Enabling Power Grid Resiliency

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LECTURE ABSTRACT

Keeping the power on especially to the critical facilities, such as hospitals and fire department during extreme adverse operating scenarios is essential. There is a need for a flexible and resilient grid to minimize the impact of component failures given adverse events. Availability of data from massive sensors deployment enables new monitoring and control strategies such as early alarm and diagnosis, predicative analysis, distributed and decentralized control, flexible and adaptive control. Data in power grids are largely unexploited in discovering knowledge and new solutions for critical power grid applications to enhance the resiliency. Availability of additional sensor data brings its own challenges including data anomalies, real time processing, data fusion, data management and cyber-security management. This talk will focus on real time data analytics to enhance situational awareness and decision support for enabling resiliency of the cyber-physical power grid and associated challenges and opportunities.

SPEAKER BIOSKETCH

Anurag K. Srivastava is a Raymond J. Lane Professor and Chairperson of the Computer Science and Electrical Engineering Department at the West Virginia University. He is also an adjunct professor at the Washington State University and senior scientist at the Pacific Northwest National Lab. He received his Ph.D. degree in electrical engineering from the Illinois Institute of Technology in 2005. His research interest includes data-driven algorithms for power system operation and control including resiliency analysis. In past years, he has worked in a different capacity at the Réseau de transport d´électricité in France; RWTH Aachen University in Germany; PEAK Reliability Coordinator, Idaho National Laboratory, PJM Interconnection, Schweitzer Engineering Lab (SEL), GE Grid Solutions, Massachusetts Institute of Technology and Mississippi State University in USA; Indian Institute of Technology Kanpur in India; as well as at Asian Institute of Technology in Thailand. He is serving as co-chair of the IEEE Power & Energy Society's (PES) microgrid working group, vice-chair of power system operation SC, chair of PES voltage stability working group, chair of PES synchrophasors applications working group, co-chair of distributed optimization application in power grid, vice-chair of tools for power grid resilience TF, and member of CIGRE C4C2-58 Voltage Stability, C4.47/C2.25 Resilience WG. Dr. Srivastava is serving or served as an editor of the IEEE Transactions on Smart Grid, IEEE Transactions on Power Systems, IEEE Transactions on Industry Applications, and Elsevier Sustainable Computing. He is an IEEE Fellow and the author of more than 300 technical publications including a book on power system security and 4 patents.