IIT Kanpur


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NEWSLETTER

# DEPARTMENT OF ELECTRICAL ENGINEERING

Indian Institute of Technology Kanpur

# From Head's Desk

## Prof. Yogesh Singh Chauhan

Head, Electrical Engineering IIT Kanpur

Concluding 2025, here I present another edition of our department's newsletter for this year. This 2nd issue of 2025 highlights the academic, research and outreach activities of the department in the latter half of this year. In the previous issue of newsletter where we have bid adieu to our former students, in this issue following the trend we welcomed our new students and I convey my hearty wishes to each of them for a great learning experience at the campus.

As a part of our focus on emerging areas of electrical engineering, encouraging interdisciplinary research, we have signed two MoU's with Graymatics and Axiro Semiconductor Private Limited. The aim of these collaboration is to impart hands-on learning experience to our students. To encourage and recognize our student talent, we have also started rewarding their IEEE journal publication as first author through travel grants and financial incentives. Through such initiatives, department remains dedicated to nurturing skilled, ethical, and socially responsible engineers who can contribute meaningfully to society.

Accolades and awards brought by our faculty members, students and alumni to the department are listed here to keep you enlightened about our department. Our department has successfully conducted Research Scholar Day, which is a yearly one-day event, showcasing original research of graduate students. The purpose of this symposium is to facilitate scientific discussion, foster student-faculty interactions, and provide a platform for students to present their work to a wider audience.

Eminent researchers and professionals are invited to deliver lectures every year as part of the keynote talks for the research scholar. It consisted of a series of sessions of oral talks and poster presentations by students.

I also welcome Prof. Mohit D. Ganeriwala who joined us as Assistant Professor, Prof. Abhyudai Singh as visiting faculty and Dr. Shanuja Sasi as DST Inspire Faculty Fellow. I look forward to their valuable contribution in teaching, research, and academic development, and wish them a successful and fulfilling journey with us.

I hope this issue keeps you informed and inspired, and I look forward to continued growth and success together.

An MoU was signed between Graymatics and Dept. of Electrical Engineering, IIT Kanpur for R&D collaborations in Multimodal AI

The Department of Electrical Engineering, IIT Kanpur, will collaborate with Axiro Semiconductor Private Limited in the areas of semiconductor design, development, and related technologies. This collaboration aims to strengthen the ecosystem for semiconductor innovation and foster advancements in indigenous technology development, contributing to India's growing semiconductor mission.

The Department of Electrical Engineering, IIT Kanpur, has launched its Online M.Tech. Programs in Wireless Networks & Machine Learning (Win-ML), Microelectronics & VLSI, and RF Engineering designed for working professionals and graduates aiming to advance their careers.

With flexible learning options, an industry-aligned curriculum, and an option to exit with a PG Diploma, these programs maintain the same academic rigor as IIT Kanpur's on-campus M.Tech. offerings.


Dept. of Electrical Engineering through its special drive is conducting spot admissions to the PhD programme for current BTech/BS(4 years)/MTech/MSR Students from Centrally funded Technical Institutes (CFTIs) including IITs/IISc/NITs/IIITs/IISERs.

This spot admission is offered in all the six streams where GATE score is waived off. This non-conventional approach offers students special PhD admission opportunity where eligible candidates can apply and be selected quickly—often through an on-campus interview or a short notice drive—rather than waiting for the full standard admission cycle.

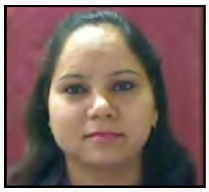
LKL (Lalita and Krishan Lal Bhatia) a Faculty Chair Program in the Department of Electrical Engineering, made possible through the generous contribution of Mr. Ashish Bhatia (BT-MT(Dul)/EE/1998) - technologist, angel investor, and IIT Kanpur alumnus.


## INCENTIVE FOR PUBLICATION TO STUDENTS- LIST OF BENEFICIARIES

**Mudasir Ahmad Sheikh**
(PhD/EE)

**Shubham Saxena**
(PhD/EE)

**Anand Mehrotra**
(PhD/EE)



**Swati Singh**
(PhD/EE)

**Awadhesh Gupta**
(PhD/EE)

**Abhisha Garg**
(PhD/EE)


EEA
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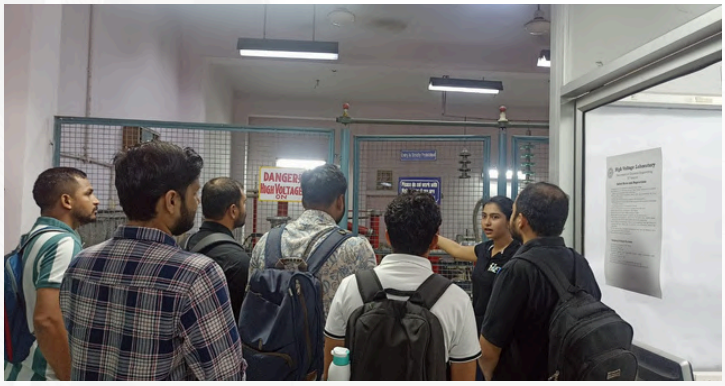
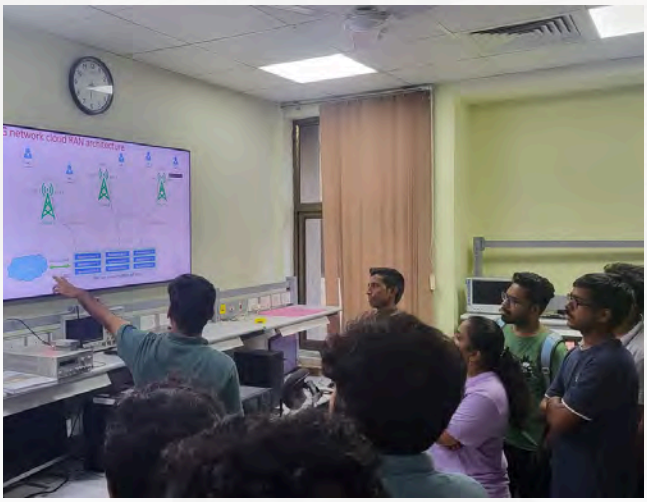

DANGER
High VOLTAGE



Department of Electrical Engineering, IIT Kanpur, conducted a workshop titled "Wireless Communication Technologies for the Next Decade" on 16th August, 2025. The workshop highlighted recent developments in wireless communications technologies, focusing especially on 6G.

It was held in concurrence with the 60th birthday of Prof. Ajit Kumar Chaturvedi where he was felicitated for his contributions toward the field of communications systems, and his teaching, research and academic administration legacies were also cherished by his colleagues, former students, friends and family members.

An MoU was also signed by Prof Manindra Agrawal, Director, IIT Kanpur and Dr. Rajkumar Upadhyay, CEO, CDOT, to set up a C-DOT Academic CoE (Center of Excellence) at IIT Kanpur.

Dept. of Electrical Engineering, Indian Institute of Technology, Kanpur inaugurated a 16 week “Advanced Executive Program on Emerging Communication Technologies for Probationers” on 11 August, 2025.

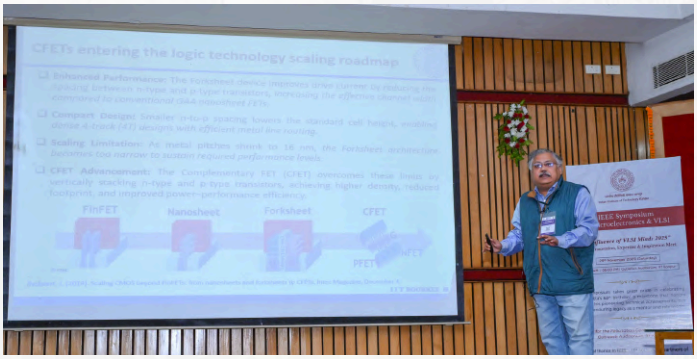
Innovation met inspiration at EE Research Day which was held on 25th of October 2025, IIT Kanpur! PhD students of the department enthusiastically participated and presented their cutting-edge research through posters!


Engineers Conclave 2025 (EC-2025), the annual flagship event of the Indian National Academy of Engineering (INAE), was successfully organized in collaboration with the Indian Institute of Technology Kanpur.

The conclave brought together leading engineers, technologists, researchers, and policymakers from academia, R&D organizations, and industry to deliberate on the themes of “Intelligent Systems” and “Interdisciplinary Cyber Physical Systems.”




Department of Electrical Engineering organized IEEE Symposium on Microelectronics & VLSI, titled "Confluence of VLSI Minds 2025." The symposium also celebrated Prof. Dutta's 65th birthday, honoring his pioneering achievements and his enduring legacy as a mentor and role model.




The IEEE-EDS IIT Kanpur Chapter celebrated 100 years of the Field Effect Transistor (FET) with a special workshop on 19 December 2025, marking a century of innovation in electronics. The event featured keynote talks by Dr. Bin Zhao, IEEE EDS President, and Prof. Patrick Fay, IEEE EDS Distinguished Lecturer.



**Prof. Mohit D.Ganeriwala**

Assistant Professor

https://www.iitk.ac.in/new/mohit-d-ganeriwala#

**Prof. Abhyudai Singh**

Visiting Faculty

Modelling and inference of biomedical systems with applications to systems biology, virology, medicine, and neuroscience

## DST INSPIRE FACULTY FELLOWS

**Shanuja Sasi**

Security and Privacy Aspects of Distributed Computing, Multi Armed Bandits, Coded Caching, Index Coding, Coding Theory and its Application to Machine Learning, Federated Learning

## Patents

| S. No. | Name of the Inventor | IPA No. |
|---|---|---|
| 1 | Mr. Ritik Rajput (Student, EE), Dr. Ankush Sharma (EE), Dr. Abheejeet Mohapatra (EE) | 202511066121 |
| 2 | Dr. Kamal Krishna Kar (ME & MSP), Ms. Swati Gangwar (Ph.D, MSP), Dr. M. Jaleel Akhtar (EE & MSP) | 202511085836 |
| 3 | Mr. Abhishek Prakash (BTech-MTech, Dual Degree, EE), Mr. Arpit Anand (BTech-MTech, Dual Degree, EE), Mr. Pugazhazhagan T A (Project Associate, EE), Dr. Tushar Balasaheb Sandhan (EE) | 202511099790 |
| 4 | Ms.Supriya Das (Project Executive Officer), Mr. Rushit Mansukhbhai Bhanderi (Project Executive Officer), Mr. Akshay Namdeo (Sr. Project Engineer), Mr. Vinay Kumar Tripathi (Project Postdoctoral Fellow), Mr. Abhishek Kumar (Project Engineer, Gangwal School of Medical Sciences and Technology), Mr. Harindra Prasad Sharma (Project Technical Officer, ME), Mr. Manoj Sharma (Technical Superintendent, ME), Mr. Phool Chand Gond (Project Technical Officer, ME), Dr. Niraj Sinha (ME), Dr. K. Muralidhar (ME), Dr. K. Muralidhar (ME), Dr. Nikunj Arunkumar Bhagat (EE & BSBE), Dr. Pranav Joshi (ME), Dr. Kantesh Balani (MSE), Dr. Jayandharan Giridhara Rao (BSBE), Dr. Amitabha Bandyopadhyay (BSBE), Dr. Mandeep Singh Rana (Visiting Faculty, BSBE) | 202511106787 |
| 5 | Ms.Supriya Das (Project Executive Officer), Mr. Rushit Mansukhbhai Bhanderi (Project Executive Officer), Mr. Akshay Namdeo (Sr. Project Engineer), Mr. Vinay Kumar Tripathi (Project Postdoctoral Fellow), Mr. Abhishek Kumar (Project Engineer, Gangwal School of Medical Sciences and Technology), Mr. Harindra Prasad Sharma (Project Technical Officer, ME), Mr. Manoj Sharma (Technical Superintendent, ME), Mr. Phool Chand Gond (Project Technical Officer, ME), Dr. Niraj Sinha (ME), Dr. K. Muralidhar (ME), Dr. Nikunj Arunkumar Bhagat (EE & BSBE), Dr. Pranav Joshi (ME), Dr. Kantesh Balani (MSE), Dr. Jayandharan Giridhara Rao (BSBE), Dr. Amitabha Bandyopadhyay (BSBE), Dr. Mandeep Singh Rana (Visiting Faculty, BSBE) | 202511106800 |
| 6 | Dr. Nikunj Bhagat (EE), Dr. Santosh Misra (BSBE), Ms. Sanya (Ph.D. Scholar, BSBE), Mr. Animesh Kumar Soni (Ph.D. Scholar, BSBE) | 202511108509 |
| 7 | Ms. Namita Kumari (PhD Student, EE), Dr. Ankush Sharma (EE), Mr. Pratik Sharma (PhD Student, EE) | 202511120464 |
| 8 | Mr. Pugazhazhagan T A (Project Associate, ACES Building, EE), Dr. Tushar Balasaheb Sandhan (EE) | 202511120940 |
| 9 | Mr. Vishal Amatt (Dual Degree Student, EE), Mr. Subhansh Malviya (Btech Student, EE), Dr. Tushar Balasaheb Sandhan (EE) | 202511127924 |
| 10 | Mr. Mohmad Aasif Bhat (PhD Student, EE), Dr. Imon Mondal (EE) | 202511133063 |
| 11 | Mr. Mayank Anupam (PhD Student, EE), Dr. Imon Mondal (EE) | 202511134319 |

## Patents

| S. No. | Name of the Inventor | IPA No. |
|---|---|---|
| 1 | Dr. Vipul Arora (CSE), Mr. Himanshu Jindal (B. Tech. Student, EE) | 202311011461 |
| 2 | Dr. Amar Kumar Behera (Design), Mr. Atharv Jiwane (Student, ME), Ms. Ishita (Student, Economic Sciences), Ms. Jahnvi Singh (Student, BSBE), Mr. Mihir Gupta (Student, EE), Ms. Nikita Yadav (Student, CE), Ms. Shreya Verma (Student, Economic Sciences), Ms. Shreya Yadav (Student, BSBE) | 460769-001 |
| 3 | Mr. Paresh Upadhyay (Student, EE), Dr. Yatindra Nath Singh (EE) | 202411069110 |
| 4 | Dr. Yatindra Nath Singh (EE), Mr. Rameshwar Nath Tripathi (Senior Project Engineer, ACES, EE), Mr. Rahul Bhattacharyya (Student, ACES, EE), Mr. Nagendra Kumar Singh (Senior Project Engineer, ACES, EE), Ms. Varsha Lohani (Graduated PhD Student, ACES, EE), Ms. Anjali Sharma (Graduated PhD Student, ACES, EE) | 202411078216 |
| 5 | Mr. Biswanath Panda (Sr. Research Establishment Officer, NCFlexE, IITK), Dr. Baquer Mazhari (Electrical Engineering, IITK) | 202411066897 |
| 6 | Dr. B. Mazhari (EE), Mr. Syed M. H. Rizvi (Student, DP) | 201811015509 |
| 7 | Mr. Chiranjeev Prachand (PhD Student, EE), Mr. Marithammanahalli Ramkumar Rakshith (B.Tech Student, AE), Dr. KS Venkatesh (EE), Dr. Abhishek (AE) | 202411093231 |
| 8 | Mr. Saksham Gupta (B.Tech Student & Health Ideation and Innovation Fellow, EE), Dr. Sai Prasad Pydi (BSBE), Mr. Arijit Bhattacharjee (Senior Program Officer, SIB SHInE), Mr. Shivam Gupta (B.Tech Student, ME) | 202511017955 |

## Control and Automation

### Journal Publications

| S.No. | Details of Publications |
|---|---|
| 1 | Fernandes M.;Sahoo S.R.;Kothari M., "OpenThruster: An open-source, mostly 3D-printed thruster for marine vehicles", Hardwarex, vol. 23, doi: 10.1016/j.ohx.2025.e00680 |
| 2 | Rao A.K.;Tripathy T., "Trajectory elongation strategies with minimum curvature discontinuities for a Dubins vehicle", Automatica, vol. 182, doi: 10.1016/j.automatica.2025.112550 |
| 3 | Priya S.;Shrinate A.;Tripathy T., "Desired group consensus in arbitrary signed networks", European Journal of Control, vol. 85, doi: 10.1016/j.ejcon.2025.101348 |
| 4 | Kumar D.;Potluri R., "On Optimal Tire Usage in the Path-Tracking Control of Four-Wheel Independent Steering Four-Wheel Independent Drive Electric Vehicles", SAE International Journal of Connected and Automated Vehicles, vol. 9, issue 2, doi: 10.4271/12-09-02-0014 |
| 5 | Singh K. P.; Rao A.K.;Tripathy T., "Finite-time max-consensus for simultaneous target interception in switching graph topologies", IEEE Transactions on Control of Network Systems, vol. 12, pp. 2350-2360, issue 3, doi: https://doi:org/10.1109/TCNS.2025.3570423 |
| 6 | Kamthe A.;Thota V; Shrinate A.;Tripathy T., "External bias and opinion clustering in cooperative networks", Automatica, vol. 175, doi: https://doi:org/10.1016/j.automatica.2025.112224 |

## Signal Processing, Communications & Networks

### Journal Publications

| S.No. | Details of Publications |
|---|---|
| 1 | Singh V., Verma N.K., "Variable feature weighted fuzzy k-means algorithm for high dimensional data", Multimedia Tools and Applications, vol. 84, issue 28, pp. 34331-34348, doi: 10.1007/s11042-024-20493-4 |
| 2 | Mukherjee P., Mandal S., Jerripothula K.R., Maharshi V., Katara K., "Multi-fish tracking with underwater image enhancement by deep network in marine ecosystems", Signal Processing Image Communication, vol. 138, doi: 10.1016/j.image.2025.117321 |
| 3 | Patel A., Roy D., Singh Y.N., "Empowering immersive XR experience through scalable and cost-effective EPON access networks", Optical Fiber Technology, vol. 94, doi: 10.1016/j.yofte.2025.104332 |
| 4 | Sumit Kumar; Suraj Jaiswal; Parampreet Singh; Vipul Arora, "Automatic Detection and Analysis of Singing Mistakes for Music Pedagogy", Journal of latex class files, vol. 14, issue 8, doi: 10.36227/techrxiv.23269502.v2 |
| 5 | Anand Mehrotra, Jitendra Singh, Suraj Srivastava, Rahul Kumar Singh, Aditya K. Jagannatham and Lajos Hanzo, "Multi-dimensional Sparse CSI Acquisition for Hybrid mmWave MIMO OTFS Systems", IEEE Transactions on Communications, vol. 73, issue 9, pp. 8330 - 8344, doi: 10.1109/TCOMM.2025.3549501 |
| 6 | Awadhesh Gupta, Prudhviram Ganji, Suraj Srivastava, Aditya K. Jagannatham, "Data-Aided Bistatic Sensing and Communication for mmWave MIMO-OFDM ISAC System", IEEE Transactions on Communications, vol. 73, issue 10, pp. 9720 – 9734, doi: 10.1109/TCOMM.2025.3562360 |
| 7 | Meesam Jafri, P. Kumar, Suraj Srivastava, Aditya K. Jagannatham and Lajos Hanzo, "Robust Hybrid Beamforming in Cooperative Cell-free mmWave MIMO Networks Relying on Imperfect CSI", IEEE Transactions on Vehicular Technology, vol. 74, issue 8, pp. 12590 – 12602, doi: 10.1109/TVT.2025.3555484 |
| 8 | Meesam Jafri, S. Kumar, Suraj Srivastava and Aditya K. Jagannatham, "Distributed Hybrid Beamforming in mmWave Multi-Cell Systems in the Presence of Cell-Edge Users Relying on Stochastic Channel Uncertainty", IEEE Transactions on Communications, vol. 73, issue 7, pp. 5344 – 5356, doi: 10.1109/TCOMM.2024.3519535 |
| 9 | Abhisha Garg, Suraj Srivastava, Varsha Dubey, Aditya K. Jagannatham and Lajos Hanzo, "Semi-Blind Channel Estimation and Hybrid Receiver Beamforming in the Tera-Hertz Multi-User Massive MIMO Uplink", IEEE Transactions on Vehicular Technology, |

| S.No. | Details of Publications |
|---|---|
| 10 | Priyanka Maity, Deepika Harish, Suraj Srivastava, Aditya K. Jagannatham, and Lajos Hanzo, "Variational Bayesian Learning for 3D Localization of Extended Targets in mmWave MIMO OFDM ISAC Systems", IEEE Open Journal of the Communications Society, vol. 6, pp. 4421 – 4436, doi: 10.1109/OJCOMS.2025.3567429 |
| 11 | Awadhesh Gupta, Jitendra Singh, Suraj Srivastava, Aditya K. Jagannatham, and Lajos Hanzo, "Bayesian Learning Aided Parameter Estimation and Joint Beamformer Design in mmWave MIMO-OFDM ISAC Systems", IEEE Transactions on Communications, vol. 73, issue 11, pp. 12518 – 12532, doi: 10.1109/TCOMM.2025.3578813 |
| 12 | Jitendra Singh, Anand Mehrotra, Suraj Srivastava, Aditya K. Jagannatham and Lajos Hanzo, "Spectral Efficiency Maximization for mmWave MIMO-Aided Integrated Sensing and Communication Under Practical Constraints", IEEE Transactions on Vehicular Technology, vol. 74, issue 11, pp. 17413-17428, doi: 10.1109/TVT.2025.3577955 |
| 13 | Priyanka Maity, Suraj Srivastava, Aditya K. Jagannatham and Lajos Hanzo, "Joint Angle and Velocity-Estimation for Target Localization in Bistatic mmWave MIMO Radar in the Presence of Clutter", IEEE Transactions on Communications (Early Access), vol. 73, issue 10, pp. 9846 – 9860, doi: 10.1109/TCOMM.2025.3581046 |
| 14 | Jitendra Singh, Banda Naveen, Suraj Srivastava, Aditya K. Jagannatham, and Lajos Hanzo, "Optimal Hybrid Transmit Beamforming for mm-Wave Integrated Sensing and Communication", IEEE Transactions on Communications, vol. 73, issue 12, pp. 15068 – 15082, doi: 10.1109/TCOMM.2025.3610165 |
| 15 | Awadhesh Gupta, Suraj Srivastava, Aditya K. Jagannatham, and Lajos Hanzo, "Beam-Squint Aware Sparse Techniques for Massive MIMO-OFDM Integrated Sensing and Communication". IEEE Transactions on Vehicular Technology, pp. 1-16, doi: 10.1109/TVT.2025.3618205 |
| 16 | Priyanka Maity, Deepika Harish, Suraj Srivastava, Aditya K. Jagannatham, and Lajos Hanzo, "Super-Resolution-Based Bayesian Learning for the Localization of Extended Targets in mmWave MIMO OFDM Systems", IEEE Open Journal of Vehicular Technology |
| 17 | Shubham Saxena, Saurabh Sharma, Suraj Srivastava, Aditya K. Jagannatham, and Lajos Hanzo, "Multiple Measurement Vector Based Bayesian Learning for Simultaneously Sparse Time/Delay-Domain Channel Estimation in ADO-OFDM Visible Light Systems", IEEE Transactions on Vehicular Technology |
| 18 | Abhisha Garg, Akash Kumar, Suraj Srivastava, Nimish Yadav Aditya K. Jagannatham and Lajos Hanzo, "Bayesian Learning Aided Simultaneous Sparse Estimation in Dual-Wideband Tera-Hertz Channels in Multi-User Hybrid MIMO systems", IEEE Transactions on Vehicular Technology |
| 19 | Awadhesh Gupta, Anand Mehrotra, Suraj Srivastava, Aditya K. Jagannatham, "Sequential Parameter Estimation for Beam Squint Aware THz MIMO-OFDM ISAC Systems", IEEE Transactions on Communications |

## Conference Publications

| S.No. | Details of Publications |
|---|---|
| 1 | S. Pratapa, T. Sandhan, "DAAFNet: Domain Adaptive Augmented Feature Network for Biosignal-Based Emotion Recognition", IEEE International Conference on Image Processing (ICIP), USA, doi: https://ieeexplore.ieee.org/document/11084497 |
| 2 | V. Chanchlani, V. Himmatsinghka, A. Himmatsinghka, J. Sandhan, T. Sandhan, "TagSim: Topic-Informed Attention Guided Similarity Metric for Image Caption Comparison", IEEE International Conference on Image Processing (ICIP), USA, doi: https://ieeexplore.ieee.org/document/11084418 |
| 3 | Awadhesh Gupta, Prudhviram Ganji, Suraj Srivastava, Aditya K. Jagannatham, "Target Parameter with Gridless Doppler Estimation Using Low-Resolution ADCs in Beam-Squinted THz ISAC System", International Workshop on Signal Processing and Artificial Intelligence in Wireless Communications (SPAWC 2025), pp. 1948-3252, doi: 10.1109/SPAWC66079.2025.11143479 |
| 4 | Pranab Meity, Gourab Ghatak, Abhishek Gupta, "Optimal RIS Deployment in 2D mmWave Networks under Spatially Correlated Blockages", IEEE Globecom, Workshop- Intelligent Movable and Reconfigurable Antennas for Future Wireless Communication and Sensing, Taiwan |

| S.No. | Details of Publications |
|---|---|
| 5 | Kaushlendra Pandey, Harpreet Dhillon, Abhishek Gupta, "Platooned Networks for Vehicle-to-Everything Connectivity in 6G", IEEE Globecom, Workshop -Integrated, Intelligent and Ubiquitous 6G Connectivity, Taiwan |
| 6 | T. Kumar, Z. Alwaisi, Abhishek K Gupta, N. Auluck, Petri Mähönen, "Sustainable Security for Edge AI: Challenges and Solutions", IEEE Globecom, Workshop-A4E AI/ML for Edge/Fog Networks, Taiwan |
| 7 | T. Kumar, Z. Alwaisi, Abhishek K Gupta, N. Auluck, Petri Mähönen, "Analyzing Sustainable Security in 6G Networks", IEEE Conference on Communications and Network Security (CNS)- INSEPTION, Avignon France, doi: 10.1109/CNS66487.2025.11194975 |
| 8 | Rashmi Kumari, Gourab Ghatak, Abhishek Gupta, "Blockage Aware Placement of RIS in IIoT Networks", IEEE Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Istanbul, Turkiye, pp. 1-6, doi: 10.1109/PIMRC62392.2025.11274669 |
| 9 | Shuchi Tripathi, Abhishek Gupta, "Can Blockages Improve Cognitive mmWave Networks with Directional Sensing and Communications", Proc. IEEE International Workshop on Signal Processing and Artificial Intelligence in Wireless Communications SPAWC, Surrey, UK, pp. 1-5, doi: 10.1109/SPAWC66079.2025.11143503 |
| 10 | Kaushlendra Pandey, H Dhillon, Abhishek Gupta, "Load Distribution Analysis of Platooned Vehicular Networks on a Highway", Proc. IEEE International Workshop on Signal Processing and Artificial Intelligence in Wireless Communications SPAWC, Surrey, UK, pp. 1-5, doi: 10.1109/SPAWC66079.2025.11143400 |

## Optoelectronics and Optical Communication

### Journal Publications

| S.No. | Details of Publications |
|---|---|
| 1 | Viren S. Ram, Tullio de Rubeis, Dario Ambrosini, Rajshekhar Gannavarpu, "Deep learning approach for flow visualization in background-oriented schlieren", Applied Optics, doi: 10.1364/ao.572042 |
| 2 | Subrahmanya Keremane Narayan, Rajshekhar Gannavarpu, "Precision surface metrology using a rapid optimization method in diffraction phase microscopy", Applied Optics, doi: 10.1364/ao.569841 |
| 3 | Viren S Ram, Rajshekhar Gannavarpu, "Robust interferogram processing using deep learning and signal subspace method for phase derivative estimation", Optics & Laser Technology, doi: 10.1016/j.optlastec.2025.113616 |
| 4 | Srivastava R., Singh Y.N. "Capacity-aware resource provisioning by prioritizing the highest capacity band in next-generation multi-band elastic optical networks", Optical Fiber Technology, vol. 94, pp. 104362, doi: 10.1016/j.yofte.2025.104362 |
| 5 | Srivastava R., Singh Y.N. "A novel fragmentation metric and fragmentation-aware adaptive routing and spectrum allocation algorithm in elastic optical network", Optical Fiber Technology, vol. 94, pp. 104318, doi: 10.1016/j.yofte.2025.104318 |
| 6 | Gupta N., Das S., Krishnamurthy S., Krishnan S.;Rituraj, "Two-photon absorption study with coupled mode formalism", Jphys Photonics, vol. 7, issue 3, doi: 10.1088/2515-7647/add8d6 |
| 7 | Srivastava R., Singh Y.N., Lohani V. "Bandwidth demand adaptive link weight aware OSNR based dynamic and hybrid routing, modulation, and spectrum allocation in multi-band multiplexed elastic optical networks", Optical Fiber Technology, vol. 93, pp. 104265, doi: 10.1016/j.yofte.2025.104265 |
| 8 | Mane O.S., Bhat Y.A., Krishnamurthy S., Rituraj, "Programmable Mach-Zehnder Interferometer without bends for high density and integrated linear operation", Jphys Photonics, vol. 7, issue 3, doi: 10.1088/2515-7647/adcfe0 |
| 9 | Srivastava R., Singh Y.N., Lohani V., Sharma A., Heera B.S., "Requested bandwidth adaptive network state based adaptive routing and spectrum allocation algorithms in Elastic Optical Network", Optical Fiber Technology, vol. 93, pp. 104243, doi: 10.1016/j.yofte.2025.104243 |
| 10 | Akhilesh Patel , Dibbendu Roy, Yatindra Nath Singh, "Empowering immersive XR experience through scalable and cost-effective EPON access networks", Optical Fiber Technology, pp. 104332, doi: https://dx.doi:org/10.1016/j.yofte.2025.104332 |

| S.No. | Details of Publications |
|---|---|
| 11 | Sallam Mahmoud, Deepika Kaur, Kuljeet, Jindal Neeru, Kaddoum Georges, Singh Mukesh, Singh Yatindra Nath, "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, doi: 10.1109/TCE.2025.3646842 |

## Conference Publications

| S.No. | Details of Publications |
|---|---|
| 1 | Kumar Rajeev, Singh Yatindra Nath, Jayakody, Dushantha Nalin K, "Energy-Efficient UAV Trajectory-Aware Superframe Method for Medium Access Control Protocols", 2025 IEEE Space, Aerospace and Defence Conference (SPACE), doi: https://ieeexplore.ieee.org/document/11170567 |

# RF & Microwave

## Journal Publications

| S.No. | Details of Publications |
|---|---|
| 1 | Gangwar S.;Kar K.K.;Akhtar M.J., "Human hair-derived carbon for flexible, lightweight EMI shielding composites", Diamond and Related Materials, vol. 157, doi: 10.1016/j.diamond.2025.112540 |
| 2 | Riyaz, Shahnawaz M., Abushad M., Ansari A., Akhtar M.J., Baskey H.B., Husain S., Khan W., "Enhanced microwave absorption properties of Nd-doped barium hexaferrite and reduced graphene oxide nanocomposites in the X-band", Ceramics International, vol. 51, issue 23, pp. 38309-38319, doi: 10.1016/j.ceramint.2025.06.065 |
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| 3 | A. Gupta, Piyush Kant, and S. K. Dube, "H-Bridge and T-Type Dominance in Quad Active Bridge Converter Performance: A Comparative Analysis", 4th IEEE International Conference on Power Electronics Smart Grid and Renewable Energy (PESGRE), IIT Dharwad, Dec-2025 |
| 4 | A. Gupta, Piyush Kant, and S. K. Dube, "Design and FEM Analysis of High Frequency Transformer using ANSYS Maxwell for Galvanic Isolation Application", 4th International Conference on Smart Technologies for Power, Energy, and Control (STPEC), NIT-Goa, Dec-2025 |
| 5 | D. Singh, Sandeep N, and Piyush Kant, "A Seven-Level Triple-Boost Common-Ground Multilevel Inverter With Reduced Voltage Stress", 4th International Conference on Smart Technologies for Power, Energy, and Control (STPEC), NIT-Goa, Dec-2025 |
| 6 | B. Venkatesh and Piyush Kant, "Sensorless Control of IPMSM using PLL based on rotor flux", 12th National Power Electronics Conference (NPEC), NIT-Calicut, Dec-2025 |
| 7 | A. Gupta, D. Singh, Piyush Kant, and S. K. Dube, "Steady-State and Small-Signal Analysis of a T-Type DAB Converter Using a Generalized Averaging Approach", 12th National Power Electronics Conference (NPEC), NIT-Calicut, Dec-2025 |
| 8 | A. R. Choudhury, P. Paramasivam, Piyush Kant, and A. Jamatia, "A Novel Non-Isolated Semi-Quadratic Boost Converter And It's Control", 12th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON), IIT-BHU, Dec-2025 |
| 9 | S. Kumar, S. P. Das, and Piyush Kant, "A Generalized Approach to Sector Detection for a Multilevel Inverter Using Space Vector PWM Technique", IEEE 5th International Conference on Sustainable Energy and Future Electric Transportation (SEFET), NIT-Jaipur, July-2025 |
| 10 | P. Bisen, N. Pandey, and Piyush Kant, "Vector Control of SiC MOSFET Based Neutral Point Clamped (NPC) fed Induction Motor Drive Using Common Mode Voltage Injection Technique", IEEE 5th International Conference on Sustainable Energy and Future Electric Transportation (SEFET), NIT-Jaipur, July-2025 |
| 11 | P. Das, P. K. Patel, S. Basu and N. Gupta, "Estimation of Water Uptake in Epoxy Resin Through MD Simulation", 2025 IEEE Conference on Electrical Insulation and Dielectric Phenomena (CEIDP), Manchester, United Kingdom, 2025, pp. 371-374, doi: 10.1109/CEIDP61707.2025.11218303 |

## Projects

| Sl No. | Principal Investigator | Project Title |
|---|---|---|
| 1 | Md. Jaleel Akhtar | Transforming India'S Digital Landscape: Harnessing Reconfigurable Intelligent Surfaces For Enhanced Connectivity And Sustainability |
| 2 | Abheejeet Mohapatra | Relay Setting Vaildation (132/33 Kv Receiving Sub Station (Rss),And Detailed Study Of Protection System Of Mpmrcl (Bhopal Metro Rail Project) |
| 3 | Rohit Budhiraja | 6g Cell-Free And Integrated Sensing And Communication(Isac) Technologies |
| 4 | Rohit Budhiraja | Advanced Executive Program On Emerging Communication Technologies For Probationers Of Its Group |
| 5 | Saikat Chakrabarti | Upsida Technical Inspection Of 33 Kv Feeder |
| 6 | Tushar Balasaheb Sandhan | Deep Portrait Video Relighting |
| 7 | Yatindra Nath Singh | Development Of Dcs For Use In Cbtc Solution Developed By The Hbl |
| 8 | Koteswar Rao Jerripothula | Dolby Gift Award |
| 9 | Rohit Budhiraja | Alogrithm Design For Green 6g Wireless Networks |
| 10 | Aditya K. Jagannatham | Genrative Adversarial Network(Gan)-Augmented Multi-User Csi For Channel Charting Beyond 5g Networks |
| 11 | Ashwin Kumar Ramakrishnan Sivaku | Consultancy For Adc Design |
| 12 | Adrish Banerjee | Applications Of Coding Theoretic Techniques In Distributed Computing And Reinforcement Learning |
| 13 | Abhilash Patel | Development Of Space Probiotics For Vitamin D Production |
| 14 | Debdatta Ray | Design And Development Of Plasmonic Point-Of-Care Biosensors Or Diagnosing Cardiovascular Diseases Of Astronauts In Space |
| 15 | Nagaditya Poluri | Design And Development Of High-Efficiency Low-Cost 120 W C Band Power Amplifiers |
| 16 | Ankush Sharma | Development Of Energy Integration For Microgrids (Rural,Semi Urban, Urban) Implemented By Iit Kanpur |
| 17 | Rajesh Mahanand Hegde | Gap Analysis And Rfp Vetting For Upsida Applications |
| 18 | Abhishek Kumar Gupta | Constellation Shaping In Wireless Networks |
| 19 | Imon Mondal | An Lptv Programmable Bandpass True-Time |
| 20 | Swathi Battula | Utilization Of Battery Energy Storage System For Providing Market Based Ancillary Services And Energy Arbitrage |
| 21 | Aditya K. Jagannatham | Ci-Cav: Cooperative Isac For Next-Generation Cav To Enhance Vehicular Communication |
| 22 | Imon Mondal | Consultancy For The Rfic Project |

## Projects

| Sl No. | Principal Investigator | Project Title |
|---|---|---|
| 23 | Arnab Bose | Neuromorphic And In-Memory Computing (Imc) Techniques For Acceleration Of Deep Neural Networks (Dnns) With Fast And Energy Efficient Spintronic Devices From Scratch |
| 24 | Nandini Gupta | Machine Learning Assisted Detection Of Space Charge In Electric Vehicle Charging Cable Insulation |


IIT Kanpur's Prof. Rohit Budhiraja Highlights India's Contributions to Global 6G Standardisation at Bharat 6G Alliance Review


News Mantra

Bengaluru, 11 July 2025: The Union Minister of Communications, Shri Jyotiraditya M. Scindia, along with Secretary, Telecom, Shri (Dr.) Neeraj Mittal, chaired a high-level review meeting of the Bharat 6G Alliance (B6GA) to assess India's progress toward becoming a global leader in 6G by 2030. The event included comprehensive presentations from working group Chairpersons, outlining actionable plans and key technological advancements. Among them was Prof. Rohit Budhiraja, Vice C... See more

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IIT Kanpur's Prof. Rohit Budhiraja Highlights India's Contributions to Global 6G Standardisation at Bharat 6G Alliance Review


IIT KANPUR'S PROF. ROHIT BUDHIRAJA HIGHLIGHTS INDIA'S CONTRIBUTIONS TO GLOBAL 6G STANDARDISATION AT BHARAT 6G ALLIANCE REVIEW

Bengaluru, 11 July 2025: The Union Minister of Communications, Shri Jyotiraditya M. Scindia, along with Secretary, Telecom, Shri (Dr.) Neeraj Mittal, chaired a high-level review meeting of the Bharat 6G Alliance (B6GA) to assess India's progress toward becoming a global leader in 6G by 2030. The event included comprehensive presentations from working group Chairpersons, outlining actionable plans and key technological advancements. Among them was Prof. Rohit Budhiraja, Vice Chair of B6GA and Professor in the Department of Electrical Engineering at IIT Kanpur, who delivered a presentation titled "Global 6G Standardisation." He shared India's growing contributions to international standard-setting bodies such as 3GPP and ITU, and emphasized the importance of aligning national efforts with global benchmarks.

Prof. Rohit Budhiraja Vice Chair of Bharat 6G Alliance (B6GA) and Professor in the Department of Electrical Engineering at IIT Kanpur, delivered a presentation titled "Global 6G Standardisation" at high-level review meeting of the B6GA to assess India's progress toward becoming a global leader in 6G by 2030


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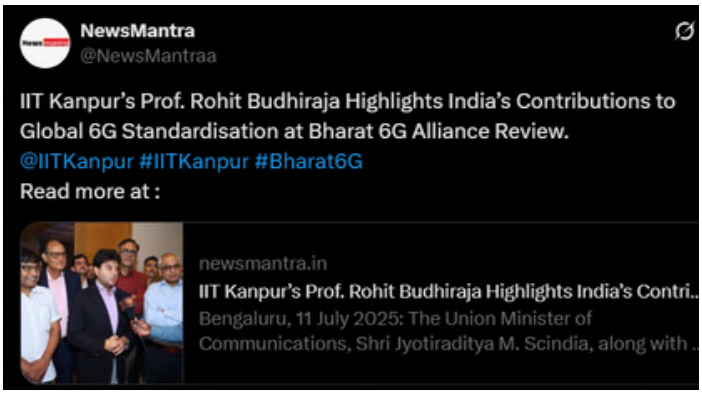
IIT Kanpur's Prof. Rohit Budhiraja Highlights India's Contributions to Global 6G Standardisation at Bharat 6G Alliance Review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IIT Professor Highlights India's Contributions to Global 6G Standardisation at Bharat 6G Alliance Review

By PNI Admin — On Jul 11, 2025

GENERAL


IIT Kanpur's Prof. Rohit Budhiraja Highlights India's Contributions to Global 6G Standardisation at Bharat 6G Alliance Review

**Prof. Tadinada Venkata Prabhakar**
(BT/EE/1980, MT/CSE/1982)
Institute Fellow

**Shri Awanish Kumar Awasthi**
(BT/EE/1985)
Distinguished Alumni Award 2025

**Prof. Dinesh Bharadia**
(BT/EE/2010)
Young Alumni Award 2025

**Shri Rishi Kapoor**
(BT/EE/1988)
Distinguished Alumni Award 2025

**Shri Ambuj Kumar**
(BT/EE/2002)
Distinguished Alumni Award 2025

**Prof. Rajesh Gupta**
(BT/EE/1984)
Founding Dean of the School of Computing, Information and Data Sciences (SCIDS) at UC San Diego

**Prof. Ajit Kumar Chaturvedi**
(B.Tech. in 1986 | M.Tech. in 1988 | Ph.D. 1995)
Vice-Chancellor of Banaras Hindu University

**Dr. Neeraj Mittal**
(BT/EE/1989)
Secretary, Ministry of Petroleum and Natural Gas

**Prof. Mahesh Mishra**
(Ph.D./EE/2002)
Named IEEE Fellow

**Prof. Rajshekhar Gannavarpu**
Pradeep Sindhu Chair

**Prof. Rohit Budhiraja**
Satish Chandra Agarwal Chair

**Prof. Kumar Vaibhav Srivastava**
Yadupati Singhania Memorial Chair

**Prof. Raghvendra Chaudhary**
PK Kelkar Fellowship

**Prof. Tushar Balasaheb Sandhan**
Cherian and Vigny Mathew Faculty Fellowship for AI

**Prof. Aditya K. Jagannatham**
Excellence In Teaching Award 2025

**Prof. Baquer Mazhari**
Excellence In Teaching Award 2025

**Prof. Shubham Sahay**
Excellence In Teaching Award 2025

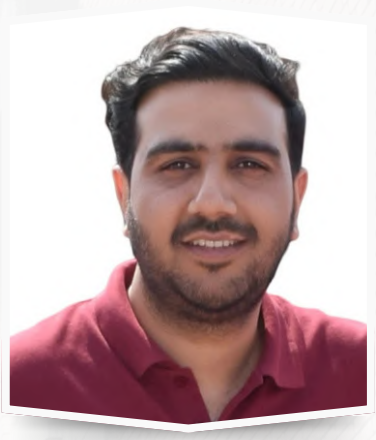
**Prof. Saikat Chakrabarti**
IEEE Fellow

**Prof. Yogesh S. Chauhan**
Fellow of the Indian Academy of Sciences

**Prof. Shubham Sahay**
Associate of the Indian Academy of Sciences

**Prof. Imon Mondal**
Assistant Professor, EE IITK

Mayank Anupam
(PhD/EE)



Mohmad Aasif Bhat
(PhD/EE)

Prof. Imon Mondal and his students Mayank Annupam and Mohmad Aasif Bhat for winning Qualcomm Innovation Fellowship (QIF) 2025

**Prof. Aditya K. Jagannatham**
Professor, EE IITK

Abhisha Garg
(PhD/EE)

Raghav Shukla
(B.Tech/EE)

Prof. Aditya K. Jagannatham and his students Abhisha Garg and Raghav Shukla for winning Qualcomm Innovation Fellowship (QIF) 2025

Sivada M. S (MSR/EE)
**Best Paper Award at the IEEE Wireless Antenna and Microwave Symposium 2025. Paper Title: "Mitigation of Grating Lobes in Planar Arrays Using 2D Subarray Null Steering."**
Thesis Supervisor Prof. A. R. Harish

Abhisha Garg (PhD/EE)
**for being awarded IEEE Signal Processing Society (SPS) Scholarship 2025**
Thesis Supervisor Prof. Aditya K. Jagannatham

Shivangi Dubey (PhD/EE)
**for being awarded IEEE Signal Processing Society (SPS) Scholarship 2025**
Thesis Supervisor Prof. Ketan Rajawat

Hidangmayum Bebina Devi (PhD/EE)
**for being awarded IEEE Signal Processing Society (SPS) Scholarship 2025**
Thesis Supervisor Prof. Tushar Balasaheb Sandhan

Sylvie Rana (PhD/EE)
**WAMS Society Award for Best Student Paper Award in All Tracks at WAMS 2025**
Thesis Supervisor Prof. A. R. Harish

Yallanki Sai Sreenija (MSR/EE)
**WAMS Society Award for Best Student Paper Award in All Tracks at WAMS 2025**
Thesis Supervisor Prof. A. R. Harish

Rishi Mishra (PhD/EE)
**WAMS Society Award for Best Student Paper Award in All Tracks at WAMS 2025**
Thesis Supervisor Prof. A. R. Harish

Gul Naqvi (M.Tech/EE)
**WAMS Society Award for Best Student Paper Award in All Tracks at WAMS 2025**
Thesis Supervisor Prof. A. R. Harish

Jalaj Kumar (PhD/EE)

**GRID-INDIA Power System Award (GIPSA) 2025-26**

Thesis Supervisor Prof. Suvendu Samanta

Yasir Ahmad Bhat (PhD/EE)

**Best Poster Award at ICEE 2025. Paper Title: "415-Compact Bend-Less Mach-Zehnder Interferometer on Barium Titanate for Programmable Photonics."**

Thesis Supervisor Prof. Yogesh S. Chauhan

Ashish Kumar Gupta (PhD/EE)

**Best Paper Award at 2025 IEEE 4th International Conference on Smart Technologies for Power, Energy and Control (STPEC 2025)**

Thesis Supervisor Prof. Piyush Kant

# EE ALUMNI REUNION

**Department of Electrical Engineering Welcomed Its Postgraduate Alumni For PARWA 2025**

**Department of Electrical Engineering hosted alumni of 1986 batch under the IIT Kanpur's Ruby Jubilee Reunion of IITK'82**


**During their Silver Jubilee Reunion, Department of Electrical Engineering hosted their class of 2000 alumni**

# GALLERY

The IEEE DEIS Summer School 2025 on the theme of "Insulating and Multifunctional Dielectrics" is being hosted for the first time in India, at IIT Kanpur



The Department of Electrical Engineering, IIT Kanpur, hosted a delegation from Axiro Semiconductor Pvt. Ltd., led by Dr. Naveen Yanduru (CEO) and Dr. Himanshu Khatri (VP Engineering). The visit included a talk on “Specialization in RF and Analog IC Design” followed by faculty interactions and lab visits.

# GALLERY

**Batch 2025 Freshers Party organized by EEA**

NEWSLETTER

# DEPARTMENT OF ELECTRICAL ENGINEERING

**Indian Institute of Technology Kanpur**

**Head, Electrical Engineering IIT Kanpur**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