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IEEE Internet of Things Journal Special Issue on
Cognitive Internet of Things

Cognitive Internet of Things (IoT) is the use of cognitive computing technologies, which is derived from cognitive science and artificial intelligence, in combination with data generated by connected devices and the actions those devices can perform. Cognitive IoT provides high performance of communicating, computing, controlling, and even high degree of machine intelligence. Cognitive IoT redefines the relationship between human and their pervasive digital environment. They may play the role of assistant or coach for the user. Specifically, the IoT generated big data, when used to power predictive analytics algorithms or to develop a corps for a cognitive computing solution, can provide insights that would never be discovered in time to be useful if the departmental silos do not collaboration in data sensing and analysis. It is the integration of this data that enables cognitive computing applications for IoT of the next decade. Therefore, the services of a cognitive IoT could be constructive, prescriptive, or instructive in nature.

Although IoT has emerged with a great potential to change our life especially with ubiquitous sensing and sensory data, cognitive IoT technologies will make it possible to understand what's happening in the world more deeply. Therefore, cognitive computing is significant for the IoT to meet many technical challenges and problems that need to be addressed to realize this potential, such as big sensory data generation, computing at the edge of IoT, integration of multiple data sources and types, etc. Furthermore, to address the new computing and communication paradigm, the IoT ecosystems have to be upgraded with new capabilities such as machine learning, IoT sensing, data analytics, and cognitive power for providing human intelligence.

This special issue aims to explore recent advances and disseminate state-of-the-art research related to IoT on designing, building, and deploying novel cognitive computing, services and technologies, to enable smart IoT services and applications. Both hardware and software (i.e., application level) solutions are solicited within the scope of call. Original, unpublished technical papers with novel and important contributions will be considered for the special issue; submitted papers must not be published, accepted or under review by another journal, and extended version of a journal paper must be so indicated and the extension must include a substantial improvement to the technical content of the paper.

Some of the most important areas of cognitive IoT include, but are not limited to:

- Cognitive IoT architecture and infrastructure
- Cognitive IoT technology and applications
- Cognitive sensor systems
- Multi-modal fusion for cognitive IoT
- Contextual data management and mining platforms

- Cognitive computing, affective computing, machine learning for IoT
- Future Internet and network design for IoT
- Intelligent and interactive interface for IoT
- Privacy protected discovery and adaptation in cognitive IoT

Important Dates
Full paper submission deadline: **March 31, 2017**   Review decision: July 1, 2017
Final version submission: October 1, 2017

Submission
All original manuscripts or revisions to the IEEE IoT Journal must be submitted electronically through IEEE Manuscript Central, http://mc.manuscriptcentral.com/iot. Author guidelines and submission information can

be found at http://iot.ieee.org/journal. Each submitted manuscript will be sent to reviewers who will evaluate your work. The IEEE IoT Journal encourages authors to suggest potential reviewers as part of the submission process, which might help to expedite the review of the manuscript. Please suggest only those without conflict of interest (e.g. who work at institutions other than your own and with whom you have no collaborative or other technical or family ties). Each submission must be classified by the author to select appropriate keywords of this Journal.

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