

Editorial

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1 Introduction

The special issue promotes exchange of opinions among experts working in different areas of the growing fields of advanced knowledge and agent based technologies. The main purpose of the special issue is to bring together scientists representing knowledge intelligent techniques, agent-based systems and related fields. It also aims sharing a common interest related to the advancement of intelligent systems and applications using knowledge and agent-based technologies. This issue covers a broad spectrum of disciplines working towards enabling these intelligent systems and technologies. The research and development of these systems, that exploit knowledge in the target domain, are at the forefront of modern researches. It also brings together the communities to exchange latest results, to join efforts in solving the common challenges, and to establish an effective communication between researchers and developers involved in the both areas in order to create a worthwhile synergy. Submitted papers were all peer-reviewed by 26 professional reviewers. Finally, ten submissions were accepted for publication in this special issue on 'Intelligent Systems and Applications Using Knowledge and Agent based Technologies'.

2 Papers in this issue

The first paper titled 'Similar video detection using multiple direct-mapped cache' presents a new method to improve the detection accuracy to handle the processing of a large amount of videos on the internet. For this purpose, the combination of MPEG-7 video signature and the multiple direct-mapped cache method is used. The experimental results show that the average detection accuracy is 95%, and the processing time is 0.2 seconds for each video.

The second paper titled 'Attention information extraction of the foreign visitors using Text Mining' provides a method to analyse user reviews in order to discover the characteristic expressions according to their purposes. Authors examine some methods to present beneficial information at the time of reservations. Moreover, they extract the differences between user reviews by area and between hotels through text mining.

The third paper titled 'A multi-criteria decision-making model to increase productivity: AHP and fuzzy AHP approach' is aimed to define and study different attributes which play pivotal role in productivity from the management perspective. Authors present a framework designed to analyse and quantify the relative relevance of different decisive factors as well as secondary sub criteria and their effectiveness on production floor. Analytic Hierarchy Process and Fuzzy Analytic Hierarchy Process are employed to deal with interdependent relationships within a multi-criteria decision-making model.

The fourth paper titled 'Comparative analysis of software reliability predictions using statistical and machine learning methods' examines the performance of statistical (Linear regression) and machine learning methods like Radial basis function network (RBFN), Generalised regression neural network (GRNN), Support vector machine (SVM), Fuzzy inference system (FIS), Adaptive neuro fuzzy inference system (ANFIS), Gene expression programming (GEP), Group method of data handling (GMDH) and

Multivariate adaptive regression splines (MARS) for predicting software reliability. Authors empirically demonstrate that performance of the SVM model is better than LR and other machine learning techniques in all datasets.

The fifth paper titled ‘Agent-based communication systems for elders using a reminiscence therapy’ presents an agent-based communication system using questions about personal histories as topics of dialogue communications. Authors examine how dialogues of dementia patients are induced or continued by questions and answers (Question answering) by personal history, and which topics are effective for dementia patients. From experimental results, it turns out that especially Place of birth, Old song and Favourite food from Personal Information and Hobby/Favourite are interested questions for the elders.

The next paper titled ‘Snowball sampling consumer behaviour research to characterise the influence of market mavens on social networks’ analyses market maven, which is a type of consumers who spread their capricious knowledge widely. This research is the first to characterise their disposition and role on social networks. Authors carried out researches about consumer behaviour and social network, applying snowball sampling technique, an ideal way to acquire samples of influential individuals.

The next paper titled ‘An evolutionary approach to discover intra- and inter-class exceptions in databases’ presents to devise a framework to discover exceptions using an evolutionary approach. Evolutionary algorithms, being the global search methods, have shown promising results in the domain of rule mining. In this work, authors have categorised exceptions as inter and intra class. Experimental results are presented to demonstrate the performance of the proposed algorithm.

The next paper titled ‘Extended causal map for reasoning explanation in multi-agent systems’ presents to provide more transparency to users when it is required, to make them able to understand the way to manage the nondeterministic process, and to give them the possibility to become familiar with such dynamic, complex and abstract systems. Authors present a reasoning explanation approach for MAS based on an extended causal map.

The next paper titled ‘A method of extraction and visualisation for relationships among objects on web’ aims to extract object relationships including the direction of the relation considering context information. In the proposal method, related words that are objects related to the object given as an input word are acquired at first. And, object relationships between an input word and each related words are extracted. Moreover, the system that visualises related words and the object relationships as a correlation diagram is implemented.

The last paper titled ‘Analysing the influence of headline news on the stock market in Japan’ analyses the relationship between headlines in the news and the stock market in Japan through text mining technology. As a result of analyses, authors found a significant relationship between the stock index return changes and the negative (or positive) news classified by keywords. They also found that the measure of constructing a keyword list has a significant impact on the performance of this classification.