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 Novel Islanding Detection Technique for Distributed Generation (DG) Units in Power System” introduces a hybrid passive method for islanding detection to minimize the non-detective zone. This method based on composed of rate of change of frequency over power under each event and rate of change of DG reactive power under each event (ROCORP).

Paper “Aspiration Criteria Based Graph Clustering with Greedy Initialization” proposed an aspiration criteria based graph clustering algorithm using stochastic local search for generating lower cost clustering results in terms of robustness and optimality for real-world complex network problems. In the proposed algorithm, all moves are meaningful and effective during the whole clustering process which indicates that moves are only accepted if the target node has neighbouring nodes in the destination cluster (moves to an empty cluster are the only exception to this instruction). An adaptive approach in this method is in incorporating the aspiration criteria for the best move (lower-cost changes) selection when the best non-tabu move involvements much higher cost compared to a tabued move then the tabued move is permitted otherwise the best non-tabu move is acceptable.

In the paper “Bayesian Analysis of the Kumaraswamy Distribution under Failure Censoring Sampling Scheme”, Authors seeks to focus on Bayesian and non-Bayesian estimation for the shape parameter of the Kumaraswamy distribution under type-II censored samples. Maximum likelihood estimation and Bayes estimation have been obtained using asymmetric loss functions. Posterior predictive distributions along with posterior predictive intervals have been derived under simple and mixture priors. Elicitation of hyper-parameter through prior predictive approach has also been discussed. As analytical comparison is difficult, so comparisons among these estimators have been made using Monte Carlo simulation study and some interesting comparisons have been presented.

The paper “A Decision Tree Approach for Steam Turbine-Generator Fault Diagnosis” is concerned with redundancy and inconsistency that are universal features of the turbine vibration fault diagnosis. If we can provide a solution to the problem, it should be very meaningful that the fault diagnosis data included redundant and inconsistent information could be used to decision-making rules of fault diagnosis. A novel data mining approach for fault diagnosis of turbine generator unit is proposed based on a decision tree in this paper. In terms of history samples library of turbine generator faults, the method applies entropy-based
information gain as heuristic information to select test attributes, and uses ID3 algorithm to generate the decision tree and distilling classification rules are handled.

The paper “Maximum Common Subgraph and Median Graph Computation from Graph Representations of Web Documents Using Backtracking Search” presents that there are several techniques to determine the similarity between same-type objects after constructing graph representations for a set of web documents. This is achieved by graph matching. The measure of similarity may be based on the size of the maximum common subgraph. In this paper, Authors are interested in the problem of maximum common subgraph (MCS) and median graph computation for the purpose of graph clustering using backtracking search. Median of a graph helps in the extension of prevalent term frequency based clustering algorithms to graph based clustering.

Paper “Develop and Implementation of Autonomous Vision Based Mobile Robot Following Human” is related to the development and implementation of autonomous vision based mobile robot following human. Human tracking algorithm is developed to allow a mobile robot to follow a human. A wireless camera is used for image capturing, and Matlab is used to process the image captured, followed by controlling the mobile robot to follow the human. This system allows the robot to differentiate a human in a picture. The foreground and background is separated and the foreground is used to determine the object whether it's human or not. Then classification algorithm is applied to find the centroid of the human.

The paper “Parallel Soft Computing Control Optimization Algorithm for Uncertainty Dynamic Systems” contributes to the on-going research effort by exploring alternate methods for soft computing optimization the highly nonlinear and uncertain systems. This research addresses two basic issues related to the control of an uncertain system; (1) design of a robust feedback controller, and (2) the design of a parallel artificial intelligence based optimization to increase the result qualification. The robust backstepping controller proposed in this research is used to further demonstrate the appealing features exhibited by the continuum robot. Robust feedback controller is used to position control of continuum robot in presence of uncertainties. Using Lyapunov type stability arguments, a robust backstepping controller is designed to achieve this objective. The controller developed in this research is designed in two steps. Firstly, a robust stabilizing torque is designed for the nominal continuum robot dynamics derived using the constrained Lagrangian formulation. Next, the fuzzy logic methodology applied to it to solution uncertainty problem by parallel optimization. The fuzzy model free optimization is formulated to minimize the problem of nonlinear formulation of uncertain systems.

The paper “Prediction of Water Table Elevation Fluctuation through Fuzzy Logic & Artificial Neural Networks” aims at the application of Artificial Neural Networks (ANN) & Fuzzy logic for simulation of water table elevation. This paper also investigates the best model to forecast water table elevation. Ten ANN models are developed in this study. These developed models are trained, tested and validated on the available data of Budaun District.

The paper “An Efficient Proxy Signature Scheme Based On RSA Cryptosystem” deals with a proxy signature that allows a designated person, called a proxy signer, to sign the message on behalf of the original signer. Proxy signatures are very useful tools when one needs to delegate his/her signing capability to other party. A number of proxy signature schemes have been proposed and succeeded for proxy delegations, but the schemes are in
defective in proxy revocations. In this paper, Authors propose a proxy signature scheme based on RSA cryptosystem. The scheme does not consider proxy revocation mechanism, but it is efficient than the existing RSA-based schemes.

The Author of paper “Image Inpainting using Erosion and Dilation Operation” propose a new inpainting algorithm based on morphological erosion and dilation. The erosion operation is used to shrink the unknown area and the dilation operation are used to take the information and texture of the surrounding area.

Paper “Comparison of Steady-State Characteristics between DFIG and SCIG in Wind Turbine” concentrates on analyzing active/reactive power relationship in steady-state between DFIG and SCIG by simulation on MATLAB. Another key task investigated in this paper is comparison of electromechanical torque-slip characteristics between DFIG and SCIG with several different conditions such as interconnecting network strength and type, generator terminal voltage, and rotor resistance.

February, 2013

Wai-Chi Fang, National Chiao Tung University, Taiwan

Editor of the February Issue on International Journal of Advanced Science and Technology