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Selected papers from the 6th International Conference on Soft Computing Models in Industrial and Environmental Applications

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Editorial

Selected papers from the 6th International Conference on Soft Computing Models in Industrial and Environmental Applications

The papers included in this special issue represent a selection of extended contributions presented at the 6th International Conference on Soft Computing Models in Industrial and Environmental Applications, held in Salamanca, Spain, April 6-8th, 2011, and organized by the BISITE and the GICAP research groups.

This special issue is then aimed at practitioners, researchers and postgraduate students who are engaged in developing and applying advanced intelligent systems principles to solving real-world problems. The papers are organized as follows.

In this contribution by Reis et al., they propose a soft computing system for the detection and location, in the natural environment, of bunches of grapes in color images. This system is able to distinguish between white and red grapes, and at the same time, it calculates the location of the bunch stem

The next contribution by Hassanien, and Kim introduces a hybrid approach that combines the advantages of fuzzy sets, pulse coupled neural networks (PCNNs), and support vector machine, in conjunction with wavelet-based feature extraction. An application of Magnetic resonance imaging breast cancer imaging has been chosen and a hybridization approach have been applied to see their ability and accuracy to classify the breast cancer images into two outcomes: normal or non-normal. The experimental results obtained, show that the overall accuracy offered by the employed machine learning techniques is high compared with other machine learning techniques including decision trees, rough sets, neural networks, and fuzzy ARTMAP.

In the third contribution by Jiménez-Come et al., different artificial intelligent tools have been used to model pitting corrosion behaviour of EN 1.4404 austenitic stainless steel. Samples from this material have been subjected to polarization tests in different chloride solutions using different precursor salts: NaCl and MgCl₂. Therefore the aim of this study is to compare the results obtained from different classification models using both solutions studying the influence of them.

The last contribution by Sanz-García et al., introduces three successful experiences based on the use of genetic algorithms and the finite element method in order to solve engineering optimization problems. On one hand, a fully automated method for determining the best material behavior laws is described, and on the other hand the authors present a common methodology to find the most appropriate settings for two cases of improvement in steel industrial processes. The study of the three reported cases allowed to show the reliability and effectiveness of combining both techniques.

The guest editors wish to thank Professor Dov Gabbay, (Editor-in-Chief of Journal of Applied Logic) for providing the opportunity to edit this special issue. We would also like to thank the referees who have critically evaluated the papers within the short time. Finally, we hope the reader will share our joy and find this special issue very useful.

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