Wireless Communications and Mobile Computing

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Special Issue on
IoT and Big Data: An Extraordinary Synergy

CALL FOR PAPERS

The term "Internet of Things" (IoT) attracts a multitude of research and industrial interests, embracing an amount of architectures, protocols, standards, services, and applications for ubiquitous data acquisition and large-scale analysis. Whatever domain we take into consideration, from housing to precision agriculture, from retail to transportation, from infrastructure monitoring to personal healthcare, from urban mobility to autonomous vehicles, just to mention a few, is going to be supported by each-day-smaller and smarter devices (i.e., things) able to collect data and to push them to the Internet. Gartner expects that, by 2020, 26 billion objects will be connected to the Internet and, by 2022, a typical family home will contain more than 500 connected smart objects. Thus, everything leads us to foresee that a digital revolution will happen: a huge amount of connected objects will be deployed everywhere in few years. Several technological barriers will be overcome by that time: from the need of uniquely addressing each single device (IPv6) to the need of powering or recharging it (innovative batteries, futuristic power harvesting, generation and management techniques and technologies, etc.). At the same time, the use of Big Data has been growing tremendously since the past few years, while businesses are quickly catching on to what they stand to gain. What is happening to IoT and Big Data is not simply a symbiosis, in which one helps the other; rather, they are influencing and shaping each other. Hence, the more the IoT grows, the more demands are placed on Big Data capabilities, and vice versa. Traditional data storage technologies, for instance, are already getting pushed to their limits, leading to more innovative solutions and advances in technology to handle growing workloads. In other words, new challenges will arise as a byproduct of the proliferation of devices and technologies: how will be such huge amount of data managed effectively and efficiently? How will be possible to process this data and to extract useful knowledge? Will classical data analysis and mining approaches be able to achieve this objective? Indeed, the need for distributing and deploying data analytics to the edge of the network and the use of specifically designed technologies for ensuring proper data flows require appropriate approaches to data collection, organization, aggregation, fusion, and analysis.

Authors are invited to submit their original technical paper focusing on the synergy between IoT and Big Data and on how this synergy can be successful in several different application domains.

Potential topics include but are not limited to the following:

- IoT platforms, architectures, and protocols supporting Big Data
- Big Data analytics, machine learning algorithms and scalable/parallel/distributed algorithms, and computing for the IoT
- Big Data as a Service (BDaaS) and Analytics as a Service (AaaS) for the IoT
- Cloud computing, Fog computing, and Edge clouds for the IoT
- Big Data Streams for the IoT
- Autonomic computing, inference of human patterns, analysis, monitoring, and situation alertness in IoT
- Predictive and clustering models for IoT self-organization, deployment, and communication
- Distributed computing, data fusion, and aggregation over large-scale IoT deployments
- Applications of Big Data in IoT-powered scenarios
- Case studies and proof of concepts related to any of the above bullets

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/wcmc/ibde/.

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