

# Guest Editorial Preface

## Special Issue on Big Data Applications

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The exponential growth of data generated by society and the emergence of ubiquitous data collection systems have led to an opportunity to transform data into insights for unparalleled decision-making giving rise to the age of Big Data. It is within this context that the Mexico City Satellite Session of the IEEE Big Data CONGRESS was held on May 8, 2014 in Mexico. In the satellite session, both practitioners and researchers were brought together to discuss novel big data applications and use cases.

This special issue of the International Journal of Web Services Research includes three extended versions of articles presented at the Mexico City Satellite Session of the IEEE BigData CONGRESS 2014. In addition, this special issue also includes (1) an invited, but peer-reviewed article and (2) a regular paper recommended by the editorial board.

- The first article, by Kuri-Morales, is entitled “Minimum Data Base Determination using Machine Learning”. This article proposes a methodology to analyze considerably large databases by obtaining an equally representative data subset using entropy theory and machine learning techniques. The methodology has been validated by means of real-world case studies involving millions of records composed of more than one hundred variables.
- García Ríos and Incera Diéguez contribute an article entitled “A Big Data Testbed for Analyzing Data Generated by an Air Pollution Sensor Network”. The authors propose a framework for collection, management and exploitation of real-time data generated by large-scale wireless sensor networks. The novelty of the framework lies on the effective combination of Big Data technologies and stream computing tools applied to an air pollution sensor network.
- The third contribution, by Quezada-Naquid, Marcelín-Jiménez and González-Compeán, has the title “Babel: The Construction of a Massive Storage System”. This article proposes the Babel file system, a middleware capable of supporting a data storage system composed of commodity storage nodes, which can be used as building blocks for implementing flexible client applications. The authors provide empirical evidence to demonstrate that Babel is fault-tolerant and scalable.
- The fourth article is entitled “Understanding Human Behavior in Urban Spaces using Social Network Data: a mobility graph approach” by Martínez, Escalante, Beguerisse-Díaz, Garduño and González. In this article, a mobility graph of Mexico City was constructed from twitter data by means of clustering algorithms and a spatiotemporal analysis. The authors’ results provide insightful information for urban planning and transportation decision-making in Mexico City.

- Finally, the fifth article, by Chen, Xu, and Ni is entitled “A Study on Online Social Networks Theme Semantic Computing Model”. This article proposes (1) a numerical model of text semantic analysis based on artificial neural networks, (2) a semantic computational algorithm for social network texts, and (3) a theme discovery algorithm.

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