

A Platform for IoT and Social Big Data

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Due to the recent advancements of ICT technologies such as high speed communications and sensor devices, various kinds of services based on the Internet of Things (IoT) or Machine-to-Machine (M2M) have become available. In addition, due to the surprisingly rapid popularization of smart phones and Social Network Services (SNSs), ordinary people generate and share a large amount of data using SNSs on smart phones. So, we are now facing the era of Big Data and many Big Data applications have been developed over the world.

To further encourage development of Big Data applications, we still need more effort to tackle the two issues; (i) parallel computing framework for IoT Big Data, and (ii) open-data framework for sharing IoT Big Data. For the first issue, since IoT data have some special characteristics such as spatial and temporal properties, traditional frameworks (e.g., Hadoop) are not always sufficient to efficiently process IoT Big Data. Therefore, we need new parallel processing frameworks for IoT Big Data. Some research projects have been developing frameworks for parallel processing of big spatial data, which typically provide some functionalities to efficiently handle big spatial data such as spatial queries, indexing, and parallel processing.

For the second issue, it is essential to share a large amount of various kinds of IoT data held by different organizations (e.g., governments, companies, universities, and individual). In this talk, we focus on this second issue. There have been some available open-data frameworks for sharing IoT Big Data, including frameworks for integrating sensor data generated from difference data sources (e.g., wireless sensor networks), that for sensor cloud, and that for participatory sensing. These existing frameworks for sharing IoT Big Data basically target sensor data. On the other hand, recent studies have revealed that posts (messages) on SNSs such as twitter can be used for detecting various kinds of facts in the real world such as events, trends, and user sentiment, which can be considered as kinds of social sensor data. Social sensor data are very useful for Big Data analysis because these tell many things representing the real world, which cannot be known by only analyzing traditional Big Data.

In this talk, we will briefly present our on-going project aiming to build a framework which can handle both (real) sensor data and social sensor data. Our framework aims to share not only social sensor data (i.e., analytical result of SNS data) but also definitions of social sensor data and procedures to generate (analyze) them, which, we hope, are useful for application developers to reuse the existing definitions and procedures of social sensor data.

We will conclude this talk with some discussion on future direction.