PSERC Power Systems Engineering Research Center

PSERC WEBINAR

Cybersecurity and Resilient Control for DERs and Microgrids

Manimaran Govindarasu and Alejandro D. Domínguez-García
Iowa State University & University of Illinois Urbana-Champaign

This talk will provide highlights of some of the ongoing research at the DOE funded research center, CyDERMS: Cybersecurity and Resiliency of Distributed Energy Resources (DER) and Microgrids-integrated Distribution Systems [https://cyderms.iastate.edu]. This center is a synergistic partnership between four regional universities – Iowa State University, University of Minnesota, University of Illinois Urbana-Champaign, and Michigan Tech – in collaboration with national laboratories, industry stakeholders. The research focus of the center is to develop, prototype, and demonstrate robust cybersecurity and resiliency algorithms and tools for DER-integrated distribution grids and microgrids. The center also focuses on education and workforce development in grid cybersecurity via curricular and industry outreach initiatives.

The talk will provide a brief overview of the center. Then, it will discuss AI-driven cyber situational awareness and attack-resilient control and their experimental evaluation for DER networks. Then, it will discuss distributed consensus algorithms for the control of networked microgrids and their testbed implementation and evaluation. The talk will conclude with highlighting some emerging research directions in grid cybersecurity.

SEPTEMBER 9, 2026 | **1:00-2:00 P.M. ET**

LINK TO WEBINAR

(10:00-11:00 A.M. PT)

Manimaran Govindarasu holds the titles of Anson Marston Distinguished Professor in Engineering and Harpole Professor in Electrical and Computer Engineering at Iowa State University. His research expertise includes CPS Security for Smart Grid and Critical Infrastructures, and Real-Time Systems. He is a co-author of the text Resource Management in Real-Time Systems and Networks (MIT Press, 2001). He has served on the editorial board of multiple flagship IEEE publications, including IEEE Trans. on Smart Grid and Guest co-editor for IEEE Power & Energy and IEEE Network magazines. He is the founding Chair of the IEEE PES-AMPS Working Group Cybersecurity for Power Grid. His research funding sources include DOE, NSF, DHS, and PSERC. He is a Fellow of the IEEE and AAIS.

Alejandro D. Domínguez-Garcia holds the title of M. Stanley Helm Professor in Electrical and Computer Engineering at University of Illinois Urbana-Champaign (UIUC). He is also a Research Professor in the UIUC's Coordinated Science Laboratory and in the Information Trust Institute. His research expertise includes control of distributed energy resources, power system health monitoring and reliability analysis, and quantifying and mitigating the impact of renewable-based generation. He received the NSF CAREER Award (2010), and the Young Engineer Award from the IEEE Power & Energy Society (2012), and he was invited by the National Academy of Engineering to attend the US Frontiers of Engineering Symposium (2014). He served as an editor of the IEEE Transactions on Control of Network Systems and currently serve as an associate editor of the IEEE Transactions on Power Systems and the IEEE Power Engineering Letters.