EDITORIAL

Pattern Recognition is a very active field of research that faces many challenges in the modern era of massive data collection and high demand for precision and speed. New methodologies and improvements on well established Pattern Recognition techniques are needed to answer these application-born challenges. The goal of this special issue is to present a collection of papers covering different Pattern Recognition problems in areas as image processing, computer vision, document analysis, and data mining.

This issue consists of nine papers selected from a total set of twenty nine papers which were submitted for review and evaluation to an international reviewing committee.

The paper "Adaptive Beamformer Algorithm-Based BMEVA Method for Enhanced Radar Imaging", presented by Rene F. Vázquez Bautista *et al.*, introduces a method to enhance radar images based in the application of specialized image processing techniques, which provides a substantially improved image enhancement and reconstruction preserving the edge features.

Enrique Guzmán Ramírez *et al.* present the paper "Grayscale Image Segmentation Based on Associative Memories". The authors propose an algorithm for grayscale image segmentation based on Extended Associative Memories. This algorithm presents a better performance in time and precision than traditional image segmentation by clustering methods.

The paper "A Fuzzy Reasoning Model for Recognition of Facial Expressions", authored by Oleg Starostenko *et al.*, presents a Fuzzy Reasoning Model and a system designed for Recognition of Facial Expressions, which can measure and recognize the intensity of basic or non-prototypical emotions. The recognition of basic expressions by the system achieves up to 75-90% depending on complexity and subjectivity of expressions.

The paper "Quadrilateral Detection Using Genetic Algorithms" is presented by Victor Ayala Ramirez *et al.* They introduce an approach based on the use of genetic algorithms to detect quadrilateral shapes in images. This approach has as main characteristic that it is fast for quadrilateral detection.

The paper "Recognition-free Retrieval of Old Arabic Document Images", authored by Toufik Sari and Abderrahmane Kefali, proposes an approach for indexing and searching degraded document images without recognizing textual patterns in order to avoid the high cost of the OCR.

David Pinto *et al.*, present the paper "Evaluating n-grams Models for the Bilingual Word Sense Disambiguation Task". This work introduces a probabilistic pattern recognition model for Bilingual Word Sense Disambiguation in sentences containing ambiguous words.

The paper "Document Level Emotion Tagging: Machine Learning and Resource Based Approach" is presented by Dipankar Das and Sivaji Bandyopadhyay. This paper involves the identification of emotions from Bengali blog documents using two separate approaches. The first one is a machine learning approach that accumulates document level information from sentences obtained from word level granular details whereas the second one is a resource based approach that considers the Bengali WordNet Affect, a word level Bengali affective lexical resource.

The paper "Pattern Recognition for the Identification of Learning Style on Educational Mobile and Social Networks Tools", authored by Ramón Zatarain Cabada *et al.*, presents a social learning network to create, view and manage adaptive intelligent tutoring systems based on innovative pattern recognition techniques to identify the student's learning style.

The last paper authored by Andres Gago Alonso *et al.* is entitled "Reducing the Number of Canonical Form Tests for Frequent Subgraph Mining". Here, the authors introduce novel properties to reduce the number of canonical form tests in frequent connected subgraph mining, which allows reducing significantly the number of canonical form tests, getting better runtimes than other algorithms particularly when graph collections are large.

The author Alejandro Israel Barranco Gutiérrez presents a short version of his recent doctoral dissertation called "Automatic Object Recognition Based on Dimensional Relationships", whose advisor is Jesús Medel Juárez.

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