

## CALL FOR PAPERS

### IEEE Internet of Things Journal Special Issue on Internet of Mission-Critical Things

Internet of Things is coming to critical missions such as battlefield, border patrol, search and rescue, critical structure monitoring and surveillance, etc. Internet of Things in Critical Missions or Internet of Mission-Critical Things (IoMCT) is propelled by the convergence of sensing, communication, computing and control. To support IoMCT, the mission-critical networks will need to be flexible and interactive, and still work despite limited bandwidth, intermittent connectivity and with a large number of devices on the network. The focus of IoMCT is to improve surveillance utilizing a network, not fusion of disparate sensor products. Such adaptation, management and re-organization of information sources, devices, and networks must be accomplished almost entirely autonomously, in order to avoid imposing additional burdens on the humans, and without much reliance on support and maintenance services. Moreover, humans, under extreme cognitive and physical stress, will be strongly challenged by the massive complexity of the IoMCT and the information it will produce and carry. Advances in technologies that capitalize on the benefits of the IoMCT will have to assist humans in making useful sense of this massive, complex, confusing, and potentially deceptive ocean of information, while taking into account the ever-changing battlefield mission. New approaches and low-complexity algorithms are expected to enable IoMCT to automatically manage and effect risk and uncertainty in a highly deceptive, mixed cooperative/adversarial, information-centric environment. In IoMCT, the advantages of linking multiple electronic support measures and electronic attack assets to achieve improved capabilities across a networked mission force have yet to be quantified. All of these challenges demand new theories of (and methods for) networking, sensing, information management, and decision support analytics.

The goal of the Special Issue is to publish the most recent (unclassified) results in IoMCT. Review papers on this topic are also welcome. Topics of interest include, but are not limited to:

- Automated discovery, adaptation, and management of IoMCT networks
- Overcoming Bandwidth limitation in IoMCT
- Intermittent connectivity modeling in IoMCT
- Massive devices management in IoMCT
- Cybersecurity in IoMCT
- Density and deployment of the IoMCT
- Heterogeneous modality selection in IoMCT
- Information fusion in IoMCT
- Capacity of IoMCT
- Reliable communications in IoMCT
- Target detection in IoMCT
- Dynamic resource allocation in IoMCT
- Opportunistic sensing in IoMCT
- Adapt IoMCT local and distributed processing
- Waveform design and adaptation in IoMCT
- Decision making with uncertainties in IoMCT
- Human in the loop for IoMCT
- Situation understanding based on IoMCT
- Threat assessment based on IoMCT
- Big Data for IoMCT
- Cloud for IoMCT

#### Important Dates

Manuscript Submission: **May 1, 2017**  
Final Manuscript Due: October 1, 2017

Notification of acceptance: August 1, 2017  
Publication: January, 2018

#### 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

# IEEE INTERNET OF THINGS JOURNAL



A joint publication of  
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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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