

IEEE BDA Tutorial Series: Big Data & Analytics for Power Systems

Cyber-Physical System Security of the Power Grid

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(1:00 pm - 2:30 pm, CST) (2:00 pm - 3:30 pm, EST)

Abstract: The electric power grid is a complex cyber-physical system that forms the lifeline of a modern society. Its reliable and secure operation is of paramount importance to national security and economic well-being. The power grid today is a highly automated network, wherein a variety of communication networks and information systems are interconnected to the physical grid for the purpose of monitoring, protection, control, and market functions. The increased reliance on information and communications technology in the smart grid will significantly increase the vulnerabilities, which further underscores the importance of cyber security. As a result, cyber security of the power grid encompassing vulnerability assessment, anomaly detection, and mitigation of the substations and Supervisory Control and Data Acquisition systems are among the important priorities. The purpose of this presentation is to provide new concepts and testbed-based methodologies for the integrated cyber-power systems.

Bio: Chen-Ching Liu is American Electric Power Professor and Director, Power and Energy Center, at Virginia Tech and Research Professor at Washington State University. He served as Boeing Distinguished Professor at WSU from 2011-2017. During 1983-2011, he was on the faculty of University of Washington, Iowa State University, and University College Dublin, Ireland. Professor Liu received an IEEE Third Millennium Medal and the PES Outstanding Power Engineering Educator Award. Dr. Liu received a Doctor Honoris Causa from Polytechnic University of Bucharest, Romania. He chaired the IEEE PES Fellow Committee, Technical Committee on Power System Analysis, Computing and Economics, and Outstanding Power Engineering Educator Award Committee. Professor Liu is a Fellow of the IEEE and U.S. Representative on CIGRE Study Committee D2: Information Systems and Telecommunication.

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