

Editorial

Machine Learning and Pattern Recognition are two closely related scientific research areas with an increasing number of theoretical research papers appearing and various newly developed practical applications for professional purposes. Therefore, these topics were included in the International Conference on Informatics and Computer Sciences (CICCI2011) held in Havana, Cuba, on February 7-11, 2011, within the 14th International Convention and Fair INFORMATICA 2011.

At CICCI2011, 181 papers were received and 76 were accepted as full presentations or posters. From the accepted papers, 21 were selected to be reviewed by an international committee of reviewers, being given full consideration for publication in a Special Issue of the Journal "Computación y Sistemas". Each work was reviewed by three reviewers who suggested a number of modifications completed by the authors. Finally, 6 papers were accepted for this special issue. We offer the reader the extended and reviewed versions of these accepted papers. Besides, this issue contains three regular papers of the journal and the report on the PhD thesis.

Three of the selected papers are related to image processing. The paper "Combined Hierarchical Watershed Segmentation and SVM Classification for Pap-Smear Cell Nucleus Extraction" by Maykel Orozco *et al.* proposes a two-phase approach for nuclei segmentation/classification in Pap smear test images. The Support Vector Machine (SVM) classifier is applied and the obtained segmentation/classification results are compared to the alternative segmentation provided by human pathologists. This comparison assures that the results obtained in this paper prove the efficacy of the proposed method.

The paper "Face Image Quality Evaluation for Person Identification" by Heydi Méndez *et al.* describes a framework for assessing whether face images meet the parameter set of the ISO/IEC 19794-5 standard. New algorithms for image analysis and their classification with

respect to the parameters are evaluated and implemented as a dynamic link library.

The paper "Sparse and Non-sparse Multiple Kernel Learning for Recognition" by Mitchel Alioscha *et al.* formulates and discusses multiple kernel learning regularizations and optimization approaches. Its effectiveness is demonstrated and compared to the state-of-art SVM for a Computer Vision Recognition problem.

The other three papers propose methods for machine learning and its applications. The paper "Integration of Association Rules and Clustering Models Obtained from Multiple Data Sources" by Daymí Morales *et al.* describes two methods for integration of models based on association rules and clustering which are built from multiple sources of homogeneous data. The approach is based on heuristic search.

The paper "Combining Classifiers in Bioinformatics" by Isis Bonet *et al.* presents a multiclassifier system and its application in Bioinformatics. The system uses different machine learning methods and learns the best method by using a metaclassifier.

The paper "System-Level Fault Diagnosis with Dynamic Mesh Optimization" by Rafael Falcon *et al.* proposes a method to detect faulty units in diagnosable systems. It is based on the metaheuristic Dynamic Mesh Optimization. The experimental results show that this technique has become a viable approach for real-time fault diagnosis in large-size systems.

This issue includes regular papers of the journal as well. The paper "Inferring Market Strategies: Applying Data-Mining to Analysis of Financial Market" by Jose Luis Gordillo *et al.* presents an application of data mining techniques for extracting knowledge from a huge quantity of data available in financial markets. The method looks for "footprints" in the time series of prices that characterize the distinct trading strategies.

The paper "Near Optimal Solution for Continuous Move Transportation with Time Windows and Dock Service Constraints" by Fabián López *et al.* proposes a model to solve the delivery vehicle routing problem. The approach is

useful in the case of large scale instances where exact algorithms are not suitable.

The paper "A Robust Evidence of the DES Algorithm Strengthened by a Variable Initial Permutation being Efficient" is related to the problem of computational complexity in Variable Permutation algorithms.

The paper "Integrated Digital Adaptive Filter" by María Teresa Zagaceta and Jesús Medel presents a study of various techniques for digital signal filtering to determine which of them provides greater convergence when applied to time-invariant linear systems. This approach is useful in both artificial vision and complex control systems, where information prediction, description, and reconstruction are required.

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Guest Editors