

Editorial

Nowadays transdisciplinary research is increasing in collaborations research teams, and networks from their specific field for contributing in a more complex framework to transcend in wider complex areas. Diverse methodological integrations have brought new approaches which frequently result in new problems, studies objects, hybrid methods and results. Science becomes more and more wide and open. Transdisciplinary science is the union of variables, concepts, methods and results of different disciplines in a new theoretical body as consequence of this process of science transformation.

The aim of the special issue concerns to develop transdisciplinary theories and practical solutions and strategies, for analysis of different problems studied from: Soft Computing, Applications, Math and Logic Foundations, Knowledge Discovery and Decision-making and Machine learning.

This Special Issue on Hybrid Systems for Analytics is the most recent publication of Eureka International Network: The International Network of Transdisciplinary Science in its effort for advancing from the Hybrid systems approach of Soft Computing towards Transdisciplinary Science, based on different branches of Mathematics and Computer Sciences. It joins papers about a variety of analysis, using different types of data and sources, oriented to decision-making, by different elements of Computational Intelligence. The Special Issue is focused in different Soft Computing hybrid systems in different contexts, representing Eureka efforts for making deeper theoretical approaches of hybridization. It encompasses six quality papers in different related topics of the scope.

The first paper *Feature Selection for Multi-label Learning: A Systematic Literature Review and Some Experimental Evaluations* shows experiments of two multi-label feature selection algorithms that consider label relations according to different strategies in benchmark datasets. Additionally, a wide literature review on multi-labels feature selections is presented.

In the second paper *Gray Scale Edge Detection using Interval-Valued Fuzzy Relations*, Bouchet et al. studying the performance of several Interval-Valued Fuzzy Sets construction methods for detecting edges in a gray scale image and show the importance of an adequate selection of parameters when these methods are applied.

In the paper *Signal Feature Extraction using Granular Computing. Comparative Analysis with Frequency and Time Descriptors Applied to Dynamic Laser Speckle Patterns* by Dai Pra et al. is introduced a real world application. A comparison is made between two important descriptors based in time and frequency processing.

Bastiani et al. developed a method in the paper entitled *Portfolio Optimization from a Set of Preference Ordered Projects Using an Ant Colony Based Multi-objective Approach*, as a part of a Decision Support System that implements a colony algorithm to approximate Pareto front based on modeling of preferences in a project portfolio problem. The main features of the method are an ant colony multi-objective metaheuristic to solve an optimization problem and the improvement of the multicriteria description.

In the paper *Archimedean-Compensatory Fuzzy Logic Systems* by Espin-Andrade et al. a new kind of logic is presented unifying continuous Archimedean fuzzy logic and a compensatory fuzzy logic which includes a quartet of universal and existential operators. In the paper is introduced the concept of compatibility between two fuzzy systems based on the unchanged order of preferences between two vectors evaluated in a predicate.

Eventually, the paper entitled *Bootstrap Kuiper Testing of the Identity of 1D Continuous Distributions using Fuzzy Samples* is a new statistical proposal to test the null hypothesis. Nikolova et al. present an algorithm for simulation-based approximation with four modifications that produce similar results, which differ by the method to generate the synthetic fuzzy sample and by the type of the conditional sample distribution derived from the unified fuzzy sample used in the generation process.

We hope this Special Issue can be a good contribution to advance towards Transdisciplinary Science

using the Transdisciplinary Soft Computing vocation.

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