

Guest Editorial Preface

Special Issue on Cognitive Computing for Knowledge Discovery in Big Data

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This special online edition on “Cognitive Computing for Knowledge Discovery in Big Data” has been organized to apply cognitive computing to deal with growing big data. In general, cognitive computing is a self-learning system that makes use of Artificial Intelligence (AI) approaches such as Natural Language Processing (NLP), pattern recognition, and data mining approaches to mimic the working of the human brain. Currently, big data and cognitive computing are the two trends widely used to deal with an enormous amount of data from real-time sources. Big data has become an inevitable part of our daily lives; extracting and analyzing these data reveals the pattern and trends of the domain from which the data is extracted. Cognitive computing, along with big data makes an efficient system, which offers more insightful information and enables knowledge-based experiences. This special issue is a collection of six articles that presents more appropriate solutions against this background.

The first article, entitled “Crowdsourced Social Media Reaction Analysis for Recommendation,” addresses the problem of social media analysis using big data and cognitive computing techniques. It presents a robust model to summarize plenty of data generated from social media sites. The performance of this scheme was evaluated using various parameters such as precision, recall, f-measure, and accuracy rate of the algorithm. It makes use of a page-rank and k-means algorithm to attain the intended objectives. The performance is comparatively better than the existing approaches.

A scheme for person identification from video surveillance using cognitive computing and deep learning algorithms are presented in the article entitled “Person Re-Identification Based on Significant Color With the Spatial Correspondence.” It identifies the user based on a person’s clothing. The performance of this scheme is found to be satisfactory, and it has higher accuracy and efficiency measures.

The third article provides a collective review on MANET protocols is then explored to deal with the exponential rate of growing big data applications. It is titled “A Collective and Comparative Study of Various Routing Protocol and the Threats in MANET.” The performance of the scheme is evaluated using various workloads and verified with its resistance towards routing attacks and fault tolerance facilities.

The fourth article, “Trust-Aware Routing Framework for Internet of Things” provides a study of the Internet of Things (IoT) as another emerging paradigm that forms a vital part of big data applications. A trust aware routing framework for the Internet of Things (IoT) is presented to deal

with resource-constrained IoT devices. It provides an energy-efficient and secure solution to cope with the growing amount of big data.

The fifth article in this special issue is entitled “Collaborative Intrusion Detection System in Cognitive Smart City Network (CSC-Net).” These systems assess the security and performance of the cognitive system networks using an intrusion detection technique and cognitive computing protocols. The results are found to be satisfactory from a real-world perspective.

The last article titled “Minimization of Energy Using Heuristic Resource Allocation and Migration for Cloud Computing” provided research on a cost-effective infrastructure for storing large volumes of data and hosting large scale service applications.

We are confident that this collection offers reasonable research works on cognitive computing and big data. Also, we hope that this special edition will offer considerable knowledge to the readers. A special gratitude to all the authors and reviewers for their timely effort and contributions, which made this special issue a great success.

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