Foreword and Editorial

International Journal of Advanced Science and Technology

We are very happy to publish this issue of an International Journal of Advanced Science and Technology by Science and Engineering Research Support Society.

This issue contains 11 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

The paper “A New Approach for Face Image Enhancement and Recognition” presents a new approach to improve the face recognition accuracy. This approach is based on the contrast enhancement using high-frequency emphasize filtering and histogram equalization. In the presented method, image contrast and the global (or local) visualization are enhanced using digital filtering and equalizing the histogram of the pixel values over entire image. For this, first the face images are transformed into a high-frequency domain and then the global thresholding technique, by Otsu method, is applied to the image. Then, the values lower than threshold has only been considered. For dimension reduction and also feature extraction purpose the linear method such as two dimensional principle component analysis (2DPCA) and two dimensional linear discriminant analysis (2DLDA) are adopted. In the last stage of the algorithm, the simple minimum distance method is exploited for the classification.

Paper “Intelligent Agent Based Operator Support and Beam Orbit Control Scheme for Synchrotron Radiation Sources” presents a novel intelligent agent based operator support and beam orbit control scheme for accelerator control. The proposed multi-agent based scheme is well suited for the multilayer control system architectures of synchrotron radiation sources. The scheme successfully distributes the orbit control job to multiple low complexity reactive agents that work simultaneously and control the local orbit for individual BL and insertion devices (ID) in an optimized manner. The proposed scheme of beam orbit control in particular is very useful for machines like INDUS-2, where new BL are in the process of commissioning as this scheme reduces the operator efforts and accelerator tuning time for providing beam to new BL. It also extends the beam availability to other BL (already installed and in use) as the agent tunes the accelerator in systematic way and under constraints on local orbit bump leakage thereby enabling the use of other BL for routine experiments which otherwise was not possible.

The paper “DSS using AHP in Selection of Lecturer” was conducted to apply Analytical Hierarchy Process (AHP), applied as Decision Support System (DSS) model in selection of lecturer at STAIN Batsangkar. Data collected by through observation and interview done in shares of administration academic data center at college. Here in data analyzed to learn the pattern from method used and added with the reference from literature. Experiment done using Microsoft Excel and Expert Choice Software, known that method can yield the optimal decision in selection of lecturer. There by the method recommended to be applied to getting optimal result in decision making.
The paper “MiWMA: A Novel Web Mining Architecture for Expert Discovery” address the expert-finding task in contemporary communities. A Multifaceted Web Mining Architecture (MiWMA) is proposed and a tool is implemented with data extracted from Growbag, dblpXML and webAuthors home page resource to identify personnel with specific expertise. Two thousand and five hundred author's personal web pages are mined with the underlying criteria of a dozen of key parameters; while parsing on each page in pursuit of 8 thousand topics. This study corroborate this quantification in terms of a measure of expertise. The prototype provides its users to distinguish the level of expertise in a particular area; thus resulting in the capability to mark people with broader expertise.

The paper “An FPGA Based High Speed IEEE - 754 Double Precision Floating Point Adder/Subtractor and Multiplier Using Verilog” deals with Floating Point (FP) addition, subtraction and multiplication that are widely used in large set of scientific and signal processing computation. A high speed floating point double precision adder/subtractor and multiplier are implemented on a Virtex-6 FPGA. In addition, the proposed designs are compliant with IEEE-754 format and handles over flow, under flow, rounding and various exception conditions. The adder/subtractor and multiplier designs achieved the operating frequencies of 363.76 MHz and 414.714 MHz with an area of 660 and 648 slices respectively.

Paper “Effects of Missing Value Estimation Methods in Correlation Matrix - A Case Study of Concrete Compressive Strength Data” deals with concrete compressive strength that is one of the most important factors leading to building construction, in the civil engineering context. While evaluating such data, quantitative analysis required. As it is known that, concrete as a non-homogeneous material, consists of separate phases. The more complicated the concrete, the higher is the compressive strength. But if missing value exists in the microstructure of concrete, then it may provide some unusual effect on the compressive strength of concrete. Thus it is required to deal with the analysis of missing values. In this study traditional and modern estimation techniques of missing values are performed and the effect of these methods on correlation matrix is observed along with their comparison.

The paper “Automatic Traffic Scene Analysis Using Supervised Machine Learning Algorithms - Backpropagation Neural Networks and Support Vector Machines” discusses about automatic traffic scene analysis which has been used for real-time on-road vehicle detection system is essential to many areas of ITS (Intelligent Transport Systems). In order to improve the detection time and accuracy of detection performance, various image processing techniques have been used for real-time vehicle detection. Moreover, Neural Networks have been increasingly and successfully applied to many problems for ITS research topics. Support Vector Machines (SVMs) are currently another efficient approach to vehicle detection because of their remarkable performance. In this research, two different models, Backpropagation which is the best-known neural network model and SVMs have been studied to compare their performance in predictive accuracy, through experiment with real world image data of traffic scenes.

The paper “Multi-Criteria Decision Tree Approach to Classify All-Rounder in Indian Premier League” makes use of Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method to produce the overall performance of the all-rounder of Indian Premier League (IPL) T-20 session-III cricket tournament. The results of TOPSIS method are further used to classify all-rounder in four different categories by using Decision tree. Finally, this
paper proposed a multi-criteria decision tree approach which provides accurate & efficient data classification upon the players’ performance.

The paper “The Foremost Guidelines for Achieving Higher Ranking in Search Results through Search Engine Optimization” is based on reviewing different optimization techniques for individual web-pages or the entire website to make them search engine friendly. Besides, this study also critically analyzes and summarizes the core techniques proposed in the contemporary literature. This paper offers a comparative study of the previous research work regarding the techniques used in SEO and pinpoints certain gaps in the known search engine optimization techniques.

The Author of paper “Effects of Diethyl Ether Additives on Palm Biodiesel Fuel Characteristics and Low Temperature Flow Properties” discusses about diesel engines that are widely used in almost all walks of life and cannot be dispensed with in the near future. As the fossil fuels now mainly used in diesel engine and continually depleting accompanied by increasing consumption and prices day by day, there is a need to find out an alternative fuel to fulfill the energy demand of the world. Alternative fuels like biodiesel, are being used as an effective alternative to diesel. The feasibility of biodiesel production from palm oil was investigated with respect to its fuel properties. Though biodiesel can replace diesel satisfactorily, problems related to fuel properties persist.

Paper “Grading and Classification of Anthracnose Fungal Disease of Fruits based on Statistical Texture Features” analyzes that lesion areas affected by anthracnose are segmented using segmentation techniques, graded based on percentage of affected area and neural network classifier is used to classify normal and anthracnose affected on fruits. Authors have considered three types of fruit namely mango, grape and pomegranate. The developed processing scheme consists of two phases. In the first phase, segmentation techniques namely thresholding, region growing, K-means clustering and watershed are employed for separating anthracnose affected lesion areas from normal area. Then these affected areas are graded by calculating the percentage of affected area. In the second phase texture features are extracted using Runlength Matrix. These features are then used for classification purpose using ANN classifier.

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