



IIT Kanpur

विद्युत अभियांत्रिकी विभाग
DEPARTMENT OF
ELECTRICAL ENGINEERING

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NEWSLETTER

DEPARTMENT OF ELECTRICAL ENGINEERING

Indian Institute of Technology Kanpur



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Head, Electrical Engineering IIT Kanpur



History

The Electrical Engineering Department was one of the first few departments with which IIT Kanpur started in 1960.

Advanced Centre for Electronics Systems (ACES) came into existence in early 1970 by a grant from the Ministry of Defence to undertake manpower training and to carry out research and development related to defence. Subsequently, several sponsored projects in many subject areas with large interdisciplinary content were handled through ACES.

ACES is now an integral part of Electrical Engineering Department and houses majority of Electrical Engineering Laboratories and Facilities. Electrical Engineering Department is currently the largest multidisciplinary department at IIT Kanpur and covers practically all sub-disciplines under Electrical Power, Electronics and Communications.

Events

- From Head's Desk
- New Joinees in 2026
- Department Highlights
- Patents Filed
- Publications
- Projects
- Workshop
- Students Recognition
- Alumni Recognition
- Faculty Recognition
- EE Alumni Reunion
- Gallery



Prof. Yogesh Singh Chauhan
Head, Electrical Engineering IIT Kanpur

FROM HEAD'S DESK

It gives me immense pleasure to present the latest issue of the Department of Electrical Engineering Newsletter, highlighting the achievements and activities of our department during the period January–June 2026.

The Department of Electrical Engineering at IIT Kanpur has always been committed to advancing excellence in education, research, and innovation.

Over the past six months, our faculty members, students, research staff, and alumni have continued to strengthen this tradition through impactful research, interdisciplinary collaborations, and meaningful contributions to society. The department has witnessed, technology development aimed at addressing real-world challenges in healthcare, transportation, communications, and sustainable energy. Our collaboration with Gati Shakti Vishwavidyalaya to advance next-generation railway technologies further demonstrates our commitment to translate research into national impact.

I am equally proud of our students, whose accomplishments continue to inspire us. Their recognition through prestigious fellowships, international travel grants, best paper awards, and research achievements reflects the high academic standards and vibrant research environment that characterize our department. Our faculty members have also received several distinguished honours and fellowships, reinforcing the department's growing global academic reputation. The department continues to foster a vibrant ecosystem through workshops, expert lectures, industry interactions, and student-centric initiatives such as Signal Sprint 2026, providing valuable opportunities for learning, innovation, and collaboration. We successfully hosted technical workshops on grid resilience for mass electric vehicle adoption and ANRF-PAIR digital technologies, alongside hosting talks from industry leaders at GlobalFoundries India and Prima Innotech LLC. We were also delighted to reconnect with our alumni through reunion events and celebrate their outstanding achievements across academia, industry, entrepreneurship, and public service. Their continued engagement strengthens the lifelong bond they share with their alma mater.

I extend my sincere appreciation to everyone whose dedication and hard work have made these accomplishments possible. I also thank our readers, alumni, collaborators, and well-wishers for their continued support and encouragement. I hope you enjoy reading this issue and celebrate another eventful chapter in the journey of the Department of Electrical Engineering.



Institute Post-doctoral Fellows



Rajat Kumar Keshari

Power converter topologies, multilevel inverters, DC microgrids, solar PV-integrated systems, energy management and battery charging systems, and EV fast-charging technologies.

Suraj Lakhchaura

Electronic transport properties 2D Materials, Semiconductor device Physics, and Device Fabrication



Sanjeev Kumar Pandey

Power Converter Design, IoT, Synchronization Problem

Ashraf Maniyar

Semiconductor Devices TCAD Simulations, Modeling and Characterization



Mani Gupta

Bio-molecular Control, Synthetic Biology

Punyatoya Routray

Metamaterials, RIS, Bandpass Filter



MoU with GSV, Vadodara

IIT Kanpur and GSV, Vadodara will collaborate on next-generation rail technologies, including high-speed trains, rail propulsion systems, advanced bogie design, and methanol & hydrogen-based engines.

The partnership will also establish Centres of Excellence in RAMS and PHM to drive innovation in sustainable and intelligent mobility.



Signal Sprint 2026

Showcased the remarkable creativity and technical excellence of IIT Kanpur students, transforming AI ideas into impactful sustainability solutions. Congratulations to all participants and winners for driving innovation with purpose and real-world impact.



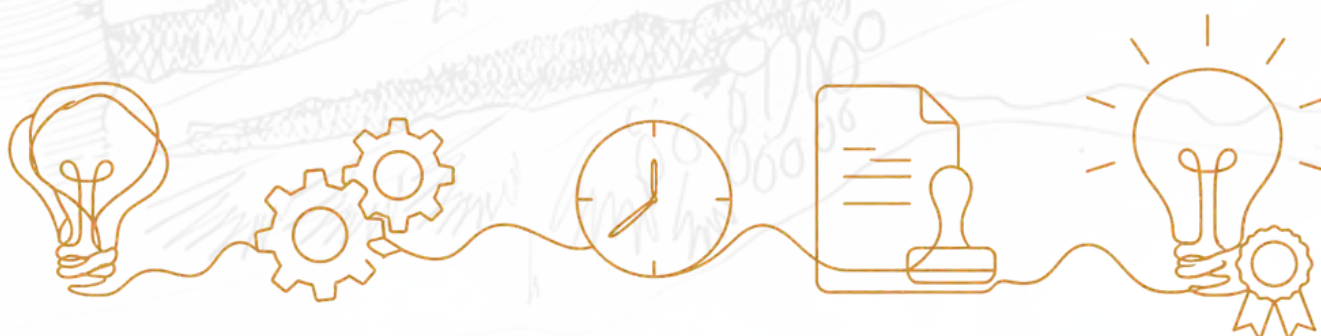
Patents

S.No.	Details of Patents	Filed on
1	Mr. Philip Varghese Saju (PhD Student, EE), Mr. Devadarshan Illath (Project Associate I, EE), Dr. Ebin Cherian Mathew (EE)	20.02.2026
2	Mr. Deepak Singh (Post Doctoral Fellow, EMPower Lab, EE), Mr. Priyankar Roy (Post Doctoral Fellow, EMPower Lab, EE), Dr. Sandeep N (EE), Dr. Piyush Kant (EE)	17.04.2026
3	Dr. Deepak Singh (Institute Post Doctoral Fellow, EMPower Lab, EE), Mr. Priyankar Roy (Post Doc, EMPower Lab, EE), Dr. Piyush Kant (EE, IITK)	16.06.2026

Technology in Healthcare

Under the mentorship of Dr. Tushar Sandhan, a multidisciplinary team including Dr. Pooja Ramakant (KGMU) and Shreya Manoj Nair (SIB SHInE Biodesign Fellow) has patented a novel breast monitoring device.

The innovation enables early detection of breast anomalies without requiring patients to undress, making screening more accessible and helping reduce the burden of late-stage breast cancer.



Control and Automation

Journal Publications

S.No.	Details of Publications
1	Gurbani C.; Potluri R., "A Robust Lateral Dynamics Control Scheme for a Human-Driven Four-Wheel-Independent-Steering Electric Vehicle", Journal of Dynamic Systems Measurement and Control, vol. 148, issue 1, doi: 10.1115/1.4069172
2	Nayak S.M.; Ramteke V.; Kothari M.; Sahoo S.R., "Design of MRF Brake for Dual-Spin Artillery Projectile", IEEE Transactions on Aerospace and Electronic Systems, vol. 62, pp. 142-152, doi: 10.1109/TAES.2025.3620318
3	Prem Raj; Lirong Xiang; Laxmidhar Behera; Tushar Sandhan, "Bin-Picking With Category-Agnostic Segmentation for Unreliable Depth Scenarios", IEEE Robotics and Automation Practice, doi: 10.1109/rap.2026.3652157
4	Seshasayanan S.; Chaturvedi S.; Sahoo S.R., "Analysis of Independent Control in Tilt-Rotor Quadrotors", IEEE Transactions on Automation Science and Engineering, vol. 23, pp. 979-994, doi: 10.1109/TASE.2025.3644498
5	Seshasayanan S.; Sahoo S.R., "Nonlinear control of a tilt augmented multi-rotor UAV with a fixed maximum convergence rate in presence of Inertia uncertainties", Control Engineering Practice, vol. 168, 2026, doi: 10.1016/j.conengprac.2025.106747
6	Sharma A.K.; Verma N.K., "A novel vision transformer with selective residual in multihead self-attention for pattern recognition", Pattern Recognition, vol. 172, doi: 10.1016/j.patcog.2025.112497

Conference Publications

S.No.	Details of Publications
1	Panda P.; Bisoy S.K.; Mallick P.K.; Sahoo S., "Hybrid Feature Selection and Classification Framework for Diabetes Prediction Using CFS, SSA, and Random Forest", Esic 2026 Proceedings 6 th International Conference on Emerging Systems and Intelligent Computing, pp. 574-578, doi: 10.1109/ESIC68176.2026.11495944

Power Engineering

Journal Publications

S.No.	Details of Publications
1	Ghosh S.; Sensarma P., "Suppressing Synchronization Inrush in a VSI Based 3-Phase Standalone Micro-Grid", IEEE Transactions on Industry Applications, vol. 62, pp. 60-70, issue 1, doi: 10.1109/TIA.2025.3594644
2	Sheikh M.A.; Arya N.; Rajoriya A.; Budhiraja R., "IRS-Enhanced Cell-Free mMIMO-OTFS Systems: Learning-Based Channel Estimator and SE Analysis", IEEE Transactions on Wireless Communications, vol. 25, pp. 2213-2230, doi: 10.1109/TWC.2025.3595411
3	Singh D.; Sandeep N.; Kant P., "Design and Implementation of a Nine-Level Double-Boost Common-Ground Inverter With Minimal Component Count", IEEE Transactions on Circuits and Systems II Express Briefs, vol. 73, pp. 218-222, issue 2, doi: 10.1109/TCSII.2025.3638167
4	Ghosh S.; Singh A.K.; Singh S.N.; Singh N.K., "Smart energy efficient transportation systems", Handbook of Power Electronics in Smart Grids and Intelligent Energy, pp. 435-459, doi: 10.1016/B978-0-323-95045-9.00023-8
5	Maurya S.K.; Mohapatra A.; Sharma A., "Generalized Neural Network to Locate Fault in DC Microgrid Using Limited Initial Samples", IEEE Transactions on Power Delivery, vol. 41, pp. 387-398, issue 1, doi: 10.1109/TPWRD.2025.3647364



S.No.	Details of Publications
6	Roy P.; Bandyopadhyay A.; Kurre M.; Charan N.H.; Ramakrishna P.; Kant P., "Development of Three-level F-Type Inverter fed PMSM Drive with ANN-assisted $\alpha\beta\gamma$ -Framed Virtual SVPWM for Electric Propulsion", IEEE Transactions on Industry Applications, doi: 10.1109/TIA.2026.3655662
7	Sharma S.; Battula S.; Singh S.N., "IDSO-Managed Bid-Based Transactive Design for DER Participation in Wholesale Markets While Preserving T-D Interactions", IEEE Transactions on Energy Markets Policy and Regulation, doi: 10.1109/TEMPR.2026.3661757
8	Dash S.; Sodhi R.; Singh S.N., "A Cluster-Wise Response Aggregation-Based Privacy Preservation Strategy for Pool Energy Market Participation", IEEE Transactions on Industry Applications, doi: 10.1109/TIA.2026.3675231
9	Sagwal R.; Sharma A.; Ramkumar J.; Singh S.N., "Electric Vehicles (EVs) Demand Forecast Using Machine Learning (ML) for Sustainable Urban Development", Lecture Notes in Mechanical Engineering, pp. 85-95, doi: 10.1007/978-3-032-17783-4_7
10	Soni A.K.; Tiwari A.; Mohapatra A.; Singh S.N., "Robust Protection Coordination of Directional Over-Current Relays in AC Microgrids", IEEE Transactions on Power Delivery, doi: 10.1109/TPWRD.2026.3691006
11	Mahawar J.K.; G. M. Vishwanath; Chakrabarti S., "Enhancing Performance of Doubly Fed Induction Generator Under Unbalanced Voltage", IEEE Transactions on Industry Applications, doi: 10.1109/TIA.2026.3679657
12	Darshan Prakash Borthakur; Alok Ranjan Verma, "A Novel Method to Evaluate Interfacial Pressure in Cable Joints using Dynamic Mechanical Analysis", IEEE Transactions on Dielectrics and Electrical Insulation, doi: 10.1109/tdei.2026.3697180
13	Pandey A.; Samanta S., "Precise Analytical Modeling of Litz-Wire Rectangular WPT Coil with Ferrite Core and Lateral Misalignment for Inductance Estimation", IEEE Transactions on Power Electronics, doi: 10.1109/TPEL.2026.3692660
14	Gupta S.; Nandanwar A.; Dhar N.K.; Behera L.; Samanta S., "Modelling and robust control of a miniature wall-climbing aerial robot", International Journal of Control, doi: 10.1080/00207179.2026.2676810
15	Arora M.; Vishwanath G.M.; Sharma A.; Chilamkurti N., "Incentive model for fair and resilient peer-to-peer energy trading based on the time value of money", Utilities Policy, vol. 99, doi: 10.1016/j.jup.2025.102122
16	Sahoo S.; Bisoy S.K.; Panda P.; Sahoo P.K.; Dixit H.K., "Enhancing heart disease prediction using genetic algorithm-based ensemble learning with explainable AI", Engineering Research Express, vol. 8, issue 10, doi: 10.1088/2631-8695/ae6f88
17	M. Arora; Naveen Chilamkurti; Ankush Sharma; G.M Vishwanath, "A Decentralized Framework for Inertia-Aware Joint Power and Renewable Energy Certificate Trading", IEEE Transactions on Industrial Informatics
18	M. Arora; G. M. Vishwanath; A. Sharma; N. Chilamkurti, "Blockchain-enabled secure energy trading in smart home devices", Electric Power Systems Research (Elsevier), vol. 258, pp. 0378-7796, doi: https://doi.org/10.1016/j.epsr.2026.113113.
19	Diksha Singh; Laxmidhar Behera; Gururaj Mirle Vishwanath, "Behavior-driven planning of community energy storage with dynamic EV support for distribution system resilience", Electric Power Systems Research (Elsevier), vol. 257, pp. 0378-7796, doi: https://doi.org/10.1016/j.epsr.2026.112989.
20	K. Chatterjee; B. Sriram; P. Kumar Agnihotri; S. Basu; N. Gupta, "Voltage-Dependent Capacitance as a Measure of Pore Accessibility of Supercapacitor Electrodes", IEEE Transactions on Instrumentation and Measurement, vol. 75, pp. 1-8, Art no. 6002608, doi: 10.1109/TIM.2026.3677937
21	P. Das; S. Basu; N. Gupta, "Molecular Dynamics Simulations for the Estimation of the Dielectric Constant of Epoxy-Amine Networks at Non-Stoichiometric Ratios", Polymer Engineering & Science, vol. 66, issue 6, pp. 4261-4272, doi: https://doi.org/10.1002/pen.70494
22	B. Sriram; N. Gupta, "A Data-Driven Approach to the Estimation of Charge Transport Parameters in Polymeric Dielectrics", IEEE Transactions on Dielectrics and Electrical Insulation, vol. 33, pp. 832-841, doi: 10.1109/TDEI.2025.3633233
23	Kumar Vinay; Nandini Gupta; Prabhat K. Agnihotri, "Inducing in Situ Delamination Monitoring With Enhanced Fracture Toughness in Fiber-Metal Laminates Using Carbon Nanotubes", Polymer Composites, pp. 8860-8873, doi: https://doi.org/10.1002/pc.70725



S.No.	Details of Publications
24	M. Singh; S. Samanta; S. P. Das, " A Circulating Current Control Technique in a Three-Phase Parallel-Connected Integrated Onboard Charger ", IEEE Journal of Emerging and Selected Topics in Industrial Electronics, vol. 7, pp. 335-347, doi: 10.1109/JESTIE.2025.3639823

Conference Publications

S.No.	Details of Publications
1	Brahmachary R.; Bhattacharya A.; Banerjee S.; Chakrabarti S., " Optimal Allocation of EVCS with Energy Loss Cost Allocation and Power-Quality Considerations ", 2026 International Conference on Electric Power and Renewable Energy Eprec 2026, doi: 10.1109/EPREC66546.2026.11412120
2	Singh M.; Samanta S.; Das S.P., " Interleaved Carrier-Based PWM for Enhanced CMV Performance in Three-Phase Parallel-Connected IOBCs ", 4 th Odisha International Conference on Electrical Power Engineering Communication and Computing Technology Odicon 2026, doi: 10.1109/ODICON66687.2026.11470894
3	Singh P.P.; Shankar R.; Singh S.N., " A novel 3DoF(PIDN) delay-based PIR control strategy for load frequency control of deregulated power system considering EVs and TD-Attack ", 2026 International Conference on Electric Power and Renewable Energy Eprec 2026, doi: 10.1109/EPREC66546.2026.11412164
4	Singh P.P.; Shankar R.; Singh S.N., " A Cyber-Resilient Analysis of Load Frequency Control in Restructured Power Systems Using QO-Based COA Optimized Hybrid 3DoF (PIDN)-(PI+PD) Controller ", 2026 International Conference on Electric Power and Renewable Energy Eprec 2026, doi: 10.1109/EPREC66546.2026.11411984
5	Singh S.K.; Agarwal T.; Agarwal S.; Hassan E.; Singh S.N.; Singh A.K., " A Variational Mode Decomposition-Enhanced Deep Convolutional Network for Day-Ahead Solar Irradiance Prediction ", 2026 2 nd International Conference on Cognitive Computing in Engineering Communications Sciences and Biomedical Health Informatics Ic3ecsbhi 2026, pp. 1655-1660, doi: 10.1109/IC3ECSBHI67834.2026.11469067
6	Singh D.; Maurya M.; Behera L.; Vishwanath G.M., " A Unique Power Management Scheme for Improving the Performance of Distribution Transformer Using Electric Vehicles ", 2026 International Conference on Electric Power and Renewable Energy Eprec 2026, doi: 10.1109/EPREC66546.2026.11412331
7	Basak S.; Kundu U.; Umanand L., " Open-loop Stability Analysis and Derivation of Optimal Coupling Coefficient for Capacitive Power Transfer Systems ", Conference Proceedings IEEE Applied Power Electronics Conference and Exposition APEC, pp. 2534-2541, doi: 10.1109/APEC51134.2026.11516671
8	Basak S.; Kundu U.; Umanand L., " Closed-form Solutions for Self and Mutual Capacitances in Capacitive Wireless Power Transfer Systems ", Conference Proceedings IEEE Applied Power Electronics Conference and Exposition APEC, pp. 2542-2548, doi: 10.1109/APEC51134.2026.11516945
9	Mitra A.; Kundu U.; John V.; Ramkumar S., " Multi-mode Exact Time-domain Analysis and Characteristics-based Design of the ACF Converter ", Conference Proceedings IEEE Applied Power Electronics Conference and Exposition APEC, pp. 2123-2129, doi: 10.1109/APEC51134.2026.11517112

RF & Microwave

Journal Publications

S.No.	Details of Publications
1	Mishra R.; Harish A.R., " Tri-Band Shared-Aperture Array With Improved Isolation Using Heterogeneous Elements and EBG Structures ", IEEE Antennas and Wireless Propagation Letters, vol. 25, pp. 413-417, issue 1, doi: 10.1109/LAWP.2025.3628737



S.No.	Details of Publications
2	Ahsan A.; Akhtar M.J., "Synthesis of Broadband RF Amplifier Matching Networks Using Continuously Varying Impedance Lines", IEEE Microwave and Wireless Technology Letters, vol. 36, pp. 273-276, issue 2, doi: 10.1109/LMWT.2025.3624146
3	Chakravarty S.; Khasnobish A.; Akhtar M.J., "Reference-Free Near-Field Microwave Imaging Through Optimal Standoff Distance Control for High-Contrast Subsurface Anomaly Detection", IEEE Access, vol. 14, pp. 5777-5792, doi: 10.1109/ACCESS.2026.3651628
4	Bandyopadhyay B.; Vishwakarma R.; Saikia M.; Vaibhav Srivastava K., "Polarization Insensitive Wideband Time-Modulated Frequency Selective Surface: An Approach for Radar Countermeasure of Microstrip Antenna", IEEE Transactions on Antennas and Propagation, vol. 74, pp. 2420-2430, issue 3, doi: 10.1109/TAP.2025.3647969
5	Parameswaran A.; Kumar M.; Majumder B.; Zuazola I.J.G.; Akhtar M.J.; Kumar M., "The Unified Synthesis of Flat-Beam Multi-Directional Metasurface Rectennas: A Review for Pervasive Wireless Power Beyond Directional Limits", IEEE Access, vol. 14, pp. 26560-26580, doi: 10.1109/ACCESS.2026.3660895
6	Ahsan A.; Alam A.; Akhtar M.J., "Practical Implementation of a Concurrent 1.8/2.4/3.5 GHz GaN Power Amplifier Based on Impedance Compensation and Frequency Ordering", 2026 Symposium on Microwave Antenna and Propagation Smap 2026, pp. 165-168, doi: 10.1109/SMAP67528.2026.11439215
7	Sanghmitra ; Gangwar R.K.; Chaudhary R.K., "A Low-Profile PCB-Compatible Circularly Polarized MIMO Substrate Integrated Octagonal Dielectric Resonator Antenna for mm-Wave IoT-Based Smart Environments", IEEE Internet of Things Journal, doi: 10.1109/JIOT.2026.3696922
8	Davi Rodrigues; Xun Gong; Rashaunda Henderson; M. Jaleel Akhtar, "Education Committee News [Education News]", IEEE Microwave Magazine, doi: 10.1109/mmm.2025.3629924
9	Riyaz ; Shahnawaz M.; Abushad M.; Akhtar M.J.; Ansari A.; Husain S.; Khan W., "Multiphase electromagnetic characterization and full-wave simulation of nickel ferrite/barium titanate/rGO ternary nanocomposites for broadband microwave attenuation", Journal of Materials Science, vol. 61, pp. 14000-14027, issue 20, doi: 10.1007/s10853-026-12672-5
10	Swati Gangwar; Kamal K. Kar; M. Jaleel Akhtar, "Carbon nanofibers and recycled human hair-derived carbon integrated fabrics for high-performance electromagnetic interference (EMI) shielding with hydrophobic properties", Diamond and Related Materials, vol. 167, pp. 0925-9635 doi: 10.1016/j.diamond.2026.113824
11	Rahul Vishwakarma; Amit Verma; Kumar Vaibhav Srivastava, "Design and Development of PIN Diode-Based Switchable Metamaterial Absorber in S Band", IEEE Letters on Electromagnetic Compatibility Practice and Applications (L-EMCPA), doi: 10.1109/LEMCPA.2026.3684917

Conference Publications

S.No.	Details of Publications
1	Siddharth Thakur; Mir Mohammad Shayoub; Nagaditya Poluri; Yogesh Singh Chauhan, "Exploring Bias-Controlled Mode Reconfigurability in GaN-Based Doherty Power Amplifiers", 2026 10 th IEEE Electron Devices Technology & Manufacturing Conference (EDTM), Penang, Malaysia, 2026, doi: 10.1109/EDTM65772.2026.11497089

Optoelectronics and Optical Communication

Journal Publications

S.No.	Details of Publications
1	Srivastava R.; Singh Y.N., "Bit rate and path length-aware spectrum allocation sequences for multiband elastic optical networks", Journal of Optical Communications, doi: 10.1515/joc-2025-0527

S.No.	Details of Publications
2	Kumar R.; Singh Y.N.; Jayakody D.N.K.; Panic S., "Duty Cycle-Aware Energy-Efficient MAC Protocol for Single-Layer Hierarchal UAV-WSN", Advances in Science and Technology, vol. 177, pp. 81-89, doi: 10.4028/p-R4C9Jo
3	Singh N.; Singh Y.N., "All-optical cross-phase modulation-based aggregation of RZ-BPSK and NRZ-OOK in an octagonal highly nonlinear dispersion-flattened PCF", Optics Continuum, vol. 5, pp. 713-731, issue 2, doi: 10.1364/OPTCON.577193
4	Singh N.; Singh Y.N., "Baud-Rate-Doubled TI-BPSK Generation Through Dual-Pump PSA-Based QPSK De-Aggregation", IEEE Journal of Quantum Electronics, vol. 62, issue 2, doi: 10.1109/JQE.2026.3681877
5	Srivastava R.; Singh Y.N., "Spectrum allocation with wavelength conversion for enhanced spectral efficiency in multi-band elastic optical networks", Optical Fiber Technology, vol. 98, doi: 10.1016/j.yofte.2026.104554
6	Srivastava R.; Singh Y.N., "Multi-link weight metric-based routing approaches incorporating link length, resource availability, and penalization in MB-EONs", Optical Fiber Technology, vol. 98, doi: 10.1016/j.yofte.2025.104546
7	Srivastava R.; Singh Y.N., "Effect of average nodal degree and connection holding time on blocking probabilities and band usage distribution in multi-band EONs", Optical Fiber Technology, vol. 98, doi: 10.1016/j.yofte.2025.104531
8	Sallam M.; Deepika ; Kaur K.; Jindal N.; Kaddoum G.; Singh M.; Singh Y.N., "Energy Consumption Forecasting in Net-Zero Energy Buildings: Firefly-Driven LSTM for Smart Consumer Electronics and Edge-Based Energy Optimization", IEEE Transactions on Consumer Electronics, vol. 72, pp. 3064-3079, issue 2, doi: 10.1109/TCE.2025.3646842
9	Bharadwaj Jampu; Naren Naik; Omprakash Gottam; Prabodh Kumar Pandey; Sanjay Gambhir, "Fully non-linear blob basis based fluorescence photoacoustic pharmaco-kinetic tomography using non-sequential sensitivity evaluations", Physics in Medicine & Biology, vol. 71, issue 4, doi: 10.1088/1361-6560/ae443e

Microelectronics and VLSI

Journal Publications

S.No.	Details of Publications
1	Kar A.; Mema A.; Nemec T.; Dunkel S.; Mulaosmanovic H.; Beyer S.; Chauhan Y.S.; Amrouch H., "Ferroelectric Digital In-Memory Computing for Scalable, Reliable, and Efficient Similarity Computation", IEEE Transactions on Circuits and Systems I Regular Papers, vol. 73, pp. 800-813, issue 2, doi: 10.1109/TCSI.2025.3612452
2	Singh S.K.; Singh Chauhan Y.; Wu T.L., "Compact GaN-Based DCFL Amplifier With Direct-Coupled Loads for Wide-Temperature Applications", IEEE Electron Device Letters, vol. 47, pp. 273-276, issue 2, doi: 10.1109/LED.2025.3641957
3	Raza H.; Benkhelifa M.; Kumar K.; Parihar S.S.; Singh Chauhan Y.; Amrouch H.; Lahgere A., "Evaluation of Radiation Resilience, Performance, and Vmin of Sub-3 nm FSFET Based SRAM Arrays", IEEE Transactions on Computers, vol. 75, pp. 1197-1208, issue 3, doi: 10.1109/TC.2025.3649150
4	Anupam M.; Mondal I., "A 2.7–15.5 GHz Programmable Bandwidth Continuous-Time Active Filter in 65 nm CMOS", IEEE Journal of Solid State Circuits, doi: 10.1109/JSSC.2025.3643145
5	Raza H.; Amrouch H.; Lahgere A., "Soft Error Analysis in NSFET and FSFET: From Device Physics to Circuit and Memory Impact", IEEE Transactions on Electron Devices, doi: 10.1109/TED.2026.3656164



S.No.	Details of Publications
6	Nandi D.; Kumar Dabhi C.; Rajasekharan D.; Karumuri N.; Turuvekere S.; Dutta A.; Swaminathan B.; Srihari S.; Hu C.; Singh Chauhan Y., "Nonlinear Body Resistance in SOI MOSFETs Under Dynamic Depletion: Compact Modeling and DC Characterization", IEEE Transactions on Electron Devices, vol. 73, pp. 1155-1162, issue 3, doi: 10.1109/TED.2026.3652538
7	Benkhelifa M.; Deshwal S.; Mayr L.; Chauhan Y.S.; Amrouch H., "Revealing the Impact of Parasitic Effects on CFET Reliability and Performance Across Devices, Standard Cells, and Circuits", IEEE International Reliability Physics Symposium Proceedings, 2026, doi: 10.1109/IRPS61424.2026.11499255
8	Banerjee A.; Bhattacharya S.; Chakraborty A.; Chauhan Y.S.; Sahay S., "Ultra-compact neural network ADC exploiting ferroelectric FETs", Microelectronic Engineering, vol. 302, doi: 10.1016/j.mee.2025.112404
9	Paul S.; Mattoni G.; Ghosh A.; Kesarwani P.; Sahu D.; Ahlawat M.; Ashok P.; Verma A.; Govind Rao V.; Sow C., "Multi-probe detection of domain nucleation across the metal-insulator transition in VO ₂ ", Applied Physics Letters, vol. 128, issue 5, doi: 10.1063/5.0291227
10	Naseer A.; Chauhan Y.S.; Bhowmick S.; Agarwal A., "Two-dimensional ferroelectric materials and their applications", 2d Materials, vol. 13, issue 1, doi: 10.1088/2053-1583/ae28e0
11	Malireddi A.P.; Chejarla S.; Krishnamurthy S.; Srinivasan B.; Rituraj ; Bhaskaran H.; Manivannan A., "Wide Angle Polarization-Independent 6-Bit Optical Modulator Using Phase Change Material", Nano Letters, vol. 26, pp. 3049-3055, issue 9, doi: 10.1021/acs.nanolett.5c05799
12	Bhat M.A.; Mondal I., "A 3–5.5 GHz Compact, Power-Efficient, Switched LC Delay-Line With 0.2–1.1 ns Delay Range", IEEE Journal of Solid State Circuits, vol. 61, pp. 1614-1628, issue 4, doi: 10.1109/JSSC.2025.3590509
13	Rai R.; Nguyen K.Q.; Ho V.Q.; Tran H.D.; Mazhari B.; Chang E.Y., "Cryogenic Temperature Electrical Characterization of Enhancement-Mode Thin Barrier AlGaIn/GaN HEMT with Hybrid Ferroelectric Charge Trap Gate-Stack", IEEE Transactions on Electron Devices, vol. 73, pp. 2478-2485, issue 4, doi: 10.1109/TED.2026.3663344
14	Acharyya N.; Yogitha S.N.; Mishra A.; Verma A.; Rana D.S.; Roy Chowdhury D., "Temperature Facilitated Multi-Resonance Reconfigurability in Terahertz Metasurface and Subsequent Development of Dual Channel Heat Sensor", IEEE Journal of Selected Topics in Quantum Electronics, vol. 32, issue 3, doi: 10.1109/JSTQE.2026.3677467
15	Hussain M.S.; Sirohi A.; Lahgere A.; Chauhan Y.S.; Akram M.W., "Efficacy of π -gate in LDMOS for improved safe operating area and figure of merits", Semiconductor Science and Technology, vol. 4, issue 15, doi: 10.1088/1361-6641/ae6366
16	Anwer M.; Verma A., "Lattice-matched nitride-oxide HEMTs with superior electronic and thermal performance", Journal of Applied Physics, vol. 139, issue 19, doi: 10.1063/5.0281648
17	Kumar S.; Mondal I., "Design and Analysis of a Source Parasitic Insensitive Fully-Passive N-Path Receiver With Sub-3 dB NF", IEEE Journal of Solid State Circuits, vol. 61, pp. 2589-2600, issue 6, doi: 10.1109/JSSC.2025.3610647
18	Rai R.; Nguyen K.Q.; Wu J.S.; Mazhari B.; Chang Y., "High-Performance Tri-Gate GaN MIS-HEMT With a Lanthanum-Doped Hybrid Ferroelectric Charge-Trap Gate-Stack", IEEE Transactions on Electron Devices, vol. 73, pp. 3366-3371, issue 6, doi: 10.1109/TED.2026.3678162
19	D. Sen; H. Ravichandran; S. Imam; S. Ghosh; K. Mukhopadhyay; Md Yasir Bashir; T. S. Ie; V. Mazanek; J. Luxa; C. Chen; J. M. Redwing; Z. Sofer; Shubham Sahay; M. G. Kanatzidis; Saptarshi Das, "van der Waals dielectrics for threshold engineering in two-dimensional field effect transistors", Nature Communications, vol. 17, pp. 2840, doi: 10.1038/s41467-026-69089-6
20	MD Yasir Bashir; Lalith Adithya Sai C; Shubham Sahay, "1-Transistor-Dynamic Random Access Memory as Reservoir for Temporal Signal Processing", IEEE Journal on Exploratory Solid-State Computational Devices and Circuits, vol. 12, pp. 120-128, doi: 10.1109/JXCDC.2026.3690766



S.No.	Details of Publications
21	Arka Chakraborty; MD Salim Equbal; Shubham Sahay, " Ferroelectric FET-based Efficient Probability Conversion Circuits for Stochastic Computing ", IEEE Journal on Emerging and Selected Topics in Circuits and Systems, doi: 10.1109/JETCAS.2026.3704711
22	Bhat M.A.; Mondal I., " Generalized and Simplified Analysis of Two-Port N-Path LPTV Delay-Lines ", IEEE Transactions on Circuits and Systems I Regular Papers, vol. 73, pp. 4110-4123, issue 6, doi: 10.1109/TCSI.2026.3659267
23	Rahul Vishwakarma; Amit Verma; Kumar Vaibhav Srivastava, " Design and Development of PIN Diode-Based Switchable Metamaterial Absorber in S Band ", IEEE Letters on Electromagnetic Compatibility Practice and Applications, pp. 1, doi: 10.1109/LEMCPA.2026.3684917
24	Abhishek Mishra; Rahul Vishwakarma; Kumar Vaibhav Srivastava; Yogesh Singh Chauhan; Amit Verma, " Frequency reconfigurable absorber using a uniform vanadium dioxide film-based substrate thickness modulator ", Journal of Physics D: Applied Physics, vol. 59, pp. 115302, doi: 10.1088/1361-6463/ae4a3
25	Arun Sehrawat; Swapnendu Narayan Ghosh; Amrita Singh; Souvik Halder; Sonika Singh; Ananya Borkotoky; Amit Verma; Ankur Goswami; Krishna B. Balasubramanian, " Enhancing meandering VO2 microwire bolometer sensitivity via confined electron layer ", Applied Physics Letters, vol. 128, pp. 93307, doi: https://doi.org/10.1063/5.0309563
26	M. M. Ahmad; A. K. Kamal; H. Agarwal; A. Lahgere, " Revisiting Negative Capacitance Effect for 1T-DRAM Application ", IEEE Transactions on Electron Devices, vol. 73, pp. 3557-3564, doi: 10.1109/TED.2026.3683039
27	Angel A. Diaz-Burgos ; Enrique G. Marin ; Alejandro Toral-Lopez ; Francisco Pasadas ; Mohit D. Ganeriwala ; Francisco G. Ruiz ; Andrés Godoy, " Accurate computation of numerical drift-diffusion fluxes in arbitrarily degenerate gases ", Computer Physics Communications, vol. 323, doi: https://doi.org/10.1016/j.cpc.2026.110123

Conference Publications

S.No.	Details of Publications
1	Bhat M.A.; Mondal I., " A Frequency-Translated, 1-to-5GHz Centred, All-Passive, Programmable-Bandwidth, Switched-Capacitor Delay Line with 6.5-to-8.2dB Delay-Independent Insertion Loss in 65nm CMOS ", Digest of Technical Papers IEEE International Solid State Circuits Conference, vol. 69, pp. 572-574, doi: 10.1109/ISSCC49663.2026.11409224
2	Thakur S.; Shayoub M.M.; Poluri N.; Chauhan Y.S., " Exploring Bias-Controlled Mode Reconfigurability in GaN-Based Doherty Power Amplifiers ", 10 th IEEE Electron Devices Technology and Manufacturing Conference Emerging Semiconductor Devices and Manufacturing Technologies Edtm 2026, doi: 10.1109/EDTM65772.2026.11497089
3	Modi J.K.; Naseer A.; Yadav S.; Bhowmick S.; Agarwal A.; Chauhan Y.S., " Sliding-Induced Vertical Ferroelectricity in ZrS₂-PtSe₂ Heterobilayers ", 10 th IEEE Electron Devices Technology and Manufacturing Conference Emerging Semiconductor Devices and Manufacturing Technologies Edtm 2026, doi: 10.1109/EDTM65772.2026.11497557
4	MD Yasir Bashir; Shubham Sahay, " Highly Scalable Multi-Bit Monolithic Stackable 3D Dynamic Random-Access Memory Cell ", 84 th Device Research Conference (DRC), Michigan, USA
5	Arka Chakraborty; Mamidala Karthik Ram; Lars Erik Warnesson; Shubham Sahay, " Cryogenic Compatible Temperature Responsive Model of Vertical InAs/InGaAs Gate-All-Around Nanowire Ferroelectric FET for Neuromorphic Applications ", 84 th Device Research Conference (DRC), Michigan, USA, doi: 10.1109/ICEE67165.2025.11409760
6	Lalith Sai C.; Naman Mehrotra; Shubham Sahay, " LOGAN: Logic Gate Sizing using Graph Neural Networks ", IEEE Computer Society Annual Symposium on VLSI (ISVLSI), Kolkata, India.
7	Hemadri Bandhu; Amit Verma, " Direct Laser Writing of Reconfigurable VO2 Electronic and Optical Devices ", 10 th IEEE Electron Devices Technology & Manufacturing Conference (EDTM), doi: 10.1109/EDTM65772.2026.11496827

Signal Processing, Communications & Networks

Journal Publications

S.No.	Details of Publications
1	Dwivedi P.; Routray G.; Hegde R.M., " Feature Transformation for Fast and Efficient Learning in Near-Field Source Localization ", IEEE Transactions on Artificial Intelligence, vol. 7, pp. 1418-1429, issue 3, 2026, doi: 10.1109/TAI.2025.3597585
2	Sheikh M.A.; Arya N.; Rajoriya A.; Budhiraja R., " IRS-Enhanced Cell-Free mMIMO-OTFS Systems: Learning-Based Channel Estimator and SE Analysis ", IEEE Transactions on Wireless Communications, vol. 25, pp. 2213-2230, doi: 10.1109/TWC.2025.3595411
3	Rajpurohit K.; Sandhan T., " Boundary Refinement in Abdomen Segmentation Using 3D Inverseform Loss ", Communications in Computer and Information Science, vol. 2475 CCIS, pp. 32-46, doi: 10.1007/978-3-031-93694-4_3
4	Singla K.; Arun C.S.; Pandey V.K.; Sandhan T., " Squeezing Global Local Attention Within Siamese Network for Robust Palm Vein Recognition ", Communications in Computer and Information Science, vol. 2475 CCIS, pp. 93-107, doi: 10.1007/978-3-031-93694-4_7
5	Sofi A.N.; Amudala D.N.; Vyas V.M.; Budhiraja R., " Generalized Superimposed Pilots in Jammed Cell-Free Massive MIMO Systems: Jamming-Robust Receiver Design, SE Analysis, and Percentile Optimization ", IEEE Transactions on Wireless Communications, vol. 25, pp. 2763-2780, doi: 10.1109/TWC.2025.3599060
6	Charitha T.S.K.; Chouhan L.; Gupta A.K.; Dey R.; Kadali E.; Mente S.; Rituraj ; Sharma P.K., " Molecular Communication in Bounded Spherical Region With Anomalous Diffusion Phenomenon ", IEEE Transactions on Molecular Biological and Multi Scale Communications, vol. 12, pp. 105-110, doi: 10.1109/TMBMC.2025.3645247
7	Sabu N.V.; Kumar Pandey K.; Gupta A.K.; Sameer S.M., " Target Detection in Clustered Mobile Nanomachine Networks ", IEEE Transactions on Molecular Biological and Multi Scale Communications, vol. 12, pp. 92-104, doi: 10.1109/TMBMC.2025.3638668
8	Sumit Kumar; Parampreet Singh; Vipul Arora, " Recognizing Ornaments in Vocal Indian Art Music With Active Annotation ", IEEE Transactions on Audio, Speech and Language Processing, doi: 10.1109/taspro.2025.3639738
9	Kumar P.; El-Hajjar M.; Hemadeh I.A.; Mestrah Y.; Srivastava S.; Jagannatham A.K.; Hanzo L., " Amalgamated CHIRP and OFDM for ISAC ", IEEE Transactions on Vehicular Technology, doi: 10.1109/TVT.2026.3655099
10	Yadav S.; Verma N.K., " A Hybrid Framework for Hallucination Detection in Large Language Models ", IEEE Transactions on Artificial Intelligence, doi: 10.1109/TAI.2026.3653354
11	Datta S.; Budhiraja R.; Liu P.; Panwar S.S., " Combining Capacity and Reliability via Inter-Frequency Handovers ", IEEE Journal on Selected Areas in Communications, vol. 44, pp. 3168-3184, doi: 10.1109/JSAC.2025.3650542
12	Lanjhi A.; Chethan R.; Budhiraja R., " CrossNet: Lightweight Transformer-Based CSI Compression Network for Massive MIMO Systems ", IEEE Wireless Communications Letters, vol. 15, pp. 1831-1835, doi: 10.1109/LWC.2026.3664112
13	Kushwaha R.; Kulkarni S.; Singh Y.N., " Generalized Distance Metric for Various DHT Routing Algorithms in Peer-to-Peer Networks ", Lecture Notes in Networks and Systems, vol. 1498 LNNS, pp. 553-566, doi: 10.1007/978-981-96-8104-4_36
14	Singh R.P.; Singh K.; Singh S.K.; Singh Y.N., " Fairness Optimization in Beyond Diagonal STAR-RIS-Aided NOMA-Enhanced NF-ISAC ", IEEE Wireless Communications Letters, vol. 15, pp. 2065-2069, doi: 10.1109/LWC.2026.3666871
15	Singh R.P.; Singh K.; Singh S.K.; Singh Y.N., Tseng F.S., " Sum Rate Maximization for Beyond Diagonal STAR-RIS Assisted Near-Field ISAC Systems ", IEEE Transactions on Wireless Communications, vol. 25, pp. 12819-12836, doi: 10.1109/TWC.2026.3666905
16	Garg A.; Srivastava S.; Dubey V.; Jagannatham A.K.; Hanzo L., " Semi-Blind Channel Estimation and Hybrid Receiver Beamforming in the Tera-Hertz Multi-User Massive MIMO Uplink ", IEEE Transactions on Vehicular Technology, 2026, doi: 10.1109/TVT.2026.3677679



S.No.	Details of Publications
17	Garg A.; Srivastava S.; Kumar A.; Yadav N.; Jagannatham A.K.; Hanzo L., "Terahertz Beamforming and Group Sparse Channel Estimation Relying on Low-Resolution ADCs in MU Hybrid MIMO Systems", IEEE Transactions on Communications, vol. 74, pp. 6808-6824, doi: 10.1109/TCOMM.2026.3678391
18	Garg A.; Kumar A.; Srivastava S.; Jagannatham A.K.; Hanzo L., "Two-Stage Hybrid Transceiver Design Relying on Low-Resolution ADCs in Partially Connected MU Terahertz (THz) MIMO Systems", IEEE Transactions on Vehicular Technology, doi: 10.1109/TVT.2026.3667286
19	Mahali P.S.P.K.; Mohanta D.; Sandhan T., "Complex AFNet: A Hybrid Complex-Valued Deep Network for Atrial Fibrillation Detection", IEEE Transactions on Artificial Intelligence, doi: 10.1109/TAI.2026.3671218
20	Jafri M.; Singh R.; Srivastava S.; Jagannatham A.K.; Chockalingam A.; Hanzo L., "Bayesian Learning Aided Doubly-Selective Simultaneous Sparse CSI Estimation in Multi-User MIMO Systems Relying on Orthogonal Time Frequency Space Modulation", IEEE Open Journal of Vehicular Technology, doi: 10.1109/OJVT.2026.3685364
21	Sumit Kumar; Suraj Jaiswal; Parampreet Singh; Vipul Arora, "Automatic Detection and Analysis of Singing Mistakes for Music Learning by Imitation", IEEE Transactions on Audio, Speech and Language Processing, doi: 10.1109/taslpro.2026.3682047
22	Saxena P.; Sharma T.; Verma N.K.; Salour A.; Vasikarla S., "Dark Channel Prior Infused All-in-One Dehazing Network (DCPI-AODNet) for Single Image Dehazing", Lecture Notes in Computer Science, vol. 16446 LNCS, pp. 387-402, doi: 10.1007/978-3-032-18474-0_27
23	Nath T.; Banerjee A., "ISI-Aware Selective Variable-Length Coding for Diffusion-Based Molecular Communication Channel with Refresh", Proceedings of the National Conference on Communications Ncc, pp. 13-18, doi: 10.1109/NCC68160.2026.11478912
24	Yadav S.; Verma N.K., "Explainable AI for Sentiment Classification with Type-1 Fuzzy & Type-2 Fuzzy Models", IEEE Transactions on Fuzzy Systems, doi: 10.1109/TFUZZ.2026.3688623
25	Mishra Y.; Gupta N.; Budhiraja R., "Stochastic Variational Inference-Based Receiver Design for 1-bit Massive MIMO Systems", IEEE Wireless Communications Letters, vol. 15, pp. 2619-2623, doi: 10.1109/LWC.2026.3685310
26	Anand A.B.; Rajawat K., "AI in the EP lab – mapping, imaging, and signal interpretation", Indian Pacing and Electrophysiology Journal, 2026, doi: 10.1016/j.ipej.2026.05.003
27	Mondal W.U.; Aggarwal V., "Last-Iterate Convergence of General Parameterized Policies in Constrained MDPs", Transactions on Machine Learning Research, doi: https://doi.org/10.48550/arXiv.2408.11513
28	Heera B.S.; Petale S.; Singh Y.N.; Subramaniam S., "Congestion-aware and service latency-aware RMCSA algorithm for dynamic service provisioning in software-defined SDM-EONs", Photonic Network Communications, vol. 51, issue 1, 2026, doi: 10.1007/s11107-025-01037-8
29	Upadhyay P.; Heera B.S.; Singh Y.N., "Link cost optimization using non-dominated sorting genetic algorithm for request handling in elastic optical networks", Photonic Network Communications, vol. 51, issue 1, doi: 10.1007/s11107-026-01040-7
30	Gupta A.; Srivastava S.; Jagannatham A.K.; Hanzo L., "Beam-Squint Aware Sparse Techniques for Massive MIMO-OFDM Integrated Sensing and Communication", IEEE Transactions on Vehicular Technology, vol. 75, pp. 5876-5891, issue 4, doi: 10.1109/TVT.2025.3618205
31	Sharma T.; Verma N.K.; Cui Y., "Omics-Based Cancer Prognosis Across Ethnic Groups: From Feature Engineering to Disparity Detection and Mitigation", IEEE Transactions on Artificial Intelligence, vol. 7, pp. 3473-3484, issue 6, doi: 10.1109/TAI.2025.3640596
32	Patel A.; Singh Y.N.; Roy D., "Exploration of XR traffic with IPACT and IPACT-GE DBAs for immersive communication", Computer Networks, vol. 283, doi: 10.1016/j.comnet.2026.112248



S.No.	Details of Publications
33	Srivastava R.; Singh Y.N., " Link spectrum status aware adaptive multi-channel routing and spectrum allocation algorithm in elastic optical network ", Computer Networks, vol. 282, doi: 10.1016/j.comnet.2026.112247
34	K. Pandey; Abhishek Gupta, " On the Analysis of Platooned Vehicular Networks on Highways ", Vehicular Communications, vol. 54, issue 4, 2026, doi: 10.1016/j.vehcom.2026.101051
35	Rashmi Kumari; Gourab Ghatak; Abhishek Gupta, " Spatially Correlated Blockage Aware Placement of RIS in IIoT Networks ", IEEE Transactions on Wireless Communications, vol. 25, pp. 16512-16528, doi: 10.1109/TWC.2026.3687208
36	Gupta A.; Mehrotra A.; Srivastava S.; Jagannatham A.K., " Sequential Parameter Estimation for Beam Squint Aware THz MIMO-OFDM ISAC Systems ", IEEE Transactions on Communications, vol. 74, pp. 3674-3687, 2026, doi: 10.1109/TCOMM.2026.3657388
37	Tulika Garg; Anupama Rajoriya; Rohit Budhiraja, " Learning Based Hardware-Impairments-Aware Channel Estimator for mmWave Wireless Systems ", IEEE Transactions on Vehicular Technology, doi: 10.1109/TVT.2026.3704832
38	Sourasis Chatterjee; Chethan R; Rohit Budhiraja, " Multi-Cell Massive MIMO RSMA: SE Analysis and Deep Global Energy Efficiency Optimization ", IEEE Transactions on Wireless Communications, doi: 10.1109/TCOMM.2026.3706476
39	Mudasir Ahmad Sheikh; Bhuvanesh Choudhary; Rohit Budhiraja, " Variational Learning-Based Channel Estimators for Uplink Massive MIMO-OTFS Systems ", IEEE Transactions on Wireless Communications, 2026

Conference Publications

S.No.	Details of Publications
1	Yadav S.; Verma N.K., " Teaching Small LLMS to Reason Using Reinforcement Learning ", 2026 IEEE 16 th Annual Computing and Communication Workshop and Conference Ccwc 2026, pp. 1347-1353, doi: 10.1109/CCWC67433.2026.11393811
2	Agrawal N.S.; Bolla T.; Sharma T.; Verma N.K., " Transfer Learning in Cross-Domain Fault Diagnosis: An Application to Gearbox Faults ", 2026 IEEE 16 th Annual Computing and Communication Workshop and Conference Ccwc 2026, pp. 1361-1366, doi: 10.1109/CCWC67433.2026.11393723
3	Yadav S.; Gupta A.K., " Optimal Antenna Tilt Configurations in Hybrid Terrestrial/ Non-Terrestrial Network ", International Conference on Communication Systems and Networks Comsnets, pp. 366-374, doi: 10.1109/COMSNETS67989.2026.11418096
4	Singh N.; Singh Y.N., " Memory-Aware Modeling of XPM-Based NRZ-OOK to RZ-BPSK All-Optical Conversion ", Proceedings of the National Conference on Communications Ncc, pp. 691-696, doi: 10.1109/NCC68160.2026.11479178
5	Singh R.P.; Singh K.; Singh S.K.; Singh Y.N.; Tseng F.S., " Beamforming Design for beyond Diagonal STAR-RIS-Assisted Near-Field ISAC Systems: A Power Minimization Approach ", IEEE Transactions on Cognitive Communications and Networking, vol. 12, pp. 6821-6840, doi: 10.1109/TCCN.2026.3676023
6	Singh N.; Singh Y.N., " Statistical Signal Processing Framework for XPM-Induced Phase Noise in All-Optical QPSK Aggregation ", Proceedings of the International Colloquium on Signal Processing and Its Applications Cspa, pp. 326-331, doi: 10.1109/CSPA68262.2026.11517847
7	Sandhan J.; Cheng F.; Sandhan T.; Murawaki Y., " Persona Jailbreaking in Large Language Models ", 19 th Conference of the European Chapter of the Association for Computational Linguistics Findings of Eacl 2026, pp. 1412-1430, doi: 10.18653/v1/2026.findings-eacl.72

S.No.	Details of Publications
8	Muskan Ahuja; Abhishek Gupta; R Rastogi, " Performance of Higher Order Ratio Modulation for Robust Molecular Communication Systems ", Eleventh International Conference on Communications and Electronics (ICCE), 2026
9	Charitha SK; Abhishek Gupta, " On the Impact of Densification in Near-Field Downlink mmWave Cellular Networks ", IEEE ICC, Glasgow
10	S. Yadav; A. K. Gupta, " Optimal Antenna Tilt Configurations in Hybrid Terrestrial/ Non-Terrestrial Network ", COMSNETS, Bangalore, doi: 10.1109/COMSNETS67989.2026.11418096
11	Saxena S.; Reddy K.S.; Srivastava S.; Peruru S.S.; Jagannatham A.K., " Bayesian Learning for Sparse Channel Estimation in Underwater Visible Light DCO-OFDM Systems ", IEEE Wireless Communications and Networking Conference WCNC, 2026
12	Garg A.; Gupta P.; Srivastava S.; Jagannatham A.K., " Ring Bayes Near-Field Channel Learning for mmWave Hybrid MIMO Systems Employing Uniform Circular Array ", IEEE Wireless Communications and Networking Conference WCNC
13	Garg A.; Shukla R.; Srivastava S.; Jagannatham A.K., " SEMIKHORN: Globally Balanced Affinities for mmWave Localization in MU mMIMO System ", IEEE International Conference on Communications ICC
14	Mudasir Ahmad Sheikh; Rohit Budhiraja, " Variational Bayesian Learning Estimator for NF gMIMO-OTFS with Spatial Non-Stationarity ", IEEE ICC 2026, Glasgow, Scotland, UK
15	Mudasir Ahmad Sheikh; Bhuvanesh Choudhary; Rohit Budhiraja, " Variational Learning with 2D Coupled Prior for Fractional-Doppler Aware mMIMO-OTFS Systems ", IEEE ICC 2026, Glasgow, Scotland, UK

Prominent Publication

A landmark achievement for the Solid-State Circuit Design Laboratory (SSCD) in the Electrical Engineering Department was the acceptance and presentation of its research paper, titled "A Frequency-Translated, 1-to-5 GHz Centered, All-Passive, Programmable-Bandwidth, Switched-Capacitor Delay-Line with 6.5-to-8.2 dB Delay-Independent Insertion Loss in 65 nm CMOS" at the International Solid-State Circuits Conference 2026 (ISSCC), the world's premier conference for integrated circuits and semiconductor technology. This is the first ever ISSCC paper to be accepted from IIT Kanpur and hence, places it in an elite global cohort of cutting-edge IC design research groups.





Projects

S.No.	Principal Investigator	Project Title
1	Koteswar Rao Jerripothula	Cattle Identification And Monitoring System Using Complex-Valued Neural Networks
2	Nagarjuna Nallam	Wlan Based Millimeter Wave System Design And Optimization For 4096 Qam
3	Saikat Chakrabarti	Upsida Technical Verification Of 33 Kv, 11 Kv, And Lt Network System
4	Saikat Chakrabarti	Upsida Technical Inspection Of Feeder Designs For Prayagraj
5	Ketan Rajawat	Robofest Gujarat 5.0
6	Ketan Rajawat	Cardiac Digital Twin For Ablation Targeting
7	Ankush Sharma	Miscellaneous Consultancy Projects
8	A R Harish	Technical Advisory Support In Antennas
9	Kumar Vaibhav Srivastava	Metamaterial Based Ultra-Wideband Antenna Array And Artificial Magnetic Conductor For Rf Applications
10	Raghvendra Kumar Chaudhary	Design Of Metamaterial-Inspired Compact Uwb Antenna At Uhf And Uhf Bands
11	Aditya K. Jagannatham	Hybrid Field-Aware Waveform Design And Learning Strategies For Next-Generation Wideband Wireless System With Dynamic Metasurface Antenna Architectures
12	Abheejeet Mohapatra	Cyber-Resilient Ai-Based Fault Identification Techniques In Power Networks With Inverter-Based Resources (Craft-Ind)
13	Abhilash Patel	Design, Development And Fabrication Of Satellite's Momentum Exchange Devices : Control Moment Gyros (Cmgs) And Variable Speed Control Moment Gyros (Vscmgs)
14	Rohit Budhiraja	6g Research And Standardization
15	Chithra	Frequenc Synthesizer Design - Pentarisc
16	Rik Dey	Quantum Kinetic Modeling Of Coupled Spin-Charge Transport In Topological Insulator-Ferromagnetic Metal Heterostructures
17	Tushar Balasaheb Sandhan	Ai Driven Radar Pulse Deinterleaving For Modern Electronic Warfare
18	Suvendu Samanta	Efficient Handling Of Coil Misalignment In Wireless Power Transfer - A Holistic Approach To Integrate New Magnetic Couplers, Converters, And Control
19	Nagaditya Poluri	Re-Configurable Dual-Input Power Amplifiers For Energy-Efficient Wireless Communications
20	Rajesh Mahanand Hegde	Spatial Reasoning From Audio-Visual Scene Using
21	Rajesh Mahanand Hegde	Super Resolution Ambisonics For Situational Awareness
22	Ashwin Kumar Ramakrishnan Sivaku	Power-Efficient Floating-Inverter Amplifier Based Continuous Time Adcs, And Input Drivers For Successive-Approximation Adcs
23	Rajesh Mahanand Hegde	Model Quantization And Feature-Aware Compression For Agricultural And Environmental Monitoring In Leo Satellite Edge Computing



“Quantum-Enhanced Grid Optimization: Real-Time Optimal Power Flow Analysis Using Hybrid Quantum-Classical Algorithms,”

PI: Prof. Ankush Sharma, Dept. of Electrical Engineering

Secured a project under the National Quantum Mission (NQM). The project titled “Quantum-Enhanced Grid Optimization: Real-Time Optimal Power Flow Analysis Using Hybrid Quantum-Classical Algorithms,” has been sanctioned with the total funding of ₹2.54 crore from the Department of Science & Technology, Government of India.



Design of Ultra-Wideband Antenna Array and Artificial Magnetic Conductor for RF Applications

PI: Prof. Kumar Vaibhav Srivastava

**Co-PI: Prof. Raghvendra Kumar Chaudhary
Dept. of Electrical Engineering**

Ultra-wideband antenna arrays can be seamlessly integrated into communication systems for military personnel and vehicles, providing high-speed data transmission, reliable connectivity, and secure communication channels across diverse terrains and environments. These antennas play a crucial role in radar systems for surveillance, target

detection, and tracking. Their wide bandwidth and unidirectional pattern significantly enhance radar performance. The aim of this project is to advance antenna technology for defence applications by leveraging innovative approaches such as metamaterial-inspired designs and Artificial Magnetic Conductors (AMCs). This involves enhanced performance in terms of high gain, unidirectional radiation pattern, large bandwidth and good isolation, while maintaining a miniaturized, low-profile, and lightweight configuration.



6G-RS: 6G Research & Standardization

PI: Prof. Rohit Budhiraja, Dept. of Electrical Engineering

The project is a joint effort by IIT Kanpur and partner institutes designed to drive India's objective of becoming a major player in the telecommunications space. Aligned with 3GPP (3rd Generation Partnership Project) Release 20 and IMT-2030 (International Mobile Telecommunications-2030) vision, the project focuses on advanced 6G technology research to generate essential intellectual property and simulation tools.

A primary objective is to secure Standard Essential Patents (SEPs) across global and national forums, including 3GPP, ITU (International Telecommunication Union), and TSDSI (Telecommunications Standards Development Society, India). Additionally, the initiative translates research into practical wireless solutions for India's telecom, railways and defence sectors. By enhancing the indigenous 5G testbed for algorithm validation and conducting extensive capacity-building programs, 6G-RS aims to foster self-reliance, build a robust expert workforce, and capture a 10% share of global 6G IPRs.



Design of Metamaterial-Inspired Compact UWB Antenna at UHF and VHF Bands

PI: Prof. Raghvendra Kumar Chaudhary

Co-PI: Prof. Kumar Vaibhav Srivastava

Dept. of Electrical Engineering

VHF/UHF communication systems are integral to aircraft, ground vehicles, and modern military platforms, enabling reliable long-range connectivity. However, conventional antennas in these frequency bands are often bulky and mechanically less robust. This project focuses on advancing antenna technology through the use of metamaterial-based designs, enabling miniaturized,

low-profile, and lightweight solutions. Beyond defense applications, the technology also offers significant dual-use potential in civilian domains, including emergency communication, disaster management, and next-generation vehicular networks.



Workshop

12-13 January 2026

Department of Electrical Engineering organized two-day workshop "Grid Resilience in the Era of Mass EV Adoption", held on 12-13 January 2026 at IIT Kanpur.



Workshop

21st February 2026

ANRF-PAIR workshop on Semiconductor and Digital Technologies was successfully hosted by the Dept. of Electrical Engineering, IIT Kanpur on 21st February, 2026.



Talk By Industry Expert

IIT Kanpur and IEEE EDS hosted experts from GlobalFoundries India, Dr. Vaidy Subramanian and Mr. Balaji Swaminathan, for insightful talks on semiconductor trends, compact modeling, and future industry challenges.



Talk By Industry Expert

Department of Electrical Engineering at Indian Institute of Technology Kanpur successfully hosted a technical talk by Dr. Ajit Paranjpe (Prima Innotech LLC) on the topic "Development of a 1.2 kV, 50 kW D-Mode GaN HEMT."





Areeba Ahsan (PhD/EE)

Best Student Paper Award at 2026 Symposium on Microwave, Antenna, and Propagation (SMAP 2026)

Thesis Supervisor: Prof. M. Jaleel Akhtar



Shreya Pourush (PhD/EE)

Secured a grant to attend the course "Metalenses for Antenna Applications" organized by the European School of Antennas (ESoA 2026)

Thesis Supervisor: Prof. Raghvendra Kumar Chaudhary



Mayank Anupam (PhD/EE)

1st place in the analog tapeout contest of VLSID 2026

Thesis Supervisor: Prof. Imon Mondal



Dr. Deepak Singh (Post-Doctoral Fellow/EE)

Best Paper Award at ICETAEE-2026 Conference

Thesis Supervisor: Prof. Piyush Kant



Diksha Singh (PhD/EE)

Best Paper Award at IEEE EPREC 2026 conference

Thesis Supervisor: Prof. Gururaj M V and Prof. Laxmidhar Behera



Mukesh Maurya (PhD/EE)

Best Paper Award at IEEE EPREC 2026 conference

Thesis Supervisor: Prof. Gururaj M V and Prof. Laxmidhar Behera



Anil Kumar Panda (PhD/EE)

First Prize in Saransh Thesis Competition – 2025 organised by Indian National Young Academy of Science (INYNAS)

Thesis Supervisor: Prof. S. Sundar Kumar Iyer



Aastha Mariam John (PhD/EE)

IndiaAI Fellowship 2026

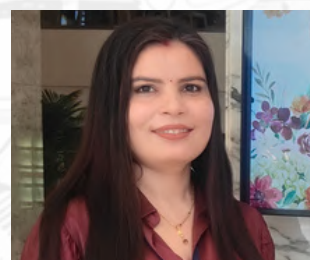
Thesis Supervisor: Prof. Tushar Sandhan



Abhisha Garg (PhD/EE)

IEEE ICC 2026 Travel Grant

Thesis Supervisor: Prof. Aditya K. Jagannatham



Nidhi Singh (PhD/EE)

Best Paper Award at IEEE International Colloquium on Signal Processing & Its Applications (CSPA 2026)

Thesis Supervisor: Prof. Yatindra Nath Singh



Praveen (PhD/EE)

Received IEEE RAS Travel Grant for Attending BioRob 2026 Conference

Thesis Supervisor: Prof. Tushar Sandhan and Prof. Nikunj A. Bhagat



Praveen Kumar (PhD/EE)

Received IEEE Computational Intelligence Society (CIS) Travel Grant for Attending World Congress on Computational Intelligence (WCCI) 2026

Thesis Supervisor: Prof. Tushar Sandhan



Dr. Ankita Kumari (FARE Fellow)

She presented her latest research work on RF Sensors during the 2026 IEEE AP-S/URSI Symposium in Detroit, USA. She is one of the 10 outstanding scientists, engineers, and students from around the world to receive this award

Thesis Supervisor: Prof. M. Jaleel Akhtar



Kuldeep Chaudhary (PhD/EE)

IndiaAI Fellowship

Thesis Supervisor: Prof. Rajesh M. Hegde



Dilip Parmar (PhD/EE)

IndiaAI Fellowship

Thesis Supervisor: Prof. Tushar Sandhan



Nivedita Singh (PhD/EE)

Best Paper Award at the 2026 IEEE North-East India International Energy Conversion Conference and Exhibition (NE-IECCE 2026)

Thesis Supervisor: Prof. Abheejeet Mohapatra and Prof. Sri Niwas Singh



Mr. Animesh Srivastava (BT/EE/2001)
Appointed as Chief Technology Officer
(CTO) at Moglix



Prof. Abhay Karandikar (MT/EE/1986)
Appointed as Full-Time Member of
NITI Aayog



Mr. Deepak Raj (BT/EE/1970)
Appointed as Chairman IIT Kanpur Foundation



Prof. Jitendra Malik (BT/EE/1980)
Elected as Fellow of The Royal Society (FRS)



Prof. Raghvendra Kumar Chaudhary
Department of Electrical Engineering, IIT Kanpur
Pioneering Research & Innovation Award (Class of 1965)

Prof. Avinash Lehgere
Department of Electrical Engineering, IIT Kanpur
Young Faculty Research Fellowships
2026 - P. K. Kelkar Fellowship



Prof. Gururaj Mirle Vishwanath
Department of Electrical Engineering, IIT Kanpur
Sangeet and Rajeeva Lahiri Young Faculty
Fellowship - Excellence in Electrical Engineering



Class of 2011 reunion



Class of 1976 reunion



Class of 1990 reunion



Class of 2015 reunion



Safety First

Fire Safety Drill & Awareness Talk conducted at the Department of Electrical Engineering, IIT Kanpur,



Academic Prospects

Team from the Fulbright-Nehru Fellowship Program at United States-India Educational Foundation (USIEF), New Delhi visited the Department of Electrical Engineering, IIT Kanpur, for an engaging interaction with faculty members and research scholars.



Farewell 2026

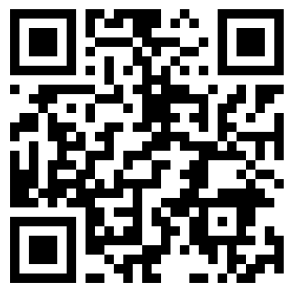
The Electrical Engineering Association organized Farewell 2026 to mark this significant milestone for the Department of Electrical Engineering students.





NEWSLETTER DEPARTMENT OF ELECTRICAL ENGINEERING

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