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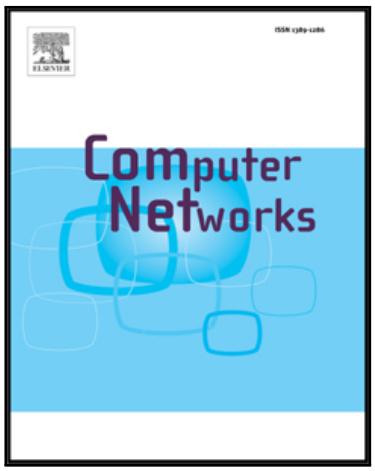

Systematic Survey of Big Data and Data Mining in Internet of Things

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PII: S1389-1286(18)30157-9
DOI: 10.1016/j.comnet.2018.04.001
Reference: COMPNW 6463

To appear in: *Computer Networks*

Received date: 22 October 2017
Revised date: 25 March 2018
Accepted date: 2 April 2018

Please cite this article as: Shabnam Shadroo , Amir Masoud Rahmani , Systematic Survey of Big Data and Data Mining in Internet of Things , *Computer Networks* (2018), doi: 10.1016/j.comnet.2018.04.001

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Systematic Survey of Big Data and Data Mining in Internet of Things

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Abstract

In recent years, the Internet of Things (IoT) has emerged as a new opportunity. Thus, all devices such as smartphones, transportation facilities, public services, and home appliances are used as data creator devices. All the electronic devices around us help our daily life. Devices such as wrist watches, emergency alarms, and garage doors and home appliances such as refrigerators, microwaves, air conditioning, and water heaters are connected to an IoT network and controlled remotely. Methods such as big data and data mining can be used to improve the efficiency of IoT and storage challenges of a large data volume and the transmission, analysis, and processing of the data volume on the IoT. The aim of this study is to investigate the research done on IoT using big data as well as data mining methods to identify subjects that must be emphasized more in current and future research paths. This article tries to achieve the goal by following the conference and journal articles published on IoT-big data and also IoT-data mining areas between 2010 and August 2017. In order to examine these articles, the combination of Systematic Mapping and literature review was used to create an intended review article. In this research, 44 articles were studied. These articles are divided into three categories: Architecture & Platform, framework, and application. In this research, a summary of the methods used in the area of IoT-big data and IoT-data mining is presented in three categories to provide a starting point for researchers in the future.

Keyword: internet of things; systematic survey; big data; data mining

Introduction

In recent years, the Internet of Things (IoT) has grown rapidly, as such, it can identify, control, and monitor each object on earth (usually called things) via the internet [1, 2, 3, 4, 5]. Kevin Ashton invented the concept of IoT in 1999 when the wider device-to-device communicational view has occurred. In the reference [5], the IoT is defined as self-organizing systems of unrestricted devices which provide converged systems that improve the efficiency of processes; it also creates a reference that can identify the objects connected to the Internet. Furthermore, it allows the establishment of types of communication and sharing of data by using IT and provides a variety of services through the interconnection of virtual and physical things based on the interoperability of information and communication technologies. Marjani

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