Mass Connectivity and/or Communication Paradigms for the Internet of Things (IoT)

A Special Issue Proposal for Elsevier IoT Journal

Internet of Things (IoT) refers to the collective network of connected devices and technologies facilitating the communication between these devices themselves and between the devices and cloud at a mass scale. These types of networks can be exploited in many applications that can **have timeless importance**; for instance, they can be utilized in detecting and preventing both natural and unnatural disasters such as earthquakes, fires, floods, etc. It looks like these types of disasters will continue due to the ongoing global warming and pollution of nature by humans. As a consequence, it is very crucial to develop systems using IoT that provides preventing them or even reduce their harm. At this point, the failure of any node or communication link can lead to data loss and network connectivity corruption which can result in enormous burdens. Hence, maintaining network connectivity and recovering lost information by using network resources in an effective manner **have always been an open problem**.

Connected smart devices collect a massive amount of information and transmit them for storage and subsequent analysis. Such operation style leads to a heavy load on network communication links, connectivity, and computational resources and increases the demand for required storage space. As a result, fundamental techniques need to be devised to reduce the demand for such resources. For instance, to reduce the infrastructure cost of the topology and increase fault tolerance, recent research focused on minimizing the number of devices guaranteeing maximal area coverage for a given network region. Besides reducing the cost of the deployed infrastructure, minimization of the number of devices takes into consideration the communication cost in terms of consumed bandwidth or the time elapsed during the device-to-device communication as important parameters of interest. Accordingly, **the focus on reducing such communication overhead using deterministic or/with heuristic solutions is vital for optimal IoT ecosystem design**.

In this special issue, the focus of the call would be on the new and broader technical problems which are related to the connectivity, communication costs, and resource sharing for IoT core networks, devices, and applications.

We are planning the **announce this CFP through different channels** such as Elsevier web pages, e-mail groups of related research labs, related IEEE conferences, and social media. Moreover, the potential authors are listed at the end of this document.

The guest editors are planning to submit at most three papers to this special issue.

CFP: Mass Connectivity and/or Communication Paradigms for the Internet of Things (IoT)

A Special Issue of Elsevier IoT Journal

The Internet of Things (IoT) encompasses a vast network of interconnected devices and technologies that enable communication among these devices, as well as between the devices and the cloud, on a large scale. Connected smart devices collect a massive amount of information and transmit them for storage and subsequent analysis. Such operation style leads to a heavy load on network communication links, connectivity, and computational resources and increases the demand for required storage space. As a result, fundamental techniques need to be devised to reduce the demand for such resources. For instance, to reduce the infrastructure cost of the topology and increase fault tolerance, recent research focused on minimizing the number of devices guaranteeing maximal area coverage for a given network region. Besides reducing the cost of the deployed infrastructure, minimization of the number of devices takes into consideration the communication cost in terms of consumed bandwidth or the time elapsed during the device-to-device communication as important parameters of interest. Accordingly, the focus on reducing such communication overhead using deterministic or/with heuristic solutions is vital for optimal IoT ecosystem design.

In this special issue, the focus of the call would be on the new and broader technical problems which are related to the connectivity, communication costs, and resource sharing for IoT core networks, devices, and applications. Topics of interest include but **are not limited to**:

- Resource management and connectivity issues in Wireless Sensor Networks.
- Resource management and connectivity issues in Underwater Wireless Sensor Networks.
- Resource management and connectivity issues in the Internet of Drones.
- Fault tolerance in IoT topologies.
- Communication reliability in IoT networks.
- Availability in 5G, 6G and Beyond Cellular Networks.
- Network-Coded protocol design for IoT.
- Coded Caching for IoT platforms
- Novel IoT protocol designs for network bandwidth/storage efficiency.
- Artificial Intelligence and Machine Learning Techniques in Communication Technologies

Important Dates

1. Submissions Deadline: Jan. 31st, 2024
2. First Reviews Due: Apr. 30th, 2024
3. Revision Due: May 31st, 2024
4. Second Reviews Due: Jul. 1st, 2024
5. Final Manuscript Due: Aug. 25th, 2024
6. Publication Date: End of 2024.

Submissions

Each unique submission or revision must be submitted to Elsevier IoT Journal through the link https://www.editorialmanager.com/iot/. Please make sure that you select the name of the special issue SI:NC for IoT when you submit. The complete guide and submission policies can be reached at https://www.sciencedirect.com/journal/internet-of-things/about/policies-and-guidelines. Submissions are expected to be accompanied by keywords and pointers to appropriate reviewers to expedite the review process.

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