

Editorial

WITH this issue I have yet another good news for you: in addition to ISI Thomson Web of Science (via the SciELO citation index), our journal is now indexed in Redalyc. The Redalyc scientific information system is a network of scientific journals of Latin America and the Caribbean, Spain and Portugal, whose mission is, according to their own statement, “to be a leading platform of open access scientific information services at international level, aimed at meeting the specialized information needs of students, researchers, and decision makers in the area of scientific and technological development, through retrieval and querying of specialized content and generation of metrics to assess quantitatively and qualitatively how science is being done in Ibero-America.”

This new achievement is a result of the hard and high-quality work of the Associate Editors, editorial staff, reviewers, and most importantly the excellence of research contributed by our authors. Congratulations!

This issue of the journal *Polibits* includes ten papers by authors from nine different countries: Colombia, France, Hungary, Mexico, Oman, Saudi Arabia, Spain, Tunisia, and USA. The papers included in this issue are devoted to such topics as network modeling, image processing, data reduction, web analysis, natural language processing, organization modeling, web service design, enterprise content management, memetic algorithms, and job scheduling.

N. Meghanathan from **USA** in his paper “On the Sufficiency of Using Degree Sequence of the Vertices to Generate Random Networks Corresponding to Real-World Networks” investigates whether randomly generated networks with the same degree sequence as the modeled real-work network preserves important metrics of the original network. He shows that the properties of such randomly generated networks maintain very strong correlation with the original network on a number of node- and network-level metrics. This study enables the use of artificially generated networks to study the properties of real-world networks under different scenarios.

I. Hernández Bautista et al. from **Mexico** in their paper “Adjustment of Wavelet Filters for Image Compression Using Artificial Intelligence” present a method for lossless image compressing based on the lifting transform with automatic adjustment of wavelet filter coefficients. They show that their method achieves better compression. They use a pattern recognition method to optimize globally the parameters of the lifting filter for the image.

C. L. Sabharwal and **Bushra Anjum** from **USA** in their paper “Data Reduction and Regression Using Principal Component Analysis in Qualitative Spatial Reasoning and

Health Informatics” show how to achieve data reduction in qualitative spatial reasoning and in health informatics, basing on principal component analysis along with traditional regression algorithms. On both artificial data and real data from the UCI Repository, they demonstrate that their method achieves both a better fit and more significantly reduced number of attributes than those produced by standard logistic regression.

C. Jebari from **Oman** in his paper “A Segment-based Weighting Technique for URL-based Genre Classification of Web Pages” proposes a segment-based weighting technique for genre classification of web pages. While the notion of genre is difficult to define precisely, it can be loosely understood as a category of artistic, musical, or literary composition that uses a particular style, form, or content. For computational analysis, there exist manually annotated datasets that allow quantifying an algorithm’s ability to classify the data into genres. The method suggested in this paper achieves good results on three such datasets used for the experiments.

A. Novák from **Hungary** in his paper “Improving Corpus Annotation Quality Using Word Embedding Models” shows how to improve the quality of automatic annotation of web-crawled corpora using modern word embedding techniques. While automatically collecting and annotating text corpora for natural language processing saves huge effort and provides the researchers with low-cost very large annotated resources for training and testing machine learning methods, this simplicity has its cost in terms of the quality of the obtained resources. The author uses word embedding-based techniques to detect and correct or mitigate various types of language detection, encoding detection, and linguistic annotation errors. He experiments with the Hungarian-language corpora.

C. M. Zapata Jaramillo and **L. F. Castro Rojas** from **Colombia** in their paper “A Method Based on Patterns for Deriving Key Performance Indicators from Organizational Objectives” present a method for computational modeling organizations and assessing their performance indicators basing on such models. Their research is based on the technique proposed ten years ago by the first author, called pre-conceptual schema, which provides UML-like formal language for modeling interrelations between different elements in the organization. Using this method, the authors provide a systematic method for deriving a set of key performance indicators from a specific organizational objective. They illustrate their approach on the material of a specific case study.

G. Vargas-Solar et al. from **France** and **Spain** in their paper “Optimizing Data Processing Service Compositions Using SLA's” propose an approach for optimally accessing data by

coordinating services according to Service Level Agreements for answering queries. They apply their approach to services that produce spatio-temporal data, in the scenario that lacks a full-fledged DBMS that would provide data management functions. Thus, the authors perform query evaluation using reliable service coordinations guided by Service Level Agreements, which are optimized for economic, energy, and time costs.

J. Márquez et al. from **Colombia** in their paper “Recommendation for an Enterprise Content Management (ECM) Based on Ontological Models” present an information retrieval system for an enterprise content manager, based on the use of ontologies. Their system gives the user the options to review the instances of the ontological model and to manage the aliases and ambiguities. The authors compare their system with traditional models.

E. Vega-Alvarado et al. from **Mexico** in their paper “A Memetic Algorithm Applied to the Optimal Design of a Planar Mechanism for Trajectory Tracking” describe a novel memetic algorithm that they called MABS, which is a modification of the Artificial Bee Colony Optimization, with a modified Random Walk algorithm for local search. They test their algorithm on one of optimization problems known to be particularly hard and at the same time important for industrial applications, namely, on the task of synthesis of a four-bar mechanism following a given trajectory. Simulation results show that the mechanism designed by their algorithm achieves

high precision in following the desired trajectory, which shows that their algorithm can be successfully used for solving real-world practical tasks.

N. Nouri and **T. Ladhari** from **Tunisia** and **Saudi Arabia** in their paper “An Efficient Iterated Greedy Algorithm for the Makespan Blocking Flow Shop Scheduling Problem” propose an efficient algorithm for a kind of job scheduling problem called Blocking Flow Shop Scheduling Problem, which is characterized by the absence of buffer for waiting tasks. The algorithm they propose is of greedy type. It proceeds by making an adjustment between two relevant destruction and construction stages in order to minimize the maximum completion time. The performance of the algorithm is measured on Taillard’s benchmark and compared with state-of-the-art methods.

This issue of the journal will be useful to researchers, students, and practitioners working in the corresponding areas, as well as to general public interested in advances in computer science, artificial intelligence, and computer engineering.

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