



International Conference on Intelligent Controller and Computing for Smart Power, 2022

July 21st -23rd, 2022 !! Hyderabad, India



Sreenidhi Institute of Science and Technology, Hyderabad, India

ICICCSP 2022 Special Sessions on

“Title of the special session”

Role of Data Analytics, Optimization and Probabilistic Methods in Modern Power System Planning, Operation and Control

Aims & Scope of the Session:

Modern-day power systems are encouraged to accommodate high penetrations of renewable generations (solar PV and wind powers) in transmission and distribution systems. The renewable generations have major characterizing features such as (i) uncertainty (unexpected change), (ii) intermittency (unplanned unavailability), and (iii) uncontrollability (power output is not managed by system management). The above features alongside load variability/uncertainty necessitate new methodologies to analyze system flexibility to accommodate higher renewable penetrations. On this note, the application of emerging techniques based on data analytics and optimization is a choice for modern power systems' planning, operation, and control. Though the application of forecasting techniques and optimization in studies, such as load-frequency control, network reconfiguration, infrastructure expansion, etc., inspired researchers to adopt mathematical tools in system analysis, the above analyses are deterministic and fail to combat modern power system uncertainties. Recently, probabilistic methods have gained increasing interest owing to their ability to provide realistic decisions during power system analyses. Researchers have a great scope to apply data analytics and probabilistic approaches to solve model power system problems. Therefore, this special session invites research papers from the following list of topics (but not limited to) to further recognize the importance of data analytics, optimization, and probabilistic methods in modern power systems.

Topics of interest include, but are not limited to:

- Long-term and short-term uncertainty analysis and modeling of renewable generations.
- Point and probabilistic forecasting techniques.
- Load frequency control considering load uncertainty.
- Modeling of predictable variation of power system uncertain inputs.
- Probabilistic load flow under system and input uncertainties.
- Generation and transmission expansion planning
- Role of stochastic optimization for power system operation and decision-making.
- Power system adequacy assessment.
- Risk-based security assessment in power systems.
- Reliability assessment of modern power systems.
- Power systems including high proportion of power electronics equipment.

Special Session Organizers:

Dr. B Rajanarayan Prusty

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Special Session Organizers:

Dr. B Rajanarayan Prusty (Senior Member, IEEE) obtained his Ph.D. from the National Institute of Technology Karnataka (NITK), Surathkal. His exceptional research work during his Ph.D. has led him to crown the prestigious POSOCO Power System Awards (PPSA) for 2019 by Power System Operation Corporation Limited in partnership with FITT, IIT Delhi. In recognition of his research publications from 2017 to 2019, he was awarded the University Foundation day Research Award-2019 from BPUT, Odisha. He has 15 SCI journal publications and 30 conference publications to his credit. He has authored six book chapters published in CRC press, Elsevier and Springer. He has co-authored a textbook entitled “Power System Analysis: Operation and Control” in I. K. International Publishing House Pvt. Ltd. He has also edited a book entitled “Renewable Energy Integration to the Grid: A Probabilistic Perspective,” in CRC Press, Taylor and Francis Books INDIA Pvt. Ltd. He has been an active reviewer since 2015 and has reviewed 170 manuscripts submitted to reputed SCI-indexed Journals/conferences. Presently he is the Associate Editor (Electric Power Engineering) of “Journal of Electrical Engineering & Technology,” Springer. His research interest includes time series preprocessing and forecasting, high-dimensional dependence modeling, and probabilistic power system analysis.



Dr. Hemanshu R Pota’s current research interest is in renewable energy integration for smart grid and control of mechanical systems - atomic force microscope and small UAVs. He has secured close to three million dollars in external research funding. He has obtained three ARC discovery grants and one ARC Linkage grant. His fundamental contributions in the power systems area are battery and renewable resource integration, vehicle-to-grid for power quality support, analysis of power systems transient stability, robust feedback linearizing control of synchronous machines and renewable resources, robust control for low-voltage-ride-through for wind generators, high-performance PV system control for real and reactive power support, non-interacting controller design for distribution systems. His contributions in the control of mechanical systems are spatial control, resonant control, and robust control applied to high-speed AFM image scanning. Hemanshu has published over 130 refereed journal papers in high-impact journals, one book, fifteen book chapters, and over 270 international conference papers. He has supervised fifteen Ph.D. students and eleven Master students to completion.

