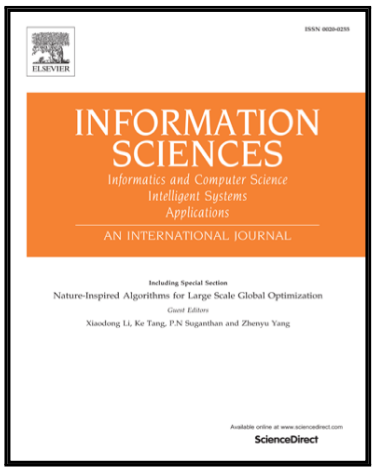

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PII: S0020-0255(18)30606-6
DOI: https://doi.org/10.1016/j.ins.2018.08.002
Reference: INS 13846

To appear in: *Information Sciences*

Received date: 7 April 2015
Revised date: 10 May 2018
Accepted date: 1 August 2018

Please cite this article as: Luca Cagliero, Tania Cerquitelli, Silvia Chiusano, Paolo Garza, Antonio Attanasio, Characterizing unpredictable patterns in Wireless Sensor Network data, *Information Sciences* (2018), doi: https://doi.org/10.1016/j.ins.2018.08.002

Characterizing unpredictable patterns in Wireless Sensor Network data

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Abstract

Wireless Sensor Network (WSN) monitoring takes a primary role in many industrial and research processes. Huge amounts of WSN sensor readings are nowadays available and can be analyzed to discover fruitful knowledge.

This paper focuses on analyzing historical WSN sensor readings to identify the combinations of sensors whose readings show an unexpected trend. Although significant variations of single sensor readings may be easily detected, discovering correlations between multiple sensor readings is challenging without using advanced data analytics tools. To tackle this issue, we present an itemset-based data mining approach to analyzing WSN data. It identifies the combinations of sensors (of arbitrary size) whose readings are unexpectedly low in a given time period. Since the readings acquired by multiple sensors may decrease in an alternate fashion, the discovered pat-

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