Centre for System Intelligence and Efficiency

You are cordially invited to CSIE,
Centre for System Intelligence and Efficiency Seminar on:

Wireless 5G for Smart Grid Protection Communication – Laboratory Validation

Petra Raussi
Senior Scientist
VTT Technical Research Centre of Finland

Date: 31 October 2022 (Monday)
Time: 11:15 am - 12:00 pm
Venue: Executive Seminar Room (S2.2-B2-53)
School of EEE

This event is co-sponsored by IEEE PES Singapore Chapter and chaired by A/P Xu Yan.
Light refreshment will be provided.

Abstract: In the transition towards carbon-neutral smart grids, the role of ICT infrastructure is crucial, and exploiting wireless 5G may bring flexibility and significant cost savings in installation and maintenance. Furthermore, smart grids would gain access to 5G services, including network slicing, massive IoT, and edge computing. Testing of wireless communication for smart grid applications demands a realistic hybrid pilot environment. This seminar presentation discusses how we implemented a novel pilot environment for testing wireless 5G technology on protection communication. Protection was chosen due to its most rigorous QoS requirements compared to other smart grid applications. The pilot environment consists of a closed-loop CHIL simulation enhanced with a 5G test network and commercial networks. The devices under test were relays and merging units. Three diverse and latency-critical protection applications were tested in the pilot environment: virtual fault passage indicator, line differential, and intertrip protection.

Speaker*:* PETRA RAUSSI received the M.Sc. degree in electrical engineering from LUT University, Lappeenranta, Finland, in 2018. She is currently a doctoral candidate at the Department of Electrical Engineering and Automation, School of Electrical Engineering, Aalto University, Espoo, Finland. Since 2017, she has been first a Research Trainee, a Research Scientist, and currently a Senior Scientist with the VTT Technical Research Centre of Finland, Espoo, Finland. Her research interest includes power system communication and automation, 5G and beyond for critical data exchange, distributed control, and real-time systems.