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An attack-resilient communication architecture for grid integration of renewable energy resources

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In recent years, the increasing penetration of Renewable Energy Systems (RESs) has made an impact on the operation of the electric power systems. In the grid integration of RESs, data acquisition systems and communications infrastructure are crucial technologies to maintain system economic efficiency and reliability. Since most of these generators are relatively small, dedicated communications investments for every generator are capital cost prohibitive. Combining real-time attack-resilient communications middleware with Internet of Things (IoTs) technologies allows for the use of existing infrastructure. In this talk, I will present our work in developing an intelligent communication middleware that utilizes the Quality of Experience (QoE) metrics to complement the conventional Quality of Service (QoS) evaluation. Furthermore, our middleware employs deep learning techniques to detect and defend against congestion attacks.

Biography

Jin Wei Kocsis received PhD Degree in Electrical and Computer Engineering at the University of Toronto, Canada, in 2014, MS Degree in Electrical Engineering at the University of Hawaii, USA at Manoa in 2008 and BE Degree at the Beijing University of Aeronautics and Astronautics, China, in 2004. She is an Assistant Professor in Electrical & Computer Engineering at the University of Akron, USA and the Director of the Cyber-Physical-Social System Design Lab. She worked as a Postdoctoral Fellow in National Renewable Energy Laboratory (NREL) from April to July 2014. Her research interests include the smart energy systems, cyber-physical systems security and privacy, renewable energy integration, social networks, and cognitive wired/wireless communication networks.

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