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Foreword

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Metaheuristics emerged and have consolidated as very useful methods for problem solving, due to their efficiency and accuracy when solving hard problems. Nowadays, many problems arising in real-world applications are intrinsically hard to solve, mainly because they have very large solution spaces, include complex mathematical functions, impose hard constraints, and/or manage large volumes of data. In practice, most optimisation problems are NP-hard, and traditional exact techniques (backtracking, dynamic programming, enumeration algorithms, etc.) are often not useful to solve them, as they demand very large execution times. Metaheuristics allow computing accurate solutions for hard-to-solve problems in reasonable execution times, and they are conceived to take advantage of non-exact solutions and the imprecision/uncertainty in the problem data. These features make metaheuristics highly valuable techniques today, as they allow researchers and practitioners to meet realistic resolution delays in many fields of application, ranging from academics (combinatorial optimisation, bioinformatics, software engineering, etc.) to industrial and commercial (logistics, telecommunications, engineering, economics, etc.)

The MIC conference series was established in 1995 and in 2015 was celebrated the 11th edition. MIC is the main event focussing on the progress of the area of metaheuristics and their applications. As in previous editions, MIC 2015 provided an opportunity to the

international research community in metaheuristics to discuss recent research results, to develop new ideas and collaborations, and to meet old and make new friends in a friendly and relaxed atmosphere. The conference welcomed presentations covering all aspects of metaheuristic research such as new algorithmic developments, high-impact applications, new research challenges, theoretical developments, implementation issues, in-depth experimental studies, hybrid metaheuristics, industrial applications, etc.

This special issue convenes researchers in the area of metaheuristics as problem solvers and their application to solve relevant real-word problems. We collected four high-quality papers with the most recent advances in meta-heuristics, including evolutionary algorithms, ant colony algorithms, particle swarm optimisation, etc., which are applied to cutting stock, computational intelligence, scheduling, and smart city applications.

The first article "A Multi-objective Dynamic Programming Based Metaheuristic to Solve a Bi-objective Unit Commitment Problem using a Multi-objective Decoder", by Jacquin et al., authors propose an extension of DYNAMOP to multiobjective optimisation for the multiobjective unit commitment problem (MO-UCP). The proposed algorithm, MO-DYNAMOP, is an hybrid algorithm between a multi-objective genetic algorithm and multi-objective dynamic programming and is based on an indirect representation with a multi-objective decoder. On the MO-UCP, the proposed algorithm has better performance than other state of-the-art algorithms.

The second article "Comparison of two metaheuristics to solve a 2-D cutting stock problem with setup cost in the paper industry" by Bonnevay et al. deals with the Two-Dimensional Cutting Stock Problem with Setup Cost encountered in a paper firm. The optimisation problem consists in identifying the number of each image on each pattern. Two heuristics, SA- 2CSP-S and GA-2CSP-S, respectively a simulated annealing and a genetic algorithm, have been developed and presented in previous conference proceeding. The proposed algorithms improve the manufacturing time and the global cost.

In the article "Simultaneous feature selection and parameter optimisation of support vector machine using adaptive particle swarm gravitational search algorithm", by Sarhani and El Afia, a new hybridisation approach for combining Particle Swarm Optimisation and Gravitational Search Algorithm is proposed. Several features are used, including a mixed variable encoding and adaptive mutation, to enhance the search capabilities. The proposed hybrid algorithm is applied to feature selection, an important problem from the machine learning field, improving over standard resolution methods.

In "Multiobjective evolutionary algorithms for the taxi sharing problem", Massobrio et al. propose addressing this real-world multi-objective problem from the point of view of users. The performance of two metaheuristics, namely NSGA-II and pMOEA/D, are compared to two greedy methods on 88 realistic problem instances of different dimensions. The authors demonstrate empirically that both MOEAs are able improve cost and/or delay significantly, NSGA-II providing the highest quality results.

Finally, the guest editors would like to thank the *International Journal of Metaheuristics* for providing the opportunity to organise this special issue and for his continuous support. We also thank the Inderscience Publishers team for its professional assistance and the anonymous reviewers who helped in selecting the five articles for this special issue. Last but not least we are very grateful to the authors for their excellent contributions. We sincerely hope that the readers will find the selected articles very useful and valuable.