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Fellow, INAE (India), Senior Member, IEEE (USA); Fellow, IE (India)  
Professor, Emera Research Chair in Smart Grid Technologies  
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## 1 Education

- Ph.D., Electrical Engineering, Memorial University of Newfoundland, Canada, 2006.
- M.E., Electrical Engineering, Jadavpur University, India, 2000.
- B.E., Electrical Engineering, National Institute of Technology, Durgapur, India, 1997.

## 2 Research interests

- Power system monitoring, protection, and control
- Power system dynamics and stability
- Modelling of power system components
- Smart grid
- Microgrid

## 3 Professional and research experience

- Professor and Director of the Emera and NB Power Research Centre for Smart Grid Technologies, Electrical and Computer Engineering, University of New Brunswick. July 2023 to present.
- Professor, Department of Electrical Engineering, Indian Institute of Technology, Kanpur, India. November 2018 to June 2023.
- Associate Professor, Department of Electrical Engineering, Indian Institute of Technology, Kanpur, India. June 2014 to November 2018.
- Assistant Professor, Department of Electrical Engineering, Indian Institute of Technology, Kanpur, India. December 2009 to June 2014.

- Lecturer, Department of Electrical Engineering, Faculty of Built Environment and Engineering, Queensland University of Technology, Brisbane, Australia. February 2009 to November 2009.
- Research Associate, Department of Electrical Engineering, Faculty of Built Environment and Engineering, Queensland University of Technology, Brisbane, Australia. August 2008 to January 2009.
- Special Scientist, Department of Electrical and Computer Engineering, University of Cyprus, Cyprus. October 2006 to July, 2008.
- Phd Candidate and Teaching Assistant, Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John's, Canada. September 2002 to September 2006.
- Scientific officer, Electronics Division, Bhabha Atomic Research Centre, Department of Atomic Energy, India. April 2000 to June 2002.
- Marketing and commissioning engineer, Relay and Control Panels Division, Asea Brown Boveri (ABB) Limited, India. September 1997 to March 1998.

## 4 Publications

### Google Scholar link

#### 4.1 Book/ Book Chapter

1. S. K. Mallik, S. Chakrabarti, and S. N. Singh, chapter: "State estimation in the presence of synchronized measurement", in the book: *Synchronized Phasor Measurements for Smart Grids*, IET, ISBN: 978-1-78561-011-0.
2. S. Chakrabarti, *Application of Artificial Neural Networks for Online Voltage Stability Monitoring and Enhancement of an Electric Power System*, VDM Verlag, Saarbrucken, Germany, 2008.

#### 4.2 Journal/magazine publications

1. S. P. Singh, S. Chakrabarti, D. Shukla, and V. Terzija, "Development and implementation of a MATLAB-based phasor data concentrator for synchrophasor applications," accepted in Nov. 2023 for publication in *International Journal of Electrical Power and Energy Systems*.
2. D. Shukla, S. Chakrabarti, and A. Sharma, "Blockchain-based cyber-security enhancement of cyber-physical power system through symmetric encryption mechanism," accepted in Oct. 2023 for publication in *International Journal of Electrical Power and Energy Systems*.
3. V. K. Gaur, S. Chakrabarti, and A. Sharma, "Improving faulty phase selection in PV integrated system with compensation angle approach," accepted in Oct. 2023 for publication in *Electric Power Systems Research*.

4. B. Pawar, E. I. Batzelis, S. Chakrabarti, and B. C. Pal, "Interfacing synchronous machine model including stator transients with network for stability studies," accepted in Sept. 2023 for publication in *IEEE Transactions on Power Systems*.
5. V. Patel, S. Chakrabarti, and A. Sharma, "A weighted deep neural network for processing measurements for state estimation," accepted in Aug. 2023 for publication in *IEEE Transactions on Industrial Informatics*.
6. S. Ghosh, A. Mitra, S. Chakrabarti, and A. Sharma, "Data-driven strategy for appliance identification using phase-space reconstruction," accepted in July 2023 for publication in *IEEE Transactions on Smart Grid*.
7. C. L. Dewangan, V. Vijayan, D. Shukla, S. Chakrabarti, S. N. Singh, A. Sharma, and M. A. Hossain, "An improved decentralized scheme for incentive-based demand response from residential customers," accepted in July 2023 for publication in *Energy*.
8. Y. Bansal, R. Sodhi, S. Chakrabarti, and A. Sharma, "A novel two-stage partitioning based reconfiguration method for active distribution networks," accepted in June 2023 for publication in *IEEE Transactions on Power Delivery*.
9. A. Mitra, S. Ghosh, A. Mohapatra, and S. Chakrabarti, "Appliance identification via combinatorial fusion analysis-assisted bayesian-optimized classifier," accepted in June 2023 for publication in *IEEE Transactions on Smart Grid*.
10. S. Ghosh, A. Mitra, S. Chakrabarti, and A. Sharma, "Decomposition-transformation assisted optimized heterogeneous classification strategy in NILM," accepted in June 2023 for publication in *IEEE Transactions on Instrumentation Measurement*.
11. B. R. Kumar, A. Mohapatra, S. Chakrabarti, and A. Kumar, "High-speed sub-cycle algorithm for estimation of decaying DC component in current measurements," accepted in April 2023 for publication in *International Journal of Electrical Power and Energy Systems*.
12. V. Patel, A. Kapoor, S. Chakrabarti, and A. Sharma, "Taxonomy of outlier detection methods for power system measurements," accepted in March 2023 for publication in *IET Energy Conversion and Economics*.
13. S. Som, S. Chakrabarti, S. R. Sahoo, A. Ghosh, and X. Liang, "BESS reserve-based frequency support during emergency in islanded residential microgrids," accepted in Feb. 2023 for publication in *IEEE Transactions on Sustainable Energy*.
14. M. N. S. K. Shabbir, X. Liang, and S. Chakrabarti, "A hierarchical voltage control scheme for wind power plants through enhanced reactive power support," *IEEE Transactions on Industry Applications*, Vol. 58, No. 5, Sep/Oct 2022, pp. 5776-5791.
15. B. R. Kumar, A. Mohapatra, R. Gokaraju, and S. Chakrabarti, "Phase angle-based sub-cycle algorithm for high-speed digital relaying of transmission lines," *IEEE Transactions on Power Delivery*, Vol. 37, No. 4, Aug. 2022, pp. 3416-3419.

16. P. Gangwar, S. Kesherwani, S. Chakrabarti, and S. N. Singh, "Multi-objective multi-scenario framework for RCS placement in unbalanced distribution systems considering uncertainty," *IEEE Systems Journal*, Vol. 16, No. 2, June 2022, pp. 2811-2821.
17. C. L. Dewangan, S. N. Singh, S. Chakrabarti, K. Singh, "Peak-to-average ratio incentive scheme to tackle the peak-rebound challenge in TOU pricing," accepted in April 2022 for publication in *Electric Power Systems Research*.
18. A. Srivastava, S. Chakrabarti, J. Soares, and S. N. Singh, "An optimization-based topology error detection method for power system state estimation," accepted in March 2022 for publication in *Electric Power Systems Research*.
19. M. N. Alam, S. Chakrabarti, and A. K. Pradhan, "Protection of networked microgrids using relays with multiple setting groups," *IEEE Transactions on Industrial Informatics*, Vol. 18, No. 6, June 2022, pp. 3713-3723.
20. A. Mitra, R. Dutta, A. Gupta, A. Mohapatra, and S. Chakrabarti, "A robust data-driven approach for adaptive dynamic load modeling," *IEEE Transactions on Power Systems*, Early Access, DOI: 10.1109/TPWRS.2021.3137328.
21. B. R. Kumar, A. Mohapatra, and S. Chakrabarti, "A novel sub-cycle-based method for estimation of decaying DC component and fundamental phasor," accepted in Oct. 2021 for publication in *IEEE Transactions on Instrumentation & Measurement*.
22. S. Som, R. Dutta, A. Gholami, A. K. Srivastava, S. Chakrabarti, and S. R. Sahoo, "DPMU-based multiple event detection in a microgrid considering measurement anomalies," *Applied Energy*, Vol. 308, No. 15, Feb. 2022, pp. 118269.
23. C. L. Dewangan, S. Chakrabarti, S. N. Singh, and M. Sharma, "A fair incentive scheme for participation of smart inverters in voltage control," *IEEE Transactions on Industrial Informatics*, Vol. 18, No. 1, Jan. 2022, pp. 656-665.
24. S. Som, S. De, S. Chakrabarti, S. R. Sahoo, and A. Ghosh, "A robust controller for battery energy storage system of an islanded AC microgrid," *IEEE Transactions on Industrial Informatics*, Vol. 18, No. 1, Jan. 2022, pp. 207-218.
25. R. Dutta, S. Chakrabarti, and A. Sharma, "Robust topology detection of distribution network," *IEEE Transactions on Power Systems*, Vol. 36, No. 6, Nov. 2021, pp. 5967-5970.
26. R. Dutta, S. J. Geetha, S. Chakrabarti, and A. Sharma, "An L-1 regularized forecasting-aided state estimator for active distribution networks," accepted in Sept. 2021 for publication in *IEEE Transactions on Smart Grid*.
27. B. Pawar, E. I. Batzelis, S. Chakrabarti, and B. C. Pal, "Grid-forming control for solar PV systems with power reserves," *IEEE Transactions on Sustainable Energy*, Vol. 12, No. 4, Oct. 2021, pp. 1947-1959.

28. J. Zhaoyang, J. Zhao, L. Ding, S. Chakrabarti, E. Gryazina, and V. Terzija, "Power System Anomaly Detection using Innovation Reduction Properties of Iterated Extended Kalman Filter," accepted in Sept. 2021 for publication in *International Journal of Electrical Power and Energy Systems*.
29. S. J. Geetha, A. Meghwani, S. Chakrabarti, K. Rajawat, and V. Terzija, "Spoofing attack on synchrophasor GPS clock: impact and detection in power system state estimation," accepted in June 2021 for publication in *International Journal of Electrical Power and Energy Systems*.
30. A. Mitra, A. Mohapatra, S. Chakrabarti, and S. Sarkar, "Online measurement based joint estimation of synchronous generator and exciter parameters," *IEEE Transactions on Energy Conversion*, Vol. 36, No. 2, June 2021, pp. 820-830.
31. B. R. Kumar, A. Mohapatra, S. Chakrabarti, and A. Kumar, "Phase angle-based fault detection and classification for protection of transmission lines," accepted in May 2021 for publication in *International Journal of Electrical Power and Energy Systems*.
32. S. M. Ashraf and S. Chakrabarti, "A single machine equivalent-based approach for online tracking of power system transient stability," *IEEE Transactions on Power Systems*, Vol. 36, No. 3, May 2021, pp. 1688-1696.
33. B. Rathore, S. Chakrabarti, and L. Srivastava, "A self-regulated virtual impedance control of VSG in a microgrid," accepted in April 2021 for publication in *Electric Power Systems Research*.
34. J. G. Sreenath, S. Chakrabarti, and K. Rajawat, "Asynchronous hierarchical forecasting-aided state estimator with sub-area data validation for power systems," *IEEE Sensors Journal*, Vol. 21, No. 2, Jan. 2021, pp. 2124-2133.
35. S. K. Mallik, S. Chakrabarti, and S. N. Singh, "Analysis of Ill-conditioning of hybrid state estimators in the presence of PMU measurements," accepted in Dec. 2020 for publication in *IET Energy Conversion and Economics*.
36. R. Dutta, S. Chakrabarti, and A. Sharma, "Topology tracking for active distribution networks," *IEEE Transactions on Power Systems*, Vol. 36, No. 4, July 2021, pp. 2855-2865.
37. Z. Jin, S. Chakrabarti, J. Yu, L. Ding, and V. Terzija, "An improved algorithm for CKF based forecasting aided state estimation and anomaly detection," accepted in Nov. 2020 for publication in *International Transactions on Electrical Energy Systems*.
38. P. W. Pande, S. Chakrabarti, S. C. Srivastava, and S. Sarkar, "A Clustering-based approach for estimation of low frequency oscillations in power systems," *IEEE Transactions on Power Systems*, Vol. 35, No. 6, Nov. 2020, pp. 4666-4677.
39. B. Rathore, S. Chakrabarti, and L. Srivastava, "ARI and ARID control of virtual synchronous generator for frequency response improvement," accepted in Oct. 2020 for publication in *IET Renewable Power Generation*.

40. R. Dutta, V. Patel, S. Chakrabarti, A. Sharma, R. Das, and S. Mondal, "Parameter estimation of distribution lines using SCADA measurements," accepted in Sept. 2020 for publication in *IEEE Transactions on Instrumentation & Measurement*.
41. M. N. S. K. Shabbir, X. Liang, and S. Chakrabarti, "An ANOVA-based fault diagnosis approach for variable frequency drive-fed induction motors," accepted in June 2020 for publication in *IEEE Transactions on Energy Conversion*.
42. C. Santhoskumar, K. Rajawat, S. Chakrabarti, and B. C. Pal, "Robust distribution system state estimation with hybrid measurements," accepted in May 2020 for publication in *IET Generation, Transmission & Distribution*.
43. Z. Jin, J. Zhao, S. Chakrabarti, L. Ding, and V. Terzija, "A hybrid robust forecasting-aided state estimator considering bimodal gaussian mixture measurement errors," *International Journal of Electrical Power and Energy Systems*, Vol. 120, Sep. 2020.
44. C. L. Dewangan, S. N. Singh, and S. Chakrabarti, "Combining forecasts of day-ahead solar power," *Energy*, Vol. 202, Jul. 2020.
45. M. N. Alam, R. Gokaraju, and S. Chakrabarti, "Protection coordination for networked microgrids using single and dual setting overcurrent relays," accepted in April 2020 for publication in *IET Generation, Transmission & Distribution*.
46. P. Gangwar, Aasim, S. Chakrabarti, and S. N. Singh, "Short-term forecasting-based network reconfiguration for unbalanced distribution systems with distributed generators," *IEEE Transactions on Industrial Informatics*, Vol. 16, No. 7, July 2020, pp. 4378-4389.
47. I. Mohammed, J. G. Sreenath, S. S. Shinde, K. Rajawat, and S. Chakrabarti, "Modified re-iterated Kalman filter for handling delayed and lost measurements in power system state estimation," *IEEE Sensors Journal*, Vol. 20, No. 7, April 2020, pp. 3946-3955.
48. A. Meghwani, R. Gokaraju, S. C. Srivastava, and S. Chakrabarti, "Local measurements based backup protection for DC microgrids using sequential analyzing technique," *IEEE Systems Journal*, Vol. 14, No. 1, March 2020, pp. 1159-1170.
49. M. N. Alam, S. Chakrabarti, and X. Liang, "A benchmark test system for networked microgrids," *IEEE Transactions on Industrial Informatics*, Vol. 16, No. 10, Oct 2020, pp. 6217-6230.
50. A. Dubey, S. Chakrabarti, A. Sharma, and V. Terzija, 'Optimal utilization of PMU measurements in power system hybrid state estimators'," *IET Generation, Transmission & Distribution*, Vol. 14, No. 1, March 2020, pp. 1159-1170.
51. P. W. Pande, B. R. Kumar, S. Chakrabarti, S. Srivastava, S. Sarkar, and T. Sharma, "Model order estimation methods for low frequency oscillations in power systems," *International Journal of Electrical Power and Energy Systems*, Vol. 115, Feb. 2020.

52. S. M. Ashraf, A. Dubey, and S. Chakrabarti, "Voltage stability control of power systems using reduced network based optimisation," *IET Generation, Transmission & Distribution*, Vol. 13, No. 17, Sep. 2019, pp. 3888-3895.
53. P. Gangwar, S. N. Singh, and S. Chakrabarti, "Network reconfiguration for DG-integrated unbalanced distribution system," *IET Generation, Transmission & Distribution*, Vol. 13, No. 17, Sep. 2019, pp. 3896-3909.
54. J. G. Sreenath, A. Sharma, and S. Chakrabarti, "Unscented RTS smoother based power system forecasting-aided state estimator using hybrid measurements," *IET Generation, Transmission & Distribution*, Vol. 13, No. 16, Aug. 2019, pp. 3583-3590.
55. P. Gangwar, S. N. Singh, and S. Chakrabarti, "Multi-objective planning model for multi-phase distribution system under uncertainty considering reconfiguration," *IET Renewable Power Generation*, Vol. 13, No. 12, Aug. 2019, pp. 2070-2083.
56. J. G. Sreenath, S. Chakrabarti, K. Rajawat, and V. Terzija, "An asynchronous decentralized forecasting-aided state estimator for power systems," *IEEE Transactions on Power Systems*, Vol. 34, No. 4, Jul. 2019, pp. 3059-3068.
57. Z. Jin, P. Wall, Y. Chen, J. Yu, S. Chakrabarti, and V. Terzija, "Analysis of hybrid state estimators: accuracy and convergence of estimator formulations," *IEEE Transactions on Power Systems*, Vol. 34, No. 4, Jul. 2019, pp. 2565-2576.
58. A. Dubey, S. Chakrabarti, and V. Terzija, "SCADA and PMU measurement based methods for robust hybrid state estimation," *Electric Power Components and Systems*, Vol. 47, No. 9-10, 2019, pp. 849-860.
59. M. N. Alam, S. Chakrabarti, and A. Ghosh, "Networked microgrids: state-of-the-art and future perspectives," *IEEE Transactions on Industrial Informatics*, Vol. 15, No. 3, March 2019, pp. 1238-1250.
60. N. Negi, S. R. Sahoo, and S. Chakrabarti, "Distributed control based power sharing strategy for an islanded AC microgrid," *IET Generation, Transmission & Distribution*, Vol. 13, No. 4, 2019, pp. 553-562.
61. A. Meghwani, S. C. Srivastava, and S. Chakrabarti, "Local measurement based technique for estimating fault location in multi-source DC microgrids," *IET Generation, Transmission & Distribution*, Vol. 12, No. 13, July 2018, pp. 3305-3313.
62. J. G. Sreenath, S. Chakrabarti, and K. Rajawat, "Hierarchical parallel dynamic estimator of states for interconnected power system," *IET Generation, Transmission & Distribution*, Vol. 12, No. 10, May 2018, pp. 2299-2306.
63. S. K. Mallik, S. Chakrabarti, and S. N. Singh, "An educational software for enhancing research in power system state estimation," *Electric Power Components and Systems*, Vol. 46, No. 7, 2018, pp. 802-813.

64. V. Vignesh, S. C. Srivastava, and S. Chakrabarti, "A robust decentralized wide area damping controller for wind generators and FACTS controllers considering load model uncertainties," *IEEE Transactions on Smart Grid*, Vol. 9, No. 1, Jan. 2018, pp. 360-372.
65. A. Sharma, S. C. Srivastava, and S. Chakrabarti, "An extension of common information model for power system multi area state estimation," *IEEE Systems Journal*, Vol. 11, No. 3, Sep. 2017, pp. 1692-1701.
66. M. Asprou, S. Chakrabarti, and E. Kyriakides, "A two-stage state estimator for dynamic monitoring of power systems," *IEEE Systems Journal*, Vol. 11, No. 3, Sep. 2017, pp. 1767-1776.
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72. V. Vignesh, S. Chakrabarti, and S. C. Srivastava, "Load modelling under unbalanced disturbances," *IEEE Transactions on Power Systems*, Vol. 31, No. 2, Mar. 2015, pp. 1661-1662.
73. A. Sharma, S. C. Srivastava, and S. Chakrabarti, "A multi-agent based power system hybrid dynamic state estimator," *IEEE Intelligent Systems*, Vol. 30, No. 3, May/June 2015, pp. 52-59.
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75. A. Sharma, S. C. Srivastava, and S. Chakrabarti, "An iterative multi area state estimation approach using area slack bus adjustment," *IEEE Systems Journal*, Vol. 10, No. 1, March 2016, pp. 69-77.



76. S. K. Mallik, S. Chakrabarti, and S. N. Singh, "A robust regularized hybrid state estimator for power systems," *Electric Power Components and Systems*, 42(7), April 2014, pp. 671-681.
77. Ch. V. V. S. B. Reddy, S. C. Srivastava, and S. Chakrabarti, "Fast assessment of available transfer capability using synchrophasor measurements," *Electric Power Components and Systems*, 42(7), April 2014, pp. 716-726.
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85. S. Chakrabarti and E. Kyriakides, and M. Albu, "Uncertainty in power system state variables obtained through synchronized measurements," *IEEE Transactions on Instrumentation and Measurement*, Vol. 58, No. 8, Aug. 2009, pp. 2452-2458.
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### 4.3 Conference publications

1. V. Patel, S. Ghosh, S. Chakrabarti, A. Sharma, and S. Pannala, "Neural network based fault location in power distribution system", accepted for publication in *IEEE PES ISGT Asia*, 2023.
2. K. P. Swain, A. Tiwari, A. Sharma, A. Karkare, and S. Chakrabarti, "Comprehensive demonstration of man-in-the-middle attack in PDC and PMU network", *National Power Systems Conference (NPSC) (NPSC 2022)*, New Delhi, India, Dec. 2022.
3. B. R. Kumar, A. Mohapatra, and S. Chakrabarti, "Key Insights on methods for estimation of decaying DC component in fault currents", *National Power Systems Conference (NPSC) (NPSC 2022)*, New Delhi, India, Dec. 2022.
4. N. K. Sharma, S. Chakrabarti, and A. sharma, "State estimation of the transmission system in the presence of unbalanced load at the transmission distribution boundary", *National Power Systems Conference (NPSC) (NPSC 2022)*, New Delhi, India, Dec. 2022.
5. C. L. Dewangan, M. Satapathy, S. Chakrabarti, and S. N. Singh, "An impact study of time of use pricing on voltage control devices", *National Power Systems Conference (NPSC) (NPSC 2022)*, New Delhi, India, Dec. 2022.

6. N. Singh, S. Chakrabarti, and A. Sharma, "Real time detection and control of loss of synchronism using energy function criterion and phase sequence exchange technique", *IEEE PES ISGT ASIA 2022*, Nov. 2022, Singapore.
7. V. S. Patel, A. Kapoor, A. Sharma, and S. Chakrabarti, "Locating faulty section in tie-line using classification based methods", *IEEE PES ISGT ASIA 2022*, Nov. 2022, Singapore.
8. S. Som, R. Dutta, A. Mitra, S. Chakrabarti, and S. R. Sahoo, "DPMU-based event classification in microgrids using time domain and spectral features of limited measurements", *2022 IEEE Power & Energy Society General Meeting (PESGM)*, July 2022, Denver, USA.
9. B. Pawar, E. I. Batzelis, S. Chakrabarti, and B. C. Pal, "Grid-forming control for solar PV systems with real-time MPP estimation", *2021 IEEE Power & Energy Society General Meeting (PESGM)*, July 25-29, 2021.
10. B. R. Kumar, A. Mohapatra, and S. Chakrabarti, "Phasor estimation and disturbance detection in power systems by Ramanujan sum", *2021 IEEE Power & Energy Society General Meeting (PESGM)*, July 25-29, 2021.
11. M. N. Alam, S. Chakrabarti, and V. K. Tiwai, "Protection coordination with high penetration of solar power to distribution networks", *2nd International Conference on Smart Power and Internet Energy Systems (SPIES 2020)*, Bangkok, Thailand, September 15-18, 2020.
12. A. Mitra, R. Dutta, A. Mohapatra, and S. Chakrabarti, "An Iterated Augmented Covariance Matrix Based Dynamic State Estimation", *2020 IEEE Power & Energy Society General Meeting (PESGM)*, Montreal, Canada, August 2-6, 2020.
13. G. Garg, A. Mohapatra, S. Chakrabarti, A. Kumar, and R. K. Panda, "Optimal Day-Ahead Load Scheduling for Voltage and Frequency Regulation in an Islanded Microgrid", *2020 IEEE Power & Energy Society General Meeting (PESGM)*, Montreal, Canada, August 2-6, 2020.
14. R. K. Yadav, S. De, S. R. Sahoo, and S. Chakrabarti, "Secondary Control Method for Standalone DC Microgrid with Improved Voltage Regulation, Load Sharing, and Line Loss", *2020 IEEE Power & Energy Society General Meeting (PESGM)*, Montreal, Canada, August 2-6, 2020.
15. R. Dutta, S. Som, S. Chakrabarti, A. Sharma, and A. Srivastava, "Event Detection and Localization in Active Distribution Networks using  $\mu$ PMUs", *2020 IEEE Power & Energy Society General Meeting (PESGM)*, Montreal, Canada, August 2-6, 2020.
16. A. Khan, A. Sharma, and S. Chakrabarti, "Parameter and topology estimation for electrical power distribution system", *8th International Conference on Power Systems (ICPS) 2019*, Jaipur, India, December 20-22, 2019.
17. C. L. Dewangan, S. Chakrabarti, S. N. Singh, and V. Vijayan, "Automatic power factor controller in low voltage residential distribution system with high solar power generation,"

*9th International Conference on Power and Energy Systems (ICPES)*, Perth, Australia, December 10-12, 2019.

18. A. Mitra, S. Chakrabarti, and A. Mohapatra, "Parameter estimation of a synchronous generator at moderate measurement sampling rate," *ISGT Europe 2019*, Sep. 29 to Oct. 2, 2019, Bucharest, Romania.
19. R. Yadav, S. Dey, S. R. Sahoo, and S. Chakrabarti, "Droop based secondary controller for islanded DC microgrid with line loss minimization," *ISGT Europe 2019*, Sep. 29 to Oct. 2, 2019, Bucharest, Romania.
20. P. Gangwar, S. N. Singh, and S. Chakrabarti, "An analytical approach for phase balancing considering customer load profile," *ISGT Europe 2019*, Sep. 29 to Oct. 2, 2019, Bucharest, Romania.
21. S. Sahoo, A. Sharma, and S. Chakrabarti, "Optimal residential battery scheduling using short-term forecasts," *ISGT Europe 2019*, Sep. 29 to Oct. 2, 2019, Bucharest, Romania.
22. J. G. Sreenath, A. Meghwani, S. Chakrabarti, S. C. Srivastava, and A. Sharma, "Impact of GPS spoofing on synchrophasor assisted load shedding," *IEEE PES General Meeting*, Aug. 2019, Atlanta, USA.
23. M. N. Alam, S. Chakrabarti, A. Sharma, S. C. Srivastava, "An adaptive protection scheme for AC microgrids using micro PMU based topology processor," *2019 International Conference on Environment and Electrical Engineering*, Genoa, Italy, June 11-14 2019.
24. R. Dutta, A. Dubey, S. Chakrabarti, and A. Sharma, "Comparative Performance Analysis of Optimization Based Distribution System State Estimator With Varying Measurement Uncertainties," *2018 National Power System Conference*, Trichy, India, Dec. 2018.
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28. R. Khan, C. Dewangan, S. C. Srivastava, and S. Chakrabarti, "Short Term Load Forecasting using SVM Models: A Case Study," *8th IEEE Power India International Conference*, Kurukshetra, India, 10-12 Dec. 2018.
29. A. Dubey, S. Chakrabarti, and A. sharma, "Real-time implementation of synchrophasor based linear state estimator in OPAL-RT HYPERSIM," *ICUE 2018 on Green Energy for Sustainable Development*, Phuket, Thailand, 24-26 Oct. 2018.

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31. J. G. Sreenath, S. Mangalwedekar, A. Meghwani, S. Chakrabarti, K. Rajawat, and S. C. Srivastava, "Impact of GPS spoofing on synchrophasor assisted load shedding," *IEEE PES General Meeting*, Aug. 2018, Portland, USA.
32. C. L. Dewangan, S. N. Singh, and S. Chakrabarti, "Solar irradiance forecasting using adaptive wavelet neural network," *IEEE PES APPEEC 2017*, Nov. 2017, Bangalore, India.
33. S. Athiappan, S. Anand, and S. Chakrabarti, "Estimation and utilization of aggregate harmonic load model," *IEEE PES APPEEC 2017*, Nov. 2017, Bangalore, India.
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35. A. Srivastava, A. Dubey, and S. Chakrabarti, "An exhaustive search based topology error detection method and its validation in real time digital simulator," *2017 IEEE TENCON*, Nov. 2017, Penang, Malaysia.
36. P. Gangwar, S. N. Singh, and S. Chakrabarti, "Network reconfiguration for unbalanced distribution systems," *2017 IEEE TENCON*, Nov. 2017, Penang, Malaysia.
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38. A. Dubey, S. Chakrabarti, and V. Terzija, "Testing and validation of a dynamic estimator of states in OPAL-RT real time simulator," *2017 IEEE PES General Meeting*, July 2017, Chicago, USA.
39. Sreenath J. G., A. Meghwani, S. Chakrabarti, K. Rajawat, and SC Srivastava, "A Recursive State Estimation Approach to Mitigate False Data Injection Attacks in Power Systems," *2017 IEEE PES General Meeting*, July 2017, Chicago, USA.
40. A. Dubey and S. Chakrabarti, "Synchrophasor based three-phase state estimator," accepted for publication in *International Conference on Sustainable and Renewable Energy Development and Design*, Thimphu, Bhutan, April, 2017.
41. C. V. V. S. B. Reddy, S. Chakrabarti, and S. C. Srivastava, "Reduced network based voltage stability monitoring by using PMU measurements," *IEEE TENCON 2016*, Nov. 2016, Singapore.
42. B. Rathore, S. Chakrabarti, and S. Anand, "Frequency response improvement in microgrid using optimized VSG control," *2016 National Power System Conference*, Bhubaneswar, India, Dec. 2016.

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44. A. Meghwani, S. Chakrabarti, and S. C. Srivastava, "A fast scheme for fault detection in DC microgrid based on voltage prediction," *2016 National Power System Conference*, Bhubaneswar, India, Dec. 2016.
45. P. Porwal, S. Chakrabarti, and N. Verma, "A recursive formulation of the Prony method for monitoring power system oscillations," *6th IEEE International Conference on Power Systems (ICPS 2016)*, March 4-6, 2016.
46. N. Negi, S. R. Sahoo, and S. Chakrabarti, "Robust adaptive primary control for an islanded two-bus distributed generation system," *6th IEEE International Conference on Power Systems (ICPS 2016)*, March 4-6, 2016.
47. A. Dubey and S. Chakrabarti, "An unscented Kalman filter based hybrid state estimator considering conventional and PMU measurements," *6th IEEE International Conference on Power Systems (ICPS 2016)*, March 4-6, 2016.
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52. M. Jha, S. Chakrabarti, and E. Kyriakides, "Estimation of the rotor angle of a synchronous generator by using PMU measurements," *2015 Powertech*, Eindhoven, Netherland.
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*5th International Conference on Power & Energy Systems*, Kathmandu, Nepal, Oct. 28-30, 2013.

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75. B. Mallick and S. Chakrabarti, "Optimal Placement of Phasor Measurement Units for Multi-Area Observability," *Innovative Smart Grid Technologies (ISGT)-India 2011*, Kerala, India, 1-3 Dec., 2011.
76. S. K. Mallik, S. Chakrabarti, and S. N. Singh, "Improving the convergence characteristic of hybrid state estimation using pseudo measurement," *17th Power system computation conference*, Sweden, August 22-26, 2011.
77. B. Amanulla, S. Chakrabarti, and S. N. Singh, "Reconfiguration of distribution systems using probabilistic reliability models," *IEEE PES General Meeting*, Detroit, USA Jul. 2011.



78. R. Majumder, S. Chakrabarti, G. Ledwich, and A. Ghosh, "Control of battery storage to improve voltage profile in autonomous microgrid," *IEEE PES General Meeting*, Detroit, USA Jul. 2011.
79. R. Majumder, G. Bag, and S. Chakrabarti, "Performance of electronic interfaced DERs integrated with communication network," *IEEE PES General Meeting*, Detroit, USA Jul. 2011.
80. A. Kumar and S. Chakrabarti, "An ANN Based Hybrid State Estimator," *16th National Power Systems Conference*, Hyderabad, India, December 2010.
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82. R. Majumder, G. Ledwich, A. Ghosh, S. Chakrabarti, and F. Zare, "Improved Power Sharing among Distributed Generators using Web Based Communication," *IEEE PES General Meeting*, Minnesota, USA Jul. 2010.
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84. S. Chakrabarti, E. Kyriakides, G. Valverde, and V. Terzija, "State estimation including synchronized measurements," *PowerTech Conference*, Bucharest, Romania, 2009.
85. S. Chakrabarti, G. K. Venayagamoorthy, and E. Kyriakides, "PMU placement for power system observability using binary particle swarm optimization," *Australasian Universities Power Engineering Conference (AUPEC 2008)*, Sydney, Australia, December 2008.
86. S. Chakrabarti, E. Kyriakides, "Cost-Energy analysis and optimization of a hybrid energy system for a residence in Cyprus," *International Conference on Deregulated Electricity Market Issues in South-Eastern Europe (DEMSEE2008)*, Nicosia, Cyprus, September, 2008.
87. S. Chakrabarti, E. Kyriakides, "Placement of phasor measurement units for state estimation with voltage stability considerations," *Australasian Universities Power Engineering Conference (AUPEC 2007)*, Perth, Australia, December 2007.
88. S. Chakrabarti, E. Kyriakides, "Formulation of the PMU placement problem in an integer quadratic programming framework," *International Conference on Power Systems (ICPS 2007)*, Bangalore, India, December 2007.
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90. S. Chakrabarti and E. Kyriakides, "Grid-connected hybrid energy system for a typical home in Cyprus," *Renewable Energy Sources and Energy Efficiency Conference*, September, 2007, Nicosia, Cyprus.

91. S. Chakrabarti and E. Kyriakides, "Optimal placement of phasor measurement units for state estimation," *7th IASTED International Conference on Power and Energy Systems*, EuroPES 2007, Spain, August, 2007.
92. S. Chakrabarti and B. Jeyasurya, "Sensitivity-based generation rescheduling for multi-contingency voltage stability enhancement," *IEEE PES 2006 General Meeting*, Quebec, Canada, June 18-22.
93. S. Chakrabarti and B. Jeyasurya, "Multicontingency voltage stability monitoring of power systems using radial basis function network," *13th International Conference on Intelligent Systems Application to Power Systems*, Washington DC, USA, November 6-10, 2005.
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95. B. Jeyasurya and S. Chakrabarti, "Blackout 2003: A case study on power system security," *IEEE NECEC Conference*, 2004, St. John's, Canada.
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97. S. Chakrabarti and B. Jeyasurya, "On-line voltage stability monitoring using artificial neural network," *Large Engineering Systems Conference on Power Engineering*, Halifax, Canada, July 2004.
98. A. Manna and S. Chakrabarti, "A new computer controlled multi-channel high voltage supply system for GRACE instrumentation," *International Symposium on Gamma Ray Astrophysics Through Multiwavelength Experiments (GAME-2001)*, Mount Abu, India, March, 2001.
99. A. Manna, S. Chakrabarti, and P. K. Mukherjee, "Computer controlled multi-channel high voltage supply system for GRACE instrumentation," *Proceedings of Symposium on Intelligent Nuclear Instrumentation*, Mumbai, India, 2001.
100. S. Chakrabarti, S. K. Goswami, and S. Paul, "Comparative study of three types of voltage stability indices," *National Power System Conference*, December 2000, Bangalore, India.

#### 4.4 Patents

1. R. Dutta, S. Chakrabarti, and A. Sharma, "A Method for Parameter Estimation of Untransposed Distribution Cable and System Thereof", filed for Indian Patent.
2. P. Pachore, A. Jain, S. Anand, S. Chakrabarti, A. K. Verma, S. P. S. Pundir, and S. Sarkar, "A Control Device to Minimize the Inrush Current", Indian Patent, Appl. No. 201811024706, July 2018.
3. A. Sharma, P. Banerjee, S. C. Srivastava, and S. Chakrabarti, "Monitoring of Devices Installed at Remote Locations", Indian Patent Application No. 1322/DEL/2014.

## 5 Sponsored and consultancy projects

### 5.1 Ongoing/accepted projects/workshop funding

1. Sponsored project: *UNIFY (solUtions for clean energy iNtegration in power grids with Improved FlexibilitY)*. Funding agencies: the Department of Science and Technology (DST) and the Russian Science Foundation (RSF), India. Project duration: Jan. 2023 to Dec. 2025. Role: PI.
2. Consultancy project: *Development of digital signal processing algorithms for numerical protection relay*. Funding agency: Synergy Systems & Solutions. Role: PI. Project duration: July 2022 to June 2023.
3. Sponsored project: *Interconnected Microgrids for Rural Electrification*. Funding agency: the Ministry of Electronics and Information Technology (MEITY), India. Project duration: Dec. 2020 to June. 2023. Role: Co-PI.
4. Sponsored project: *Study on Cyber-physical Approach for Electric Power Grid*. Funding agency: the Department of Science and Technology (DST), India. Role: PI from IIT Kanpur. Project duration: March 2020 to March 2023.
5. Consultancy project: *Technical Support in Implementation of SCADA/ADMS/GIS in the Area of KESCO, Kanpur*. Funding agency: Kanpur Electricity Supply Company (KESCO), Kanpur, India. Role: PI. Project duration: May 2019 to May 2022.
6. Sponsored project: UI-ASSIST (US-India collAborative for smart diStribution System wIth STorage). Funding agency: Indo-U.S. Science and Technology Forum (IUSSTF) DST, India and DOE, USA. Project duration: Sep. 2017 to Aug. 2022. Role: Co-PI.

### 5.2 Completed projects

1. Sponsored project: *Stability analysis, protection, and coordinated control of networked microgrids*. Funding agency: the Department of Science and Technology (DST), India, under *Mission Innovation* scheme. Role: PI from IIT Kanpur. Project duration: July 2019 to July 2021.
2. Sponsored project: *UK India clean energy research institute*. Funding agency: the Department of Science and Technology (DST), India. Project duration: Apr. 2017 to Apr. 2021. Role: Task leader from Indian side for *Stability Issues*.
3. Workshop funding: *Training Program on Smart Grid Components and Technologies*. Funding agency: National Smart Grid Mission, Ministry of Power, Government of India. Role: PI. Project duration: Feb. 2020 to Jan. 2022 (two workshops per year).
4. Consultancy project: *Technical Verification of Relay Settings for 750V DC Traction System And 220kV And 33kV AC Systems in Kanpur Metro Project*. Funding agency: Uttar Pradesh Metro Rail Corporation Ltd. Role: Co-PI. Project duration: Nov. 2021 to July. 2022.

5. Sponsored project: *Development of R&D platform for smart city projects in the Indian context*. Funding agency: the Ministry of Power (MoP), India and IIT Kanpur. Project duration: Dec. 2014 to June. 2022. Role: PI.
6. Consultancy project: *Development of PMU-based IT-OT Applications for Line Fault Location*. Funding agency: Calcutta Electric Supply Corporation (CESC) Ltd., Kolkata, India. Role: PI. Project duration: July 2019 to July 2020.
7. Consultancy project: *Technical Service to Adani Green Energy Ltd. for Solar IDT Installation*. Funding agency: Adani Green Energy Limited. Role: PI. Project duration: Nov. 2020 to June 2021.
8. Consultancy project: *Technical Inspection of UPPTCL HV Line*. Funding agency: Uttar Pradesh Power Transmission Corporation Limited. Role: PI. Project duration: Sept. 2020 to March 2021.
9. Consultancy project: *Use of synchrophasor data for tuning power system stabilizer and on-line estimation of generator parameters*. Funding agency: National Thermal Power Corporation (NTPC) Ltd., India. Role: PI. Project duration: Nov. 2016 to Nov. 2018.
10. Sponsored project: *Advanced communication and control for the prevention of blackouts*. Funding agency: the Department of Science and Technology (DST), India and the Engineering and Physical Sciences Research Council (EPSRC), UK. Project duration: Nov. 2014 to Sep. 2018. Role: PI from IIT Kanpur side in the Indian consortium.
11. Consultancy project: *Technical Inspection of KESCO Underground Cable Network*. Funding agency: Kanpur Electricity Supply Company (KESCO) Ltd., Kanpur, India. Role: PI. Project duration: Oct. 2018 to Jan. 2019.
12. Consultancy project: *Study to minimize over-voltage and inrush current of transformers during connecting of grid tied solar PV plant*. Funding agency: National Thermal Power Corporation (NTPC) Ltd., India. Role: Co-PI.
13. Sponsored project: *Stabilize Energy*. Funding agency: the Department of Science and Technology (DST) and European Union, under FP7 INDIGO call. Project duration: 2014 to 2017 (three years). Role: PI from IIT Kanpur side in the Indian consortium.
14. Sponsored project: *Use of synchrophasors in power system load modelling and state estimation*. Funding agency: Central Power Research Institute, under Research Scheme on Power (RSOP). Project duration: 2014 to 2016 (two years). Role: PI.
15. Workshop funding: *Training Program on Smart Grid for Utility Professionals*. Funding agency: National Smart Grid Mission, the Ministry of Power. Duration: Jan. 17-19, 2018.
16. Consultancy project: *Investigating the failure of towers on 400 kV Parichha-Orai-Mainpuri line of UPPTCL*. Funding agency: Uttar Pradesh Power Transmission Corporation Limited. Role: PI.

17. Workshop funding: *Smart Transmission Grid using Synchrophasor Technology*. Duration: Dec. 10-14, 2013. Role: PI.
18. Sponsored project: *Synchronized measurement technology for voltage stability monitoring and state estimation of power systems*. Funding agency: the Department of Science and Technology (DST), India. Project duration: Oct. 2010 to Oct. 2013. Role: PI.
19. Consultancy project: *Studies on voltage stability and small signal oscillation monitoring of power systems*. Funding agency: GE India Technology Center Pvt. Ltd, Bangalore. Project duration: Nov. 2012 to Aug. 2013. Role: PI.
20. Workshop funding: *Exploring beyond the frontiers to build a smarter grid*. Funding agency: the Department of Science and Technology, Government of India and the Royal Society, London. Workshop duration: March 20-22, 2013. Role: PI.
21. Consultancy project: *Clarification on national building code of India*. Funding agency: Mukesh & Associates, Tamilnadu, India. Project duration: Feb. to March, 2013. Role: PI.
22. Consultancy project: *Feasibility study to run the state tubewells in UP by using SCADA*. Funding agency: the Irrigation Department, Uttar Pradesh, India. Project duration: June to August, 2012. Role: PI.
23. Sponsored project: *Synchronized measurement technology for power systems: selected applications in voltage stability monitoring, state estimation, and detection of faults on transmission lines*. Funding agency: the Indian Institute of Technology, Kanpur, India. Project duration: Feb. 2010 to Oct. 2011. Role: PI.
24. Sponsored project: *Application of synchrophasor technology in power systems*. Funding agency: Queensland University of Technology, Brisbane, Australia. Project duration: Feb. 2009 to Feb. 2010. Role: PI.
25. Sponsored project: *Detection and location of fault on a transmission line using synchronized measurements*. Funding agency: Queensland University of Technology, Brisbane, Australia. Project duration: Feb. 2009 to Feb. 2010. Role: PI.

## 6 Professional activities

- Associate Editor, *IEEE Transactions on Smart Grid*, from December 2022.
- Associate Editor, *International Journal of Electrical Power & Energy Systems*, from November 2020.
- Associate Editor, *IEEE Power Engineering Letters*, from January 2020.
- Associate Editor, *IEEE Transactions on Power Systems*, from January 2020.
- Associate Editor, *IET Generation, Transmission & Distribution*, for the period: April 2019-December 2021.

- Served as the Treasurer of the IEEE Uttar Pradesh section, India, for 2014.
- Co-organized the “National Workshop on Wide Area Monitoring and Control of Power Systems using Synchrophasor Technology”, held in IIT Kanpur during 13-14 April, 2012.
- Served as the Chairperson of the IEEE Power & Energy Society (IEEE PES) and Industry Applications Society (IEEE IAS), Uttar Pradesh section, India, for 2010 and 2011.
- Senior member of IEEE Power & Energy Society (PES).

## 7 Administrative activities

- Professor-in-charge, Electrical Works, Indian Institute of Technology Kanpur, India, for 2016-19.
- Hostel Warden, Hall 7, Indian Institute of Technology Kanpur, India, for the period April 2013-March 2016.

## 8 Invited talks/tutorials/short courses

1. Delivered invited *Rosseti International Lecture*, “Microgrids: emerging trends, challenges, and solutions”, on 06th Dec. 2022, in Skoltech, Moscow.
2. Delivered invited online lecture, “Smart distribution system: a case study”, on 23rd Dec. 2021, in Skoltech, Moscow, as part of AMPaC Megagrant Project Assembly.
3. Delivered keynote talk on “A field pilot for research and development on smart city”, on 18 Sept. 2019, in 3rd International Symposium on Smart Grid: Methods, Tools, and Technologies, organized by Shandong University, in Jinan, China.
4. Delivered invited IEEE lecture on “Synchrophasor-assisted power system state estimation”, on 29 May 2019, in BC Hydro, Vancouver, Canada.
5. Delivered invited IEEE lecture on “A field pilot for research and development on smart distribution system”, on 27 May 2019, in University of Saskatchewan, Saskatoon, Canada.
6. Delivered invited IEEE lecture on “Developing the electrical infrastructure of a smart city prototype: a case study”, on 22 May 2019, in Memorial University of Newfoundland, St. John’s, Canada.
7. Delivered IEEE PES/IAS lecture on “Development of a Smart Distribution System: a Case Study”, on 28 March 2019, in Motilal Nehru National Institute of Technology Allahabad, India.
8. Delivered invited talk on “Smart City Pilot Projects and Smart Grid Research in India”, in Norwegian Embassy, Delhi, India, as part of workshop on “Research collaboration between India and Norway in Clean energy and Smart Grid”, in Jan. 2019.

9. Delivered keynote talk on “Advanced monitoring of modern transmission and distribution systems”, in Manipal University, Jaipur, India in Dec. 2018.
10. Delivered keynote talk on “Advanced Control Centre Applications using PMU Measurements”, in National Power Systems Conference (NPSC) 2018, in Trichy, in Dec. 2018.
11. Delivered invited talk on “Development of a smart microgrid RD platform in the Indian context”, in Symposium on Microgrids, Sept. 2018 in University Politehnica of Bucharest, Romania.
12. Delivered invited talk on “Development of Smart City Prototype in the Indian Context”, in 5th International Conference & Exhibition on Energy Storage & Microgrids in India, on 12 Jan., 2018, in New Delhi, India.
13. Delivered keynote lecture on “Power System Load Modelling”, in 4th International Conference on Power, Control and Embedded Systems (ICPCES - 2017), on 10 March, 2017, in Motilal Nehru National Institute of Technology Allahabad, India.
14. Delivered part of the tutorial on “Smart Grids: Renewable Integration and Microgrids”, in Veermata Jijabai Technological Institute, Mumbai, India, during 28 Feb.-01 Mar., 2016.
15. Delivered invited talk on “Wide area measurement based smart monitoring of power transmission systems”, on the ‘Foundation Day’ of National Institute of Technology (NIT) Patna, India, on 27th Jan. 2017.
16. Delivered tutorial on “State estimation in Power Systems”, in National Power Systems Conference (NPSC) 2016, in Bhubaneswar, on 19th Dec. 2016.
17. Delivered invited talk on “Measurement and Sensing for Modern Power Systems”, in United College of Engineering and Research, Allahabad, on 22nd Oct. 2016.
18. Delivered invited talk on “Smart Grid: Technological Challenges And Potential Solutions”, and “Smart Grid Monitoring”, in Veermata Jijabai Technological Institute, Mumbai, India, on 18th May, 2016.
19. Co-organized workshop on “Smart Microgrids”, during 8-10 April, 2016, in IIT Kanpur, India.
20. Delivered invited talk on “Introduction to Smart Grid”, in the National Institute of Technology Durgapur, India, on 21st December, 2015.
21. Delivered short course on “Synchrophasor applications in power system state estimation and stability monitoring”, in the Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, India, during October-November, 2015.
22. Delivered tutorials on “Power system stability” and “Synchronized measurement technology”, on 14th July 2015, in United College of Engineering and Research, Allahabad, India.

23. Delivered IEEE seminar on “Smart Power Grid: Implementation and Challenges”, on 10th April 2015, in Indian Institute of Technology Mandi, Himachal Pradesh, India.
24. Invited talk on “Next generation of state estimators utilizing synchrophasor measurements”, on 2nd March 2015, in National Institute of Technology, Surathkal, Karnataka, India.
25. Invited talk on “Smart Grid: concepts and challenges”, on 13 Feb. 2015, in Rajasthan Technical University, Kota, India.
26. Invited talk on “Smart Grid: Concepts and Deployment”, in the 7th Capacity Building Programme for Officers of Electricity Regulatory Commissions, 28-30 Jan., 2015, IIT Kanpur, India.
27. Invited talk on “concepts of smart grids”, in DIGITAL INDIA: eMpowering e-Governance (DigiGov-2014), organized by the Computer Society of India, Lucknow Chapter, during 6-7 Dec., 2014 in Lucknow, India.
28. Invited talk on “Next generation hybrid state estimators for smart grids”, in the Indo-UK workshop on “Exploring beyond the frontiers to build a smarter grid”, during 19-20 March, 2013 in Coventry University, UK.
29. Tutorial on “Enhanced monitoring of power systems using phasor technology”, in the short term training program on “Operation and Control of Modern Power Systems”, in the Department of Electrical Engineering, Malaviya National Institute of Technology, Jaipur, India, during 7-11 Mar, 2013.
30. “Wide area measurements systems: PMU placement and analytical applications”, invited lecture in the workshop on “Smart Grid” organized by CIGRE India and Central Board of Irrigation & Power (CBIP), India, in Bangalore on 11-12 Oct., 2012.
31. Tutorial on “Phasor measurement technology and its applications to power systems”, AICTE sponsored staff development program on ‘Modern control techniques for Power Systems’, 18-30 June, 2012, VNR Vignana Jyoti Inst. of Engineering & Technology, Hyderabad, India.
32. Tutorial on “Synchronized Measurement Technology for Electric Power Systems”, Symposium on “Developments in Instrumentation & Control Engineering”, 17-18 March, 2012, Aligarh Muslim University, Aligarh, India.
33. Tutorial on “Mathematics for Circuit Analysis”, Workshop on Mathematics for Electrical Sciences, March 2-3, 2012 in PSG College of Technology, Coimbatore, India.
34. Tutorial on “Optimal power flow” and “State Estimation in Emerging Power Systems”, in the short-term course on “Operation and management of emerging power system”, organized in IIT Kanpur in November, 2011.
35. “Synchronized measurement based wide area monitoring of electric power systems”, invited lecture in the “ICT Empowered Grid” conference in Trondheim, Norway, on 5th October, 2011.



36. “Synchrophasor assisted enhanced monitoring of electric power systems”, guest lecture in the Norwegian University of Science and Technology (NTNU), Trondheim, Norway, on 4th October, 2011.
37. Delivered part of the tutorial on “Wide area Monitoring and Control”, in 16th National Power Systems Conference, Hyderabad, India, in December 2010.
38. “Power System State Estimation by Synchronized Measurement Technology”, Invited talk in the Indian Institute of Science, Bangalore, India, December, 2007.
39. “Phasor Measurement Units for Power System State Estimation”, University of Cyprus, Nicosia, Cyprus, October, 2007.
40. “Application of Artificial Neural Networks for Online Voltage Stability Monitoring of an Electric Power System”, University of Cyprus, Nicosia, Cyprus, January, 2007.

## 9 Awards and honors

- Awarded *Ministry of Skill Development and Entrepreneurship Chair* Professorship for 2022-2025 in Indian Institute of Technology Kanpur, India.
- Selected as the *Fellow of the Indian National Academy of Engineering* in 2021.
- Selected as the *Fellow of the Institution of Engineers (India)* in May 2019.
- Awarded *Sajani Kumar Roy Memorial Chair* Professorship for 2019-2022 in Indian Institute of Technology Kanpur, India.
- Ministry of Power, Government of India-funded project, “Development of R&D Platform for Smart City Pilot Projects in the Indian Context” won India Smart Grid Forum (ISGF) Innovation Award 2019 in ‘Smart Technology of the Year’ category.
- Received IEEE Uttar Pradesh PES/IAS Chapter Outstanding Engineer Award in February, 2016.
- Selected as the P. K. Kelkar Young Faculty Research Fellow for the Years 2012-2015 in the Indian Institute of Technology Kanpur, India.
- Rated by the students as the ‘Best Instructor’ in the 2nd year undergraduate course on ‘Introduction to Electrical Engineering’ during 2011-12 in IIT Kanpur, India.
- Senior member of the Institute of Electrical and Electronic Engineers (IEEE) (S’05, M’06, SM’11).
- Received the “David Dunsiger Award for Excellence” in graduate studies and research in 2007 from the Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John’s, Canada.

- Held the post of the president of the Engineering Graduate Students Society (EGSS) from 2004 to 2005, in the Faculty of Engineering and Applied Science, Memorial University of Newfoundland.

## 10 Awards won by students

- Postdoctoral Fellow, Dr. Soumyajit Ghosh, won AWSAR Award-2022 from the Department of Science and Technology (DST), Government of India under the Best Stories in Post Doctoral Fellow (PDF) category.
- PhD student, Ms. S. Som won the POSOCO Power System Award (PPSA 2023), for her ongoing Ph.D. thesis work on microgrid operation and control.
- PhD student, Mr. A. Mitra won the POSOCO Power System Award (PPSA 2023), for his ongoing Ph.D. thesis work on modelling of power system generator and load.
- MS student, Mr. Nitesh Singh, won *Prof. L.P. Singh Power System Award* for excellent research for the year 2021-22.
- PhD student, Mr. P. W. Pande won the POSOCO Power System Award (PPSA 2022), for his Ph.D. thesis work on “Estimation of Low Frequency Oscillation Modes in Power Systems and Online Tuning of the PSS using Synchrophasor Measurements”.
- PhD student, Mr. R. Dutta won the POSOCO Power System Award (PPSA 2021), for his Ph.D. thesis work on “Distribution system state and parameter estimation”.
- MS student, Mr. Santhos Kumar C, won the POSOCO Power System Award (PPSA 2020), for his MS thesis work on “Robust Three-Phase Distribution System State Estimation using Hybrid Measurements”.
- PhD student, Mrs. A. Dubey won the POSOCO Power System Award (PPSA 2020), for her Ph.D. thesis work on “Synchrophasor-Assisted Advanced State Estimators for Power Systems”.
- MS student, Mr. Santhos Kumar C, won *Best Master’s Thesis Award 2019 constituted by the IEEE PES/IAS Joint Chapter, UP Section* for excellent research for the year 2018-19.
- MS student, Mr. Santhos Kumar C, won *Prof. L.P. Singh Power System Award* for excellent research for the year 2018-19.
- MS student, Mr. Santhos Kumar C, won *Dr. Shankar Dayal Sharma Medal* for best all-round PG student based on General proficiency, character and conduct, excellence in academic performance, extra-curricular activities and social service.
- MS student, Mr. Santhos Kumar C, won IIT Kanpur Excellence award for leadership in Students affairs.

- Mentored the team of graduate students that won the software edition of Smart India Hackathon (SIH) 2019, in Kochi, India. The team proposed a new idea/solution for the problem statement, “To locate the fault in distribution network for ad-hoc maintenance”, given by ABB GIS Pvt. Ltd.
- PhD student, J. G. Sreenath won the POSOCO Power System Award (PPSA 2018), for his Ph.D. thesis work on “Multi-Area State Estimation”.
- MS student, Mrs. S. Sahoo won the POSOCO Power System Award (PPSA 2018) for her MS related work on, “Demand response management”.
- MS student, Mrs. S. Sahoo won the Eaton Pratibha Excellence Award 2017-18, in 2018 for her MS related work on, “Demand response management”.
- PhD student, Mrs. A. Meghwani won the POSOCO Power System Award (PPSA 2017), for her Ph.D. thesis, “DC Microgrid Protection: Challenges and Solutions”.
- MTech student, Ms. N. Negi won the POSOCO Power System Award (PPSA 2017), for her thesis, “Decentralized Adaptive Primary and Distributed Secondary Control for Radial AC Microgrid”.
- PhD student, Mrs. A. Meghwani won ‘Dr. Ramamoorthy best paper Award in Power Electronics and Drives’, for her paper entitled “A Fast Scheme for Fault Detection in DC Microgrid Based on Voltage Prediction”, in the 19th National power Systems Conference (NPSC 2016) held at IIT Bhubaneswar during 19-21 December, 2016.
- PhD student, Mr. V. Vignesh won the POSOCO Power System Award (PPSA 2016), for his Ph.D. thesis, “Improved Load Modelling and Its Impact On Stability of Power Systems Having Large Penetration of Wind Generation”.
- PhD student, Mr. S. K. Mallik won the POSOCO Power System Award (PPSA 2016), for his Ph.D. thesis, “Hybrid State Estimation and Enhanced Monitoring of Power Systems Using Synchrophasors”.
- MTech student, Mr. N. Sharma won the POSOCO Power System Award (PPSA 2016), for his MTech thesis, “Observability Analysis and Topology Error Processing of Power Systems in the Presence of Hybrid Measurements”.
- PhD student, Mr. Ankush Sharma won the POSOCO Power System Award (PPSA 2015), for his Ph.D. thesis, “Multi-Area Power System State Estimation Utilizing Synchrophasor Measurements, Multi Agents and Common Information Model”.
- PhD student, Ch. V. V. S. Bhaskara Reddy won the POSOCO Power System Award (PPSA 2015), for his Ph.D. thesis, “Early Detection and Control of Voltage Stability and Fast Assessment of ATC Using Synchrophasor Measurements”.
- M. Tech student, Mr. Mahesh Vardikar won the POSOCO Power System Award (PPSA 2014). Thesis title: Power system state estimation with external network equivalents considering measurement transformation.

- M. Tech student, Mr. Dongare Kapil Subhash won the POSOCO Power System Award (PPSA 2013). Thesis title: Power system state estimation considering real-time equivalents of the external networks.
- M. Tech student, Mr. Sivanagaraju Gangavarapu won the POSOCO Power System Award (PPSA 2013). Thesis title: Current differential protection of transmission line considering parameter uncertainties. Co-supervisor: Prof. SC Srivastava.

## 11 Courses taught

1. Smart Grid Monitoring and Visualization. Graduate course in Electrical Engineering, Indian Institute of Technology Kanpur, India.
2. Synchrophasor Applications in Power Systems. Short course in Electrical Engineering, Indian Institute of Technology Mandi, Himachal Pradesh, India, April, 2015.
3. EE-330: Power Systems. Undergraduate course in Electrical Engineering, Indian Institute of Technology, Kanpur, India.
4. ESO-210: Introduction to Electrical Engineering. Undergraduate course in Electrical Engineering, Indian Institute of Technology, Kanpur, India.
5. EE-631: Advanced Power System Stability. Graduate course in Electrical Engineering, Indian Institute of Technology, Kanpur, India.
6. EE-698Z: Synchrophasor Technology and its Applications. Graduate course in Electrical Engineering, Indian Institute of Technology, Kanpur, India.
7. EE-632: Economic Operation & Control of Power Systems. Graduate course in Electrical Engineering, Indian Institute of Technology, Kanpur, India.
8. ENB 452: Advanced power system analysis. Final year undergraduate, Electrical Engineering, Queensland University of Technology, Brisbane, Australia.
9. ENB 340: Power systems and machines, Second year undergraduate, Electrical Engineering, Queensland University of Technology, Brisbane, Australia.
10. Industrial Electronics. Final year undergraduate, Electrical Engineering, Queensland University of Technology, Brisbane, Australia.
11. Advanced Design and Professional Practice, Final year undergraduate, Electrical Engineering, Queensland University of Technology, Brisbane, Australia.

## 12 Researchers/students advising

### 12.1 Postdoctoral fellow supervision

1. Dr. S. Ghosh, PhD from Jadavpur University, Kolkata, India. Working since Jan. 2022.

2. Dr. Y. Bansal, PhD from Indian Institute of Technology Ropar, India. Worked during Nov. 2021 to Jan. 2023.
3. Dr. V. K. Gaur, PhD from Indian Institute of Technology Roorkee, India. Worked during Sep. 2021 to Oct. 2023
4. Dr. O. Yadav, National Postdoctoral Fellow, PhD from National Institute of Technology Allahabad, India. Worked during 2020-21.
5. Dr. J. G. Sreenath, PhD from Indian Institute of Technology Kanpur, India. Worked during Jan. 2020 to Nov. 2021.
6. Dr. K. Swain, PhD from National Institute of Technology Patna, India. Worked during Oct. 2019 to Nov. 2023.
7. Dr. A. Dubey, PhD from Indian Institute of Technology Kanpur, India. Worked during 2019-2020.
8. Dr. M. N. Alam, PhD from Indian Institute of Technology Roorkee, India. Worked during 2018-2020.
9. Dr. Suman M, PhD from National Institute of Technology Trichy, India. Worked during January to June 2019.

## 12.2 PhD students supervising

### 12.2.1 Ongoing

1. S. Chatterjee, “Distribution state estimation”. Started in 2023, Co-supervisor: Prof. A. Mohapatra.
2. A. Anand, “Distribution system protection”. Started in 2023, Co-supervisor: Prof. A. Mohapatra.
3. J. K. Mahawar, “Stability analysis of systems with large wind penetration”. Started in 2021.
4. N. K. Sharma, “Joint state estimation of transmission and distribution systems”. Started in 2021, Co-supervisor: Prof. A. Sharma.
5. M. Sehrawat, “Dynamic state estimation”. Started in 2020, Co-supervisor: Prof. K. Rajawat.
6. B. R. Kumar, “Synchronphasor applications in power system protection”. Started in 2019, Co-supervisor: Prof. A. Mahapatra.
7. V. Patel, “Advanced distribution management system”. Started in 2019, Co-supervisor: Prof. A. Sharma.

8. S. Som, “Control and operation of networked microgrids”. Started in 2017, Co-supervisor: Prof. S. R. Sahoo.
9. A. Mitra, “Load modeling and generator parameter estimation”. Started in 2017, Co-supervisor: Prof. A. Mahapatra.
10. P. B. Bhimrao, “Power system stability problems with large penetration of renewable energy”. Started in 2017.

### 12.2.2 Completed

1. B. Rathore, “Stability Improvement of Microgrids Using Virtual Synchronous Generator Control”. Completed in 2022.
2. C. L. Dewangan, “Solar Power Forecasting and Incentive Schemes for Voltage Control and Residential Demand Response”. Completed in May 2022, Co-supervisor: Prof. S. N. Singh.
3. R. Dutta, “State, Topology, and Parameter Estimation of Active Distribution Networks”. Completed in March 2022, Co-supervisor: Prof. A. Sharma.
4. S. M. Ashraf, “Synchrophasor-Assisted Voltage Stability Monitoring and Control and Transient Stability Assessment of Power Systems”. Completed in April 2021.
5. P. W. Pande, “Estimation of Low Frequency Oscillation Modes in Power Systems and Online Tuning of the PSS Using Synchrophasor Measurements”. Completed in 2021. Co-supervisor: Prof. S. C. Srivastava.
6. P. Gangwar, “Multi-Objective Distribution Network Reconfiguration and Optimal Allocation of Renewable Energy Sources”. Completed in 2020. Co-supervisor: Prof. S. N. Singh.
7. J. G. Sreenath, “Distributed Forecasting-Aided Power System State Estimation in the Presence of Bad Data, Time-Skewed Measurements, and Cyber-Attacks”. Completed in 2019. Co-supervisor: Prof. K. Rajawat.
8. A. Dubey, “Synchrophasor-Assisted Advanced State Estimators for Power Systems”. Completed in 2019. Co-supervisor: Prof. A. Sharma.
9. A. Meghwani, “Development of Efficient Fault Detection and Location Techniques for DC Microgrid Protection”. Completed in 2018, Co-supervisor: Prof. S. C. Srivastava.
10. V. Vignesh, “Improved load modelling and its impact on stability of power systems having large penetration of wind generation”, completed in 2016, Co-supervisor: Prof. S. C. Srivastava.
11. S. K. Mallik, “Synchronized measurement technology for state estimation and enhanced power system visualization”, completed in 2015, Co-supervisor: Prof. S. N. Singh.

12. C. V. V. S. B. Reddy, “Voltage stability monitoring and control using synchronized measurement technology”, completed in 2014, Co-supervisor: Prof. S. C. Srivastava.
13. A. Sharma, “Multilevel distributed power system state estimator for smart grid applications”, completed in 2014, Co-supervisor: Prof. S. C. Srivastava.

### **12.3 MTech/MS students supervising**

#### **12.3.1 Ongoing**

1. V. Kumar, “Distance Protection for Transmission Line Connecting Converter-interfaced PV System”. Started in 2021, Co-supervisor: Prof. A. Sharma.

#### **12.3.2 Completed**

1. A. Kishore, “Frequency Support from Doubly Fed Induction Machine based Wind Turbine”. Completed in 2020.
2. A. Thakur, “Analysis of Hybrid Energy Storage Systems integrated with DC/AC Distribution System”. Completed in 2020, Co-supervisor: Prof. A. Sharma.
3. H. Mishra, “Demand side management”. Completed in 2020, Co-supervisor: Prof. N. Verma.
4. R. K. Yadav, “Droop Characteristics based Secondary Controller for Islanded DC Microgrid with Improved Voltage Regulation, Load Sharing, and Line Loss”. Completed in 2020, Co-supervisor: Prof. S. R. Sahoo.
5. B. P. Singh, “Load forecasting”. Completed in 2020, Co-supervisor: Prof. N. Verma.
6. A. Kumar, “Robust Design and Coordinated Tuning of Power System Stabilizers”. Completed in 2018. Job after completion: TISCO, India.
7. A. Khan, “Parameter and Topology Estimation for Electrical Power Distribution System”. Completed in 2018, Co-supervisor: Prof. A. Sharma. Job after completion: GE, India.
8. Santhoshkumar, “Robust Three-Phase Distribution System State Estimation using Hybrid Measurements”. Completed in 2019, Co-supervisor: Prof. K. Rajawat.
9. G. Garg, “Optimal Day-Ahead Load Scheduling in an Islanded Microgrid using Demand-Side Management”. Completed in 2018, Co-supervisor: Prof. A. Mahapatra.
10. S. Sahoo, “Optimal Dispatch Scheduling for Residential Battery Storage with Solar Photovoltaics”. Completed in 2018, Co-supervisor: Prof. A. Sharma.
11. S. Patre, “Parameter estimation of synchronous generator using online measurements from PMU”. Completed in 2018.
12. B. Uppin, “Transfer Function Based Approach For Dynamic Load Modelling”. Completed in 2018. Co-supervisor: Prof. A. Mahapatra.

13. Sathish Kumar, "Estimation and Utilization of Aggregate Harmonic Load Model". Completed in 2018. Co-supervisor: Prof. S. Anand.
14. N. Negi, "Decentralized adaptive primary and distributed secondary control for radial AC microgrid". Completed in 2016. Co-supervisor: Prof. S. R. Sahoo.
15. G. A. Kumar, "Rotor angle estimation and coherency detection of synchronous generators". Completed in 2015.
16. M. Mukherjee, "Voltage Stability monitoring using Lyapunov Exponent". Completed in 2015. Co-supervisor: Prof. M. Banerjee.
17. K. M. Naik, "Optimal Demand Response For PV-Integrated Households". Completed in 2015.
18. N. Singh, "Observability analysis and topology error processing of power systems in the presence of hybrid measurements". Completed in 2015.
19. J. G. Sreenath, "An Optimal Smoother Based Dynamic State Estimator for Power Systems Considering PMU Measurements". Completed in 2015.
20. P. Porwal, "Measurement Based Recursive Methods for Monitoring of Power System Oscillations", completed in 2014, Co-supervisor: Prof. N. Verma.
21. M Jha, "Estimation of the Rotor Angle of Synchronous Generator using PMU Measurements", completed in 2014.
22. R. P. Kundu, "A study on the assessment of voltage stability of electric power systems", completed in 2013. Job after completion: PowerGrid, India.
23. V. M. Pandurang, "Power system state estimation with external network equivalents considering measurement transformations", completed in 2013. Job after completion: PowerGrid, India.
24. S. Chitturi, "Performance study on the techniques for monitoring power system oscillations", completed in 2013. Co-supervisor: Prof. S. N. Singh. Job after completion: PowerGrid, India.
25. S. Gangavarapu, "Current differential protection of transmission line considering parameter uncertainties", completed in 2012, Co-supervisor: Prof. S. C. Srivastava. Job after completion: Ashok Leylands, Chennai, India.
26. C. P. K. Reddy, "Adaptive load shedding strategy for improving power system frequency and voltage stability", completed in 2012, Co-supervisor: Prof. S. C. Srivastava. Job after completion: Dar Group, Pune, India.
27. K. Dongare, "Power system state estimation considering real-time equivalents of the external networks", completed in 2012. Job after completion: Tata Motors, Pune, India.



28. B. Amanulla, "Reconfiguration of Distribution Systems Considering Reliability and Power Loss", completed in 2011, Co-supervisor: Prof. S. N. Singh. Job after completion: Ashok Leylands, Chennai, India.
29. V. S. K. Reddy, "Estimation of Fault Location on Transmission Lines using Synchronous and Asynchronous Measurements", completed in 2011, Co-supervisor: Prof. S. C. Srivastava. Job after completion: Tata Motors, Pune, India.
30. A. Kumar, "ANN based state estimation for power systems, including bad data processing by particle swarm optimization", completed in 2011. Job after completion: Dar Group, Pune, India.
31. N. K. Meena, "Multi-criteria PMU Placement for power system observability", completed in 2011. Job after completion: Faculty position in Jagannath University, Jaipur, India.
32. G. Gourav, "Bang-bang modulated FACTS stabilizing controllers based on online identification of critical modes", completed in 2011, Co-supervisor: Prof. S. C. Srivastava.