# Information Systems

Special Issue on

Information Fusion in Internet of Things

- Call for Papers -

Increasing miniaturization of computing technologies and rapid advancements in communication technologies have made the heterogeneous objects of our daily lives invisibly interweave with sensors, actuators, and other computational elements, while keeping a continuous network connection. The continuous connectivity of these heterogeneous smart objects enables them to communicate with each other and with the users of Internet of Things (IoT) technologies. These continuously connected data, generating heterogeneous objects, produce a huge amount of data that needs to be processed, distributed, and examined under consideration of the application objectives. Processing such unstructured and semi-structured data, , generated by heterogeneous sources with different contextual and conceptual representations, is a challenging task. By leveraging the synergy among the collected data, information fusion techniques can minimize the amount of data traffic, filter irrelevant data, and make predictions and inferences using the collected data in the IoT environment. Information fusion helps combine the information into a new set of information while minimizing uncertainty.

Researchers are leveraging information fusion techniques to minimize the uncertainty of the data for enabling the smart objects of IoT to make the reliable decisions. The exploitation of information fusion techniques in IoT will open new dimensions for designing the reliable and autonomous systems that can operate without the need for human interactions. Hence, there is a need to investigate the potential opportunities of applying information fusion in the designs of protocols and algorithms of IoT. Such investigation will open up a totally new spectrum of functionalities with unprecedented benefits for IoT-based environments. This special issue invites new and unpublished work in the domain of information fusion in an IoT context. More specifically, this special issue will focus on recent research efforts in applying information fusion in IoT.

Topics of interest include, but are not limited to:

Information Fusion

* Data mining from multiple sources
* Knowledge discovery for higher-level information fusion
* Fusion of data mining knowledge
* Data, text and web mining in information fusion
* New theoretical approaches for information fusion
* Intelligent information fusion
* Context-based information fusion
* Imprecision, uncertainty and vagueness in data mining
* Anomaly and exception detection from datasets
* Data pre- and post- processing
* Parallel and distributed data fusion algorithms
* Information summarization and visualization
* Linguistic description of information
* Applications of information fusion, such as surveillance, emergency management, etc.
* Security concerns of information fusion

Information Fusion in IoT

* Theory and representation of IoT information
* New theoretical approaches for information fusion in IoT
* Distributed information fusion for interactive cognitive IoT environments
* Anomaly detection - techniques and applications for IoT
* Quality-based information fusion in IoT
* Fusion methods for Big Data in IoT
* Novel feature/score/rank/decision-level fusion schemes for IoT
* Knowledge discovery for higher-level information fusion in IoT
* Fusion of data mining knowledge in IoT
* Uncertainty management in IoT
* Technologies for uncertainty reasoning in IoT
* Intelligent information fusion techniques for IoT
* Context-based information fusion techniques for IoT
* Data registration methods in IoT
* Data classification in IoT
* Pattern assessment and process management in IoT
* Active and passive information fusion in IoT
* High and low level information fusion in IoT
* Multi-Level fusion: bridging the gap between high and low level fusion in IoT
* Hard and soft information fusion in IoT
* Image fusion, database fusion in IoT
* Distributed information fusion algorithms for IoT
* Simulation tools; benchmarks; testbeds for information fusion in IoT
* Fusion/tracking performance modeling, fusion/tracking performance evaluation; performance metrics for IoT
* Applications of information fusion in IoT
* Security concerns of information fusion in IoT

**Important Dates**

Manuscript Due: 15th May 2016 (tentative)

Acceptance notification: 15th September 2016 (tentative)

Revised paper due: 15th November 2016 (tentative)

Final manuscript due: 15 December 2016 (tentative)

Expected Publication of the Special Issue: 25 January 2017 (tentative)

**Submission Guidelines**

All submissions have to be prepared according to the Guide for Authors as published in the Journal website at https://www.elsevier.com/journals/information-systems/0306-4379/guide-for-authors. Authors should select “SI:IF-IoT”, from the “Choose Article Type” pull-down menu during the submission process. All contributions must not have been previously published or be under consideration for publication elsewhere. A submission based on one or more papers that appeared elsewhere has to comprise major value-added extensions over what appeared previously (at least 30% new material). Authors are requested to attach to the submitted paper their relevant, previously published articles and a summary document explaining the enhancements made in the journal version.

**Guest Editors of the Special Issue:**

Ejaz Ahmed,*Lead Guest Editor*

University of Malaya,

Malaysia

[imejaz@gmail.com](mailto:imejaz@gmail.com)

Mubashir Husain Rehmani

COMSATS Institute of Information Technology,

Pakistan

[mshrehmani@gmail.com](mailto:mshrehmani@gmail.com)