



CONFERENCE

November 30, 2023 at 14h – ENIT
Amphitheater: Mokhtar LAATIRI



Digital Engineering for Smarter Energy Systems

Abstract

The design and operation of cities is under increasing pressure due to changes in population, climate, and congestion, and action is needed to produce cleaner and more sustainable approaches. In this talk, the core theme will be how digital engineering can provide a platform for Smarter Cities, with specific focus on control engineering and informatics in energy-related applications. After introducing basics of Internet of Things (IoT) and the Web 3.0 paradigm, focus will shift to how interconnectivity, interoperability and distributed automation can power the cleaner, greener, sustainable digital cities and economies of the future. Illustrative examples are drawn from a range of selected European, UKRI and other funded research and innovation activities across four application areas: (i) smart grids and micro grids, (ii) smart buildings and infrastructure, (iii) smart manufacturing and (iv) smart recycling. Specific technical aspects in each case will be highlighted and discussed during the talk to illustrate the role of data-driven modelling, optimization/scheduling, robotics and control in achieving improved Key Performance Indicators (KPIs) such as energy efficiency and carbon cost. Finally, some of the open issues and challenges in smart energy systems and opportunities for further research and innovation will be discussed.

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