Chandan kumar

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Google Scholar: https://scholar.google.com/citations?hl=en&user=akCvT7AAAAAJ
ResearchGate : https://www.researchgate.net/profile/Chandan-Kumar-230
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Professional Profile:

I am a final-year PhD scholar in Electrical Engineering at the **National Institute of Technology Mizoram**, India, with plans to submit my thesis by June 2025. My research focuses on signal processing, condition monitoring, artificial intelligence, and high-voltage systems. I have made significant advancements in machine learning for noise elimination in partial discharge signals, including developing a deep learning framework to enhance signal quality. Additionally, my work involves leveraging wavelet-based convolutional neural networks and exploring wavelet kernel-aided deep learning techniques for denoising partial discharge signals extracted via acoustic emission sensors, showcasing innovative approaches to improving signal reliability and accuracy.

Core Skills:

High voltage, AI, ML, Condition Monitoring, Signal processing, and Partial Discharge.

Education & Qualifications:

Degree Awarded	College/School (University/Board)	Year of Passing	Stream/ Branch	Percentage / CGPA
PhD (Full-time)	National Institute of Technology Mizoram	2020-till now	EE (High-Voltage)	8.75
M. Tech	GITAM University Visakhapatnam	2017	Power system & automation	9.22
B.Tech	Raghu Institute of Technology, Visakhapatnam (Andhra University)	2015	EEE	7.80
XII	Public School Bela Darbhanga, CBSE	2011	Science	64.4
X	D.A.V. Public Schol, Runnisaidpur (CBSE)	2009	Science	68.6

Career Summary:

September 2017- Jan 2020 Assistant professor

Electrical and Electronics Engineering Department

Swamy Vivekananda Engineering College, A.P.

February 2020- till now Research Scholar

National Institute of Technology Mizoram

Thesis Title-

"Advanced signal processing techniques aided smart sensors for power quality analysis and condition monitoring of power apparatus"

Key learning

Signal Processing, Partial Discharge, Acoustic Emission Sensor, Signal Denoising, Condition Monitoring, Power Quality.

July 2015-June 2017 PG Scholar

GITAM University, Visakhapatnam

Thesis Title-

"Line Loss Minimization and Node Voltage Regulation in Loop Distribution System using UPFC and Improvement of Power Quality using UPQC"

Key learning

UPQC, power quality, voltage sag and swell.

July 2011 – June 2015 UG Scholar
Raghu Institute of Technology Vizag (A.U.)

Thesis Title-

"All Nodes Voltage Regulation and Line Loss Minimization in Loop Distribution Systems Using UPFC"

Key learning

Series compensation control, smart grid modernization, power flow estimation, energy distribution optimization, FACTS device integration.

Additional Information:

IT Skills: MATLAB Simulink, MATLAB coding, AI/ML, Deep Learning, MS-Office.

Hardware Skills:

- Developed an ECT for Partial Discharge (PD) in the HV laboratory.
- Ongoing work on developing a synergistic integration of solar PV cells and water purification technologies for sustainable community development.

Other Qualifications:

- Completed a certified **NPTEL** course in Power System Engineering with a score of 82% in Jan-Apr 2020 (12-week course) by IIT Kharagpur.
- Qualified **GATE 2019** with **AIR 11745** with marks of 48.
- Completed vocational training in Computer Numerical Control (CNC) in 2014 at BHEL Visakhapatnam, Andhra Pradesh, India.

Journal

1. **C. Kumar**, B. Ganguly, D. Dey and S. Chatterjee, "Wavelet-Based Convolutional Neural Network for Denoising Partial Discharge Signals Extracted via Acoustic Emission Sensors," *IEEE Sensors Letters*, vol. 8, no. 7, pp. 1-4, July 2024, Art no. 6007804. https://doi.org/10.1109/LSENS.2024.3414954 (**SCI)**
2. V. Stephen, H. Lalchhandama, P. Das, **C. Kumar**, and Saibal Chatterjee "Optimum Solar Power Usage as an off-grid/ on-grid energy-security alternative for the state of Mizoram in India," *Electrical Engineering,* 11 February, 2025. https://doi.org/10.1007/s00202-025-02976-1. (**SCI**)
3. **C. Kumar**, B. Ganguly, D. Dey and S. Chatterjee, "Recent trends and open challenges in acoustic partial discharge signal denoising techniques: A review," Electric Power Systems Research, vol. 248, 2025, Art no. 111931. https://doi.org/10.1016/j.epsr.2025.111931. (SCI)
4. **C. Kumar**, D. Dey, B. Ganguly and S. Chatterjee, "Hybrid Deep-learning Framework for Denoising Acoustic Partial Discharge Signals" – **(Accepted, SCI)**
5. **C. Kumar**, D. Dey, B. Ganguly and S. Chatterjee, "Multi-Scale CNN- LSTM Network for Denoising Acoustic Partial Discharge Signal in an Electrical Apparatus" – **(Submitted 1st revision, SCI).**
6. P Siva Kumar, **Chandan Kumar**, Vankadara Sampath Kumar, and Saibal Chatterjee "Advanced fault detection in Power Transformer using SFRA, Statistical indicator and ANFIS". **(Under review, SCI).**
7. P Siva Kumar, **Chandan Kumar**, Vankadara Sampath Kumar, and Saibal Chatterjee, "Enhanced Transformer Fault Diagnosis Using SFRA, ANFIS-Based Classification, and Dielectric Impact Analysis of Bushing Insulation". (**Under review, SCI).**

Conferences:

8. **C. Kumar** and S. Chatterjee, "Improvement of Power Quality in Grid-Connected Systems Through the Implementation of Current Controller Technology in PV Cell Arrays," *2024 IEEE 4th International Conference on Sustainable Energy and Future Electric Transportation (SEFET)*, Hyderabad, India, 2024, pp. 1-6. https://doi.org/10.1109/SEFET61574.2024.10718188
9. **C. Kumar**, D. Dey, B. Ganguly and S. Chatterjee, "A Denoising Method of Partial Discharge Signals Employing Wavelet Kernel-Aided Deep Learning Framework," *2023 IEEE 3rd Applied Signal Processing Conference (ASPCON)*, India, 2023, pp. 200-205. https://doi.org/10.1109/ASPCON59071.2023.10396544
10. **C. Kumar**, B. Ganguly, D. Dey and S. Chatterjee, "A Deep Learning Framework for Noise Elimination of Partial Discharge Signals," *2023 IEEE 2nd International Conference on Industrial Electronics: Developments & Applications (ICIDeA)*, Imphal, India, 2023, pp. 603-608. https://doi.org/10.1109/ICIDeA59866.2023.10295214

11. **C. Kumar**, P. Ghosh, and S. Chatterjee, "Enhancement of power quality by mitigating of sag and swell problem in power system using DVR", *IFAC-Papers On-Line, Elsevier*, vol. 55, no. 1, pp. 131-137, 2022. https://doi.org/10.1016/j.ifacol.2022.04.022
12. **C. Kumar** and I. E. S. Naidu, "3-Ω 4-Wire UPQC topologies for reduced DC-link voltage rating," *2017 International Conference on Algorithms, Methodology, Models and Applications in Emerging Technologies (ICAMMAET)*, Chennai, India, 2017, pp. 1-5. https://doi.org/10.1109/ICAMMAET.2017.8186667
13. **C. Kumar**, "Voltage Regulation and Line Loss Minimization in A Loop Distribution System Using UPFC", *Open Journal of Technology & Engineering Disciplines (OJTED)*, Vol. 2, No. 4, December 2016, pp. 40~52 ISSN: 2455-6971.
14. **C. Kumar**, P. Kumar and N. Raj, "Performance Comparison of PI and Fuzzy Logic Controllers for Speed Control of Permanent Magnet Sensorless Brushless DC Motors," *2024 IEEE 1st International Conference on Green Industrial Electronics and Sustainable Technologies (GIEST)*, Imphal, India, 2024, pp. 1-6, doi: 10.1109/GIEST62955.2024.10960189.
15. **C. Kumar**, N. Raj and P. Kumar, "Analysis of Charging and Discharging Characteristics Across Various Battery Types," *2024 IEEE 1st International Conference on Green Industrial Electronics and Sustainable Technologies (GIEST)*, Imphal, India, 2024, pp. 1-6, doi: 10.1109/GIEST62955.2024.10959967.
16. **C. Kumar**, P. Kumar and N. Raj, "Power Quality Improvement in Grid-Connected Systems using PV Cell Array Current Controller," *2024 IEEE 1st International Conference on Green Industrial Electronics and Sustainable Technologies (GIEST)*, Imphal, India, 2024, pp. 1-6, doi: 10.1109/GIEST62955.2024.10960218.
17. **C. Kumar**, D. Dey, B. Ganguly and S. Chatterjee, "Acoustic Partial Discharge Signal Denoising using a Residual Convolutional Neural Network" – (**Accepted**)
18. T. Chakma, **C. Kumar** and R. Kumar, "Enhancement of Power Quality for a Wind Energy System in Grid Connected Systems through N-STATCOM" - (**Accepted**)
19. V. S. Kumar, K. Natrajan, L. Kansal, R. Chandrashekar, **C. Kumar**, J. Shanmugapriyan, "Smart Urban Waste Management System Powered by AI and IoT for Efficient Collection, Segregation, and Disposal" – (**Accepted**)

Workshop:

1. Got a certificate of participation in the workshop on "*Three New Criminal Laws*" (Bharatiya Nyaya Sanhita, 2023, Bharatiya Nagarik Suraksha Sanhita, 2023, Bharatiya Sakshya Adhiniyam, 2023), organized by the Department of ME, NIT Mizoram, from June 25-29, 2024.
2. Got a certificate of participation in the workshop on "*Advances in Power Electronics Converter for Electric Vehicles*" organized by the Department of EE, NIT Mizoram, from 5-9 Feb 2024.
3. Got a certificate of participation in the workshop on "*Advanced Current-fed Power Conversion Technologies for Residential Nanogrid and Transportation Electrification*", organized by the Department of EE, NIT Mizoram, from 13-17 Nov 2024.
4. Got a certificate of participation in the international workshop on "*Computer Simulation Methods – 2023 (IWCSM-2023)*" organized by the Department of BS&HSS (Physics), NIT Mizoram, from 13-17 Nov 2024.
5. Got 2nd position in the debate competition on "*Contribution of Janjati heroes in Freedom Struggle*" organized by NIT Mizoram on 15th of Nov 2022.

6. Got a certificate of participation in the workshop on "*Innovation, Entrepreneurship, and Start-Up for Young*" organized by the Department of EE, NIT Mizoram, from 26-30 Sept 2022.
7. Got a certificate of participation in the "*Kalman Filter*" workshop conducted by Advances in Control & Optimization of Dynamical Systems at NIT Silchar and IIT Guwahati from 23-25 Feb 2022.
8. Got a certificate of participation in the "*Electric Vehicle*" organized by the Department of EE, NIT Mizoram, from 10-14 Nov 2020.
9. Got a certificate of participation in the "*Power Electronics application in Machine Drive and Power System*" Central Institute of Technology from 23-27 Nov 2020.
10. Got a certificate of participation in the "*Artificial Intelligence*" organized by the Department of EE, NIT Mizoram, from 10-14 Nov 2020.
11. Got a certificate of participation in the "*Power Equipment Condition Monitoring*" organized by the Department of EE supported by IEEE DEIS Kolkata Chapter from 9-13 March 2020.
12. Got a certificate of participation in the **"***MATLAB and LATEX***"** organized by the Department of EE, Andhra University, Visakhapatnam, from 5-9 Dec 2019.
13. Got a certificate of participation in the "*Fractional Order Modelling in Engineering (FOME-2016)*" organized by the Department of EE at Gayatri Vidya Parishad College of Engineering, Visakhapatnam, from 26-28 Oct 2016.

Faculty Development Program (FDP):

1. Got a certificate of participation in the "*Advances in Power Electronics for Smart Grid, Renewable Energy Systems and EV*" organized by the Department of EE, Siliguri Institute of Technology (SIT) from 8-13 Oct 2023.
2. Got a certificate of participation in the "Recent Advancements in Power Electronics and Drives for the Integration of Future Energy Sources" organized by the Department of EEE, Lendi Institute of Engineering and Technology, Vizianagaram, from 19-24 Dec 2022.
3. Got a certificate of participation in the "*Magnetic Levitation System*" organized by the Department of EE, NIT Mizoram, from 7-11 Feb 2022.
4. Got a certificate of participation in the "*Emerging Trends and Developments in Electric Vehicles*" organized by the Department of EE, NIT Manipur, from 25-29 Oct 2022.
5. Got a certificate of participation in the "*Frugal Innovations and Social Entrepreneurship*" organized by NIT Mizoram in collaboration with AICTE from 25-30 Jan 2021.
6. Got a certificate of participation in the **"***Recent Advances in Power Electronics Applications with MATLAB Simulation***"** organized by NIT Patna & MeitY, Govt. of India.
7. Got a certificate of participation in the "*Data Science and Cloud Computing*" organized by Chebrolu Engineering College, A.P. from 18-22 May 2020.

Services:

1. Reviewer – IEEE Sensor Journal
2. Reviewer – Elsevier EPSR
3. Reviewer – Springer Electrical Engineering
4. Reviewer – IEEE Conference at NIT Manipur, GIEST 2024.
5. Reviewer – IEEE Conference at GRIET Hyderabad, SEFET 2024.
6. Reviewer – IEEE Conference at IECON-24 Chicago, USA.

7. Reviewer - e-Prime - Advances in Electrical Engineering, Electronics and Energy in Elsevier, Inc. (New York, US).
8. Reviewer - Indonesian Journal of Electrical Engineering and Computer Science
9. Reviewer – IEEE Conference at NIT Silchar, NEIECCE 2025.
10. Reviewer – IEEE Conference at NIT Rourkela, INDISCON 2025.
11. Reviewer – Environmental Engineering and Management Journal (EEMJ)

Strengths:

- Good communication skills.
- Desire to meet new challenges.
- Ability to adapt to new assignments.

Academic Professional References:

Prof. Saibal Chatterjee

Dean (Research and Consultancy)
NIT Mizoram
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Dr. Ramesh Kumar

HOD, Dept. of EE
NIT Mizoram
Email: ramesh.eee@nitmz.ac.in
Contact No.: +91 8822097049

Personal details:

Date of birth	12th February, 1994
Gender	Male
Marital Status	Unmarried
Nationality	Indian
Father's Name	Shiv Shankar
Mother's Name	Bindu Rani
Permanent Adress	Ward no. 05, Tikauli, Runnisaidpur, Sitamarhi, Bihar-843323.

Language Proficiency:
English, Hindi, Telugu

Declaration:
I hereby declare that all the information I furnished is accurate to the best of my knowledge.

Name: CHANDAN KUMAR

Date: 14-06-2025

Place: SITCOE, India.