and growing"
– P. Singh