



Distributed and Network Algorithmics lab Seminar Series

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Towards Secure and Resilient Cyber-Physical Energy Systems

October 25, 2021
15:00 – 16:00 pm (Greece)

This talk will give an overview of the research of the Secure Next Generation Resilient Systems (SENTRY) lab (sentry.kaust.edu.sa) at KAUST. The transformation of critical grid infrastructures into cyber-physical energy systems contributes towards modernization allowing for better planning, more flexible control, system-wide optimization, etc. The security, however, of such systems presents significant challenges in controlling and maintaining secure access to critical system resources and services. Cyber discovery, vulnerability assessment, rapid risk mitigation, and resilient control of modern large-scale cyber-physical systems should consider the interdependence between all system layers. The talk will present different cases of attack strategies simulated under nominal and abnormal operating conditions to uncover their system-wide impacts in power systems, as well as illustrate the impact of such attacks and the feasibility of detection methods in simulation models in order to enhance system resilience.

Charalambos Konstantinou is an Assistant Professor of Computer Science (CS) and Affiliate Professor of Electrical and Computer Engineering (ECE) at the Computer, Electrical and Mathematical Science and Engineering Division (CEMSE) of King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia. He is the Principal Investigator of the SENTRY Lab (Secure Next Generation Resilient Systems - sentry.kaust.edu.sa) and a member of the Resilient Computing and Cybersecurity Center (RC3 - rc3.kaust.edu.sa) at KAUST. Before joining KAUST in the summer of 2021, he was an Assistant Professor with the Center for Advanced Power Systems (CAPS) at Florida State University (FSU). His research interests are in secure, trustworthy, and resilient cyber-physical and embedded IoT systems. He is also interested in critical infrastructures security and resilience with special focus on smart grid technologies, renewable energy integration, and real-time simulation. He received a Ph.D. in Electrical Engineering from New York University (NYU), NY, in 2018, and a M.Eng. Degree in Electrical and Computer Engineering from National Technical University of Athens (NTUA), Greece, in 2012.

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