

Guest Editorial Preface

Special Issue on Smart Intelligent Information Systems and Its Applications

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Smart intelligent information systems are a dynamically developing field in computer sciences. This special issue invited the findings and research work related to the application of advanced intelligent technologies for data storing/processing in a wide-ranging context, involving solutions to real-life problems in which it is necessary to apply intelligent technologies to achieve effective results. The emphasis of the reported work is new and original research as well as technological developments rather than reports on the application of existing technology to different sets of data. The key objective of this special issue is to provide an opportunity to all researchers, scholars and practitioners publish high-quality, original and state-of-the-art papers describing theoretical aspects, systems architectures, analysis and design tools and techniques, and implementation experiences in intelligent information systems. This special issue is believed to serve a great help as there are not many journals covering this area.

This special issue on “Smart Intelligent Information Systems and its applications” of the International Journal of e-Collaboration (IJeC) contains six manuscripts which are an excellent work in the area of cloud security, computer-aided diagnosis systems, health care monitoring system, machine learning based IDS and filter design. The accepted manuscripts presented a different perspective of solving any real-world problem and provide directions for various approaches, principles, applications and the implementation of smart intelligent information systems. Each published manuscript has undergone full double-blind peer review, prior to being selected for this special issue. All submitted articles are thoroughly evaluated for novelty and quality.

In the first article “Data Storage security in the cloud environment using the Honeypot System,” explores multiple cloud users can use the same information to create service abnormalities, which is called ‘multitenancy.’ In a multi-tenant model, have to isolate the resources between different users and it is done by segmentation to achieve our goal of data security between multi-users. The author proposes a honey pot system for securing data in the cloud monitoring applications, various cloud security scheme key models, and identifies the audit time and invalid response time.

Authors of the second article, “Border Detection in Skin Lesion Images Using an Improved Clustering Algorithm” applied a well-known algorithm, called K-means to perform computer-aided diagnosis of skin cancer. The authors used a median filter to remove the artifact and tested in a publicly available Dander database. They conducted experimental results, it is evident that the clustering algorithm has performed well in detecting the border of the lesion and suitable for pre-processing dermoscopic images.

The third article, “Identifying fraudulent behaviors in Healthcare Claims using Random Forest Classifier with SMOTEchnique,” the authors identifies fraudulent behaviors in Medicare claim data

using several predictors as model inputs. At initial phase, the feature mining is done by estimating their feature importance score. The labeling of instances are using the classification rules to the whole dataset. Thus, transformed dataset is obtained by model. In the development phase the RF with SMOTE is applied against the training and testing data. Specifically, SMOTE adapted to balance data and sorts misclassified instances and finds the interesting instances. The results of the proposed model improvise the classifier performance RF with SMOTE.

Fourth paper titled, “An Approach to Feature Selection in Intrusion Detection Systems using Machine Learning Algorithms” explores detecting anomalies from the regular events such as data pre-processing, feature selection and classification. The authors implemented a combined feature selection technique such as GRRF-FWSVM to the benchmarked anomaly detection dataset KDD CUP 99 and the results are proved that the proposed hybrid model is an effective method in identifying anomalies and also it increases the detection rate.

In the fifth article, “ASIC Implementation of Linear Equalizer using an adaptive FIR Filter,” the authors present a novel design for linear LMS equalizer for optimization of filter order. An algorithm is applied to reduce and adjust the order of the filter in linear equalizer according to the channel conditions. The proposed design is implemented in synopsis TSMC 65nm technology. Based on the experimental results, proposed filter design scheme consumes less power when compare with the conventional 64-tap fixed length adaptive filter design.

Finally, the last article, “EFS-LSTM (Ensemble-based Feature Selection with LSTM) Classifier for Intrusion Detection System”, the authors proposed a deep recurrent learning model for network intrusion detection systems. The EFS combines five feature selection mechanisms namely, information gain, gain ratio, chi-square, correlation-based feature selection, and symmetric uncertainty-based feature selection. The experiments were conducted using the benchmark NSL-KDD dataset and implemented using Tensor flow and Python.

We would like to extend our thanks to all the authors who have contributed their research results that will definitely a great help or a resource for other researchers working in this area. Special thanks to Dr. Jingyuan Zhao, the Chief Editor of the journal for providing all necessary support required from manuscript submission to its final acceptance. At last but not the least, thanks to Ms. Alexis Miller, assistant development editor, IGI Global, as the work would not have reached to its present form without her invaluable help.

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