ACM Transactions on Sensor Networks
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Special Issue on

Computational Intelligence in the Internet of Things

The Internet of Things (IoT) has paved a new surge of research on connecting objects, streamlining processes, and enabling intelligence on top of sensor networks that collect data from cyber, physical, and human worlds. The next generation of sensor networks should provide the infrastructure and services to embrace novel concepts, computing models, techniques, and applications for the effective management, retrieval, evaluation, and decision-making of the massive IoT data. This further calls for better designing the IoT environments, optimizing human engagement in the IoT, and advocating intelligent applications in the broad context of IoT.

New challenges and opportunities lie in the way of enabling machine intelligence in the broad contexts of IoT, creating a fertile ground for research and innovation. This requires novel methodological, algorithmic, mathematical, and computational methods that incorporate the most recent advances in communications, sensor networks, data analytics, and artificial intelligence to solve the theoretical and practical problems in IoT systems and IoT-enabled services. On the one hand, the existing architectures, models, and techniques should be carefully reexamined based on the emerging advanced analytics and intelligent approaches; on the other hand, the newly emerging technologies such as edge/fog computing, blockchain, and deep neural networks should be exploited to address the challenges in existing computing frameworks and techniques and to advance the state-of-the-art knowledge in this area.

This special issue aims at gathering the recent advances and novel contributions from academic researchers and industry practitioners in the vibrant area of machine intelligence for the IoT, in order to fully leverage the potential capabilities and opportunities brought by the massive and ubiquitous IoT data.

Topics of Interest to the Special Issue include but not limited to:

- Novel infrastructures, architectures, and protocols for IoT systems
- Data collection, integration, and search over IoT devices and services
- Techniques for evaluating, relating, and sense-making of IoT big data
- Security, trust, and privacy preserving techniques for IoT environments
- Smart sensing, human-centric or interaction design for human engagements with IoT
- Recommendations and decision support at the various layers of IoT
- IoT-based intelligent applications, such as security devices, emotional analysis, smart homes, smart cities, and healthcare.
- Other technologies and applications that advocates intelligence in the field of IoT

Important Dates

Submission Deadline: **Jun 30, 2020**
First Round Decision Notification: **Sep 30, 2020**

Manuscript Revision: **Nov 30, 2020**
Final Decision Notification: **Dec 31, 2020**
Final Version: **Jan 31, 2021**

Submission

All manuscripts must be submitted through the TOSN online system website (https://mc.manuscriptcentral.com/tosn) with the manuscript type selected as "SI on Computational Intelligence in the Internet of Things". The submitted manuscripts must not have been previously published nor under consideration for publication elsewhere. Author guidelines and more submission information are available at the TOSN website (https://tosn.acm.org/authors.cfm).

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