

Guest Editorial Preface

Special Issue on Recent Advancements in Computing and Intelligent Systems

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Computing is the process of utilizing Computer Technology to complete a task and an intelligent system is a machine with an embedded, Internet-connected computer that has the capacity to gather and analyze data and communicate with other systems. Computing and intelligent system is a multidisciplinary topic, since it combines the features of many of the areas in Computer Science.

Computing is any goal-oriented activity requiring, benefiting from, or creating a mathematical sequence of steps known as an algorithm — e.g. through computers. The field of computing includes computer engineering, software engineering, computer science, information systems, and information technology. The intelligent systems include the capacity to learn from experience, security, connectivity, the ability to adapt according to current data and the capacity for remote monitoring and management.

The aim of the special issue is to provide a quality publication with innovative ideas and implementation methodology to upcoming and budding researchers and users in the modern-day era. The unique characteristics of the special issue are:

- Original research works from the area of ambient computing and intelligence with an emphasis on application in varied fields. The aim of the special issue was providing a quality publication with innovative ideas and implementation methodology to upcoming buddy researchers and users in the modern-day era like: this special issue covers theory, applications, and design methods of Intelligent Systems and Intelligent Computing. Virtually all disciplines such as engineering, computer and information science, ICT, e-commerce, environment are covered. The list of topics spans all the areas of modern intelligent systems and computing such as: computational intelligence, soft computing including neural networks, fuzzy systems, evolutionary computing and the fusion of these paradigms, social intelligence, ambient intelligence, computational neuroscience, artificial life, virtual worlds and society, cognitive science and systems, Perception and Vision, DNA and immune based systems, self-organizing and adaptive systems, human-centered and human-centric computing, recommender systems, intelligent control, robotics and mechatronics. It also includes intelligent systems research will focus on learning algorithms and pattern matchers, speech recognition, gesture classification and situation assessment. Context awareness will concentrate on the tracking and positioning of objects' and people's interactions with their environments. Finally, an appreciation of human-centric computer interfaces, intelligent

agents, network security, indoor positioning, and privacy ensuring technology and Ambient Security and the social interactions of objects in environments is essential;

- The proposed publications would be very well targeted towards providing quality, best and latest research by eminent researchers considering the fact that how such researches affect and make significant influences on common people in their everyday life;
- The area which is part of published work will be having a significant influence for the business users, common people and has a great impact on the society. This special issue is a collection of 04 papers which are written by eminent academicians from different academic and research institutions. These papers were initially peer reviewed by the Editorial Board members and then the reviewers from academia and industry people themselves involved in the research on the scope of this special issue.

Following are the key abstracts of accepted papers.

In the first paper, a multi criteria decision making method (TOPSIS) is proposed to help customers to select a better cloud service among the set of existing cloud services with the satisfaction of their requirements. As a result shows that the proposed method is practical for solving cloud service selection problem. Moreover, the simulated result obtained from real cloud computing service domains shows better performance when compared with other available selection algorithm i.e. AHP and fuzzy AHP. It shows proposed method is effective and achieves better accuracy.

In the second paper, an Optimal Data Placement Strategy (ODPS) based on grouping semantics is proposed. Initially, user history log is dynamically analyzed for identifying access pattern which is depicted as a graph. Markov clustering, a Graph clustering algorithm is applied to identify groupings among the dataset. Then an Optimal Data Placement Algorithm (ODPA) is proposed based on the statistical measures estimated from the clustered graph. This in turn re-organizes the default data layouts in HDFS to achieve improved performance for Big-Data sets in heterogeneous distributed environment. The proposed strategy is tested in 15 node cluster placed in a single rack topology. The result has proved to be more efficient for massive datasets, reducing query execution time by 26% and significantly improves the data locality by 38% compared to HDDPS.

In the third paper, the main focus is on accumulating the elements, which can act as enablers, by reviewing existing literature and study from professional and academic viewpoint. Cloud Computing is not the buzzword but it is a shift of IT departments to the outsourcing vendors without impacting the business efficiency. Some organizations are moving towards cloud computing but many are having a resistance in adopting cloud computing due to limitation of knowledge and awareness in classifying the elements, which affect decision the acceptance of cloud computing. All the identified enablers have been structurally modeled to develop the relationship matrix and establish the driving power and dependence power of every element by employing Total Interpretive Structural Modeling (TISM) and Cross Impact Matrix Multiplication Applied to Classification (MICMAC) analysis.

In the fourth paper, application of the generalized neuron model for forecasting the electricity price is proposed. The training time of the artificial neural network is affected by the complexity of the system, and moreover, they require large amount of data for complex problems. The generalized neuron model overcomes the limitation of the conventional ANN. The electricity price of New South Wales electricity market is forecasted to test the performance of the proposed model. The free parameters of the proposed model are trained using fuzzy tuned genetic algorithm to increase efficacy of the model.

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