

## Hot I&M Topics in the IoT Framework

**T**he term Internet of Things (IoT) refers to the connection and interaction of many devices and objects to the Internet, in addition to traditional laptops and mobile devices.



I remember a first experiment in 1995, aimed to remotely connect two measurement stations equipped with standard instrumentation (scope, waveform generator, multimeter) through the Internet. The aim of such activity was two-fold: the remote control of a measurement station and the synergic interaction and data exchange between the two stations. The question is: was this a first example of IOT?

Talking about IOT, two main scenarios must be accounted for: Short Range IoT including devices connected within a range of 100 m; and Wide Area IoT, including devices connected through smartphones. IOT applications belonging to the last category involve Massive M2M (Machine to Machine) devices, e.g., sensors for agriculture or smart cities, and systems for Critical IoT contexts, e.g., remote surgery applications, fully automated vehicles and industry 4.0.

Hot topics in the IOT framework are related to the measurement of quality of massive data produced by connected devices (sensors, instrumentation), latency in connectivity and data transmission, and the assessment of the actual number of devices connected in order to estimate the potential demands in terms of communication infrastructure. Privacy, security, interoperability, numbering and standardization are other IOT related topics worthy of investigation.

The IEEE Instrumentation and Measurement Society has always been attentive to the strict connection between IOT and the instrumentation and measurement world. Sponsored conferences, such as Measurement and Networking, and many papers covering different aspects and subjects of the IOT have been published in *Instrumentation and Measurement Magazine* and the *Transactions on Instrumentation and Measurement*.

This issue of the *Magazine* aims to provide specific examples of IOT related measurement subjects. I would like to thank the Guest Editor for this Special Issue, Prof. Ricardo Jardim-Goncalves, Full Professor at the New University of Lisbon, Faculty of Sciences and Technology, and a Principal Investigator at UNINOVA–Instituto de Desenvolvimento de Novas Tecnologia.

This is the last issue planned for 2019, and we are working now on the 2020 publications. I would like to thank all of the authors who have valuably contributed to this years' issues. All of the contributors were great at addressing challenging and timely topics, and I'm sure our readership appreciates their efforts. Thanks a lot to all of the reviewers who guaranteed a transparent and efficient peer review process for each article published in this *Magazine*. Anyway, ending the year with six such well-edited issues is also credited to the work of our editorial team, so thanks a lot to Kristy Virostek and Allen Press for the great job.

Some great news for 2020 is the expected publication of a couple of electronic issues of the *Magazine*, in addition to the six traditional printed issues...but much more than this is coming.

Bruno