Foreword

We are delighted to present you the special issue of “Advances in Software Engineering with Soft-Computing”. During the last few years, a large number of researchers from the software engineering discipline are focusing on applying computational intelligence techniques. Problems such as decision making in software engineering, effort estimation, test case generation, etc. can be reformulated using a set of techniques under the umbrella of soft-computing which includes searching and optimization meta-heuristic techniques, data mining, fuzzy logic, probabilistic techniques such as Bayesian networks etc. This special issue is a selection of the papers at the workshop Decision Making in Software Engineering together with an open call.

In the paper, “A Job-Shop Scheduling Model of Software Development Planning for Constraint-based Local Search”, Barba and Del Valle propose a constraint-based model for the Job Shop Scheduling Problem to be solved using local search techniques. The paper focuses on the model which can be used to represent software processes but there a local search algorithm is also presented.

The paper entitled “A Unified Granular Fuzzy-Neuro Framework for Predicting and Understanding Software Quality” by Beldjehem proposes a hybrid fuzzy-neuro system to evaluate the impact of inheritance on software evolution. The author also studies the relevance of inheritance as indicator of class interface stability.

Blanco et al. tackle the problem of automated test case generation in BPEL (Business Process Execution Language) in paper entitled “Test case generation for transition-pair coverage using Scatter Search”. The metaheuristic technique is based on scatter search which is evolutionary technique and results are compared with a random generator.

Ferrer et al also deal with the testing problem in their paper entitled “Correlation Between Static Measures and Code Coverage in Evolutionary Test Data Generation”. The authors analyse whether static measures such as lines of code and McCabe complexity measures can be used to guide the generation of test cases that maximise the coverage of the test cases.

In the paper “A survey using constraints to decision-making for fault tolerance in Business processes”, Gómez-López et al. deal with a Constraint Satisfaction Problem. In this case, the authors propose an approach to automate the search and substitution of activities modelled using BPEL and Web services. The authors describe tasks using constrains and storing them in Constraint databases that allows the search by means of metaheuristics.

The paper entitled “Competitive Intelligence Based on Social Networks for Decision Making” by de la Rosa et al. address the problem of decision making extracting information from the Web using Social Networks Analysis. A case study to guide future research in a specific domain is presented.

Finally, we would like to express our sincere appreciation to all the authors for their valuable contributions and also to the referees for their cooperation and hard work in reviewing the papers in a timely and professional manner.

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