

Call for Papers for a Special Section on
The Intelligent Internet of Things

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**ACM Transactions on
Internet Technology**

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The vision of the Internet of Things (IoT) is a dynamic global network based on standards and interoperable communication protocols where physical and virtual things have attributes, identities, and capabilities and are seamlessly integrated into the existing Internet infrastructure. The range of devices deployed as part of the IoT range from passive radio tags to embedded computer systems. Deploying such devices to obtain real-time information for decision making has become common practise in many different domains, such as smart homes, e-health, automotive, transport and logistics, and environmental monitoring. However, due to the varying nature of devices, organisations, and social structures involved in the IoT, intelligent and automated approaches are needed to support decision makers so that sense could be derived from vast amount of information available through IoT networks.

In order to enable automatic inference of appropriate information for decision problems, one has to address many issues found in IoT networks such as: (1) inability to discover appropriate devices and data/information (2) inability to effectively and efficiently aggregate and cross-reference information from IoT networks (3) trustworthiness of information associated with IoT networks; (4) obfuscated information found in IoT to safeguard the privacy and security of individuals leading to possible incorrect inferences; and (5) modelling provenance of information and the transparency of the processes used to assess the importance and impact of the information. Such issues require new ways of thinking about approaches and design paradigms for IoT-based networks so that one can reduce risks associated with decision problems and make the decision making transparent.

Motivated by the above issues, the aim of this section is to bring together leading research on knowledge representation, fuzzy reasoning, trust modelling, and provenance modelling so that important properties of IoT networks could be better captured to support decision making. Topics of interest for the section include, but are not limited to:

- Knowledge-based approaches to evaluate the trustworthiness of devices and services in the IoT
- Knowledge-based policy management and reasoning for the IoT
- Ontologies describing IoT devices and their use
- Provenance and usage in the IoT
- Modelling and evaluating quality in IoT
- Modeling and communicating transparency in IoT
- Situational awareness through context modeling in IoT
- Intelligent decision making using knowledge-based reasoning
- Knowledge-based discovery of devices, data and services in the IoT

Deadlines

Submissions: 15th September 2014
First decisions: 28th November 2014
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Submission

<http://toit.acm.org/submission.html>
Please select "Special Section: The Intelligent Internet of Things" under Manuscript Type dropdown in the Manuscript Central website.

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