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The Department of Automatic Control & Systems Engineering  
is pleased to announce the following seminar:

## **Cyber Security Framework for Microgrids**

**Dr Subham Sahoo**

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Aalborg University, Denmark*

**Wednesday, 25 November 2020 at 14:00**

Via Google Meet

*Host Academic: Dr Mahdiah Sadabadi, ACSE*

### **Abstract**

As microgrids have emerged as the key frontiers towards green transition, their moderation for grid-supportive services has become topics of practical interest. This moderation often brings information and communication technologies (ICT) into the operation and control stage of microgrids, which renders them vulnerable to cyber-attacks at the same time. These attacks can affect their operation in many unpredictable ways. Hence, a cyber security framework for microgrids is the need of the hour to ensure normalcy under cyber-attacks. Hence, this lecture will first assess the risks of cyber-attacks in microgrids and then present an event-driven control solution to detect and mitigate cyber-attacks. Moreover, the said framework also isolates malfunctioning events such as sensor faults, line-to-line faults from cyber-attacks in a timely manner. Towards the end of the lecture, some videos on resiliency of microgrids captured from an experimental prototype against the most prominent cyber-attacks will be demonstrated to conclude with future research directions in this field.

### **Biography**

Subham Sahoo (S'16-M'18) received the B.Tech. & Ph.D. degree in Electrical and Electronics Engineering from VSS University of Technology, Burla, India and Electrical Engineering at Indian Institute of Technology (IIT), Delhi, New Delhi, India in 2014 & 2018, respectively. He has worked as a Visiting Student with the Department of Electrical and Electronics Engineering in Cardiff University, UK in 2017. Prior to completion of his PhD, he worked as a Research Fellow in the Department of Electrical and Computer Engineering in National University of Singapore. He is currently working as a postdoctoral researcher in the Department of Energy Technology, Aalborg University, Denmark.

He is a recipient of the Indian National Academy of Engineering (INAE) Innovative Students Project Award for his PhD thesis across all the institutes in India for the year 2019. He has also won the IRD Student Start-up Award in the year 2017 in IIT Delhi during his doctoral studies.

His research interests are control and stability of microgrids, renewable energy integration, cyber-physical power electronic systems and cyber security in power electronic systems.