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## SmartTalk: Covivio

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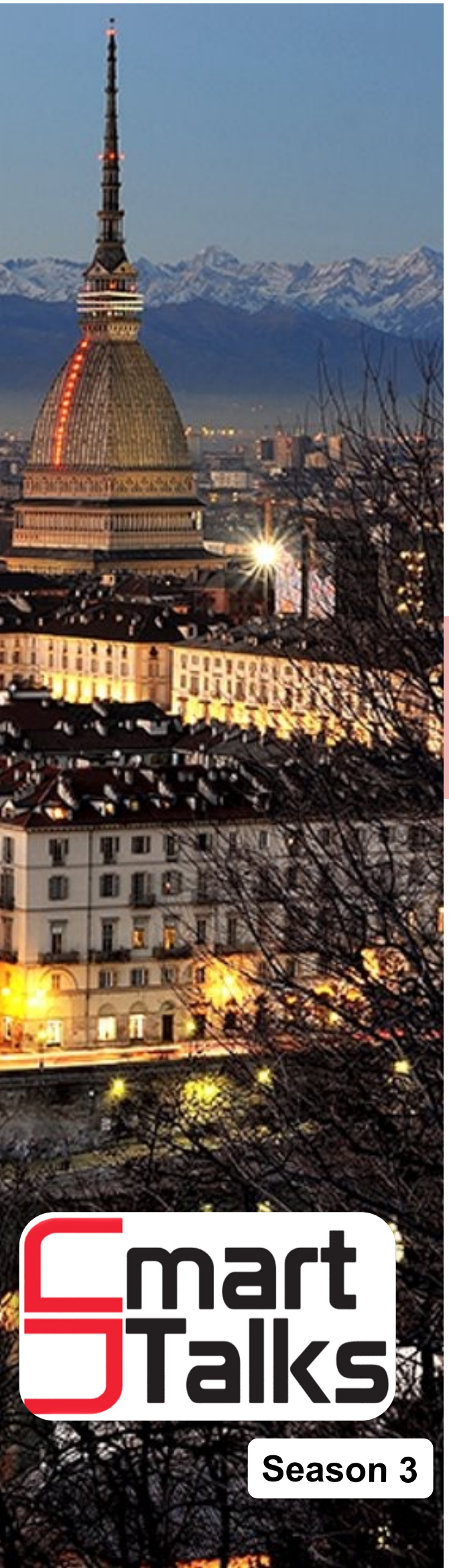



## Alfonso Capozzoli - Politecnico di Torino

Alfonso Capozzoli is a Mechanical Engineer and received his PhD in Engineering of Mechanical Systems from University of Naples Federico II (Italy). Currently he is Associate Professor in building physics and building energy systems at the Department of Energy of Politecnico di Torino where he leads the Building Automation and Energy Data Analytics lab (BAEDA Lab). He chairs courses on HVAC systems and building physics, energy management and automation in buildings, and energy transition and low carbon architecture. His research activity focuses on grid-interactive efficient buildings, data analytics-based energy management, energy saving strategies in air conditioning systems, fault detection and diagnosis in energy systems and thermal management in data centers.

## Marco Savino Piscitelli

Marco Savino Piscitelli is a Building Engineering and received his PhD in Energetics from Politecnico di Torino (Italy). He currently works as Assistant Professor at the Department of Energy of Politecnico di Torino and he is member of the Building Automation and Energy Data analytics Laboratory (BAEDA Lab). Since November 2020, at the BAEDA Lab he has been in charge of research topics related to the development of advanced decision support systems based on data-analytics technologies to improve energy management in buildings.


# Enhancing energy management in buildings through data analytics technologies: research challenges and opportunities


## ABSTRACT

In the last few years, the increasing widespread use of IoT sensors in buildings for the pervasive monitoring of energy-related data, has led to an unprecedented acquisition of reliable and accessible knowledge related to the actual performance of buildings during their operation. Considering that in Europe the building sector accounts for about the 40% of final energy use, supporting building owners and energy managers to extract useful information from monitoring data is of paramount importance to reduce energy consumption, increase system efficiency, prevent energy wastes and operate their buildings more efficiently. A robust coupling of artificial intelligence (AI) technologies and energy domain knowledge proved to be effective in achieving relevant energy saving by exploiting a variety of advanced energy –management solutions. The tools providing such capabilities are the so-called energy management and information systems (EMIS) which are employed to monitor, analyse and control energy systems in buildings leveraging advanced data analytics processes for supporting facility staff to enhance energy performance and efficiency. In this talk, as responsibles of the Building Automation and Energy Data analytics Lab (BAEDA Lab – www.baeda.polito.it) at Department of Energy of Politecnico di Torino, we will share our research experiences with the SmartData community to introduce and discuss the opportunities and challenges posed by the digitalization process in the field of energy and buildings to support the transition towards novel paradigms of energy management for intelligent buildings in smart energy grids.