
Preface

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In today's business world, the survival of industries and organisations is fully dependent on their ability to adapt to their changing environment in ways which support rapid development and the introduction of innovative products and services. Information technology and its management facilitate such activities and provide adequate resources for enhancing the efficiency and effectiveness of an organisation's product development activities. Furthermore, the field of system engineering is constantly changing and growing as systems become increasingly complex.

Technology alone cannot provide solutions to all the problems involved in engineering a system. Thus a blueprint is needed to identify and define the actual problem, and to show how to effectively and efficiently develop a system that satisfies end users and all other stakeholders while organising the information that is needed to develop the right solution, and also communicating that information to all affected parties while integrating the technical and non-technical product team. Due consideration should be given to the needs of the world at large, e.g. environmental balance, social harmony and economic stability (Banerjee et al., 2017; Poonia et al., 2018; Banerjee et al., 2014; Banerjee and Pandey, 2010; Banerjee and Pandey, 2009).

Objective of the special issue

The primary objective of this special issue is to explore thorough, in-depth and well-focused developments in the field of information management and system engineering. The issue will carry revised and substantially extended versions of presented research contribution at the International Conference on Recent Advances and Applications in Computer Engineering 2017 along with open contributions from other researchers.

Organisation of the special issue

The special issue is organised into seven manuscripts with the following brief description.

Article 1: A smart system of 3D liver tumour segmentation

In this paper, authors have proposed a smart system for semi-automatic segmentation of liver tumour from medical images based on geodesic active contours using level set method is proposed. The system passes through following stages. After the image is loaded, the region of interest (ROI) is selected and the Geodesic Active Contours with level set methods are initialised. Then segmentation result is updated to extract the tumour in three dimensions. The liver tumours detected by the system were compared with those delineated manually by experts, used as the ground truth results. The system was evaluated on Computed Tomography images of different datasets of tumours and compared with other methods. The result of proposed system obtained the Dice SC 0.948 and Jaccard SC 0.902 exhibits the steadfastness and effectiveness of the system.

Article 2: An empirical study on the cellular subscribers churn, selection factors and satisfaction with the services

In this paper, the authors have identified the determinants of customer satisfaction; the attributes that are important while selecting a service provider, to understand the factors for customer churn and identify the relationships between these three constructs with respect to higher mobile data usage. In order to validate the proposed relationship, Confirmatory Factor Analysis using Structure Equation Modelling is used. Findings indicate that one of the important construct of selecting a service provider is customer satisfying experience with the service provider. Also, it has been found that significance of data services is constantly increasing for the subscribers. These findings will be useful to both service providers and researchers to comprehend service quality parameters considering mobile subscribers view point. This can help to re-look the existing benchmarks and increase customer satisfaction.

Article 3: A cloud based architecture for competence management and discovery

In this paper, the authors have defined a method based on conceptual graphs formalism for competence management, and then apply the method for competence discovery and composition on distributed competence and knowledge bases. The paper contributes towards competence and knowledge management literature in two ways. The first contribution is first to formally represent the competences and second to define detailed algorithms for competence discovery and composition. The second contribution is in defining a conceptual architecture for the system of competence management and discovery based on the cloud in order to face the problems related to scalability, to take profit of the benefits of cloud computing technology and as a basis for the proof of concepts.

Article 4: Layered approach of analysing OSS and risk management

In this paper, the authors have provided a detailed and thorough comparison of the OSS with the closed source software, their advantages vis-à-vis the disadvantages and certain other aspects will also be carried out making it simpler and understandable by the readers. Quality Assurance being of prime importance in any field is a must and like any other feature it gains the same amount of importance in this field as well. The bottom line is that this paper facilitates the readers and researchers to understand and analyse OSS and OSSD and simplifies the understanding of this concept with the help of very simple and understandable examples. The importance given by any firm to various factors in the process of producing the finished product have also been touched and analysed at the grass root level by the authors of this paper.

Article 5: Manufacturing simulation of alternate additive manufacturing method using cubes with CATIA macro programming

In this paper, the authors have proposed a layer-less approach which is based on arranging different sizes of cubes to achieve the final product. An algorithm is developed and manufacturing feasibility is simulated using CATIA software and its macros. It was found that the components can be manufactured using this additive manufacturing method without the layer approach. The proposed additive manufacturing method and the algorithm can be applied to additive manufacturing situations demanding very large components to be manufactured with less amount of time.

Article 6: Development of marker-based augmented reality system for object detection in an optimum latency time

In this paper, the authors have proposed an AR system which explains a guideline to detect the fiducial marker by an object (unidirectional movement) at minimum latency time. In this experiment, fiducial marker detection and position orientation with respect to the camera has been processed by “Aforge.NET Framework” in combination with C# language and pose estimation. We designed machine marker detection algorithm and mathematics equation which compute the latency time in different challenging conditions lux, distance frame per second of camera in an optimum latency time.

Article 7: A hybrid classification-based model for automatic text summarisation using machine learning approaches: CBS-ID3MV

In this paper, the authors have proposed a hybrid approach for the generation of automatic text summarisation which is achieved through CBS-ID3MV. A Classification Based model using ID3 and multivariate (CBS-ID3MV) approach produces summaries from the text documents through classification and multiple linear regression. Efficient feature selection and extraction methods identify text features from each sentence, for the purpose of classifying summary sentences. The CBS-ID3MV model is trained with DUC 2002 training documents and the proposed approach’s performance is measured at several compression rates namely 10%, 20% and 30% on the text data. The results got by the proposed framework works better when compared with other summarisers after evaluation using ROUGE metrics.

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