



## Book Selection

### **Handbook of Metaheuristics (2nd edition)**

Michel Gendreau and Jean-Yves Potvin (eds)  
New York: Springer, 2010. 648 pp., £188.50  
ISBN: 978-1441916631 (hardback)

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This is an updated version of the first edition of the *Handbook of Metaheuristics* by Professors Fred Glover and Gary Kochenberger, which appeared in 2003. This revised and updated edited book attempted to be up to speed with the new development in research as well as in the advances in information/computer technology as these two facets go hand in hand to achieve a better understanding and use of heuristic search in general. The two new editors Professors Michel Gendreau and Jean-Yves Potvin are both known in the area of heuristic search, and hence did a good job by convincing those authors to write their updated versions of their original chapters as well as inviting new authors in some of the emerging areas within the heuristic search discipline.

One of the striking differences with the previous version is that most of the remaining old chapters have now incorporated a section or a subsection on the hybridisation with other exact methods or meta-heuristics. I think this is an excellent idea as this has become, and will remain for many years to come, one of the hottest research areas within combinatorial and global optimisation.

In brief, the new version has 21 chapters, two more than the previous one with some chapters removed and new ones obviously added. Updated and revised versions of the old chapters include simulated annealing, tabu search, variable neighbourhood search, scatter search, genetic algorithm,

memetic algorithms, ant colony, multi starts, grasp, guided local search, hyper-heuristics and parallel meta-heuristics. The seven new ones cover recent or emerging research areas within the field of heuristics. These include large-scale neighbourhood, artificial immune system, meta-heuristic hybrids, reactive search, stochastic search, fitness landscape and the comparison of heuristics. It is hard to compare between chapters as all contribute, in their own way, extremely well. The editors did a good job by bringing these new chapters to inject extra spice to the book while introducing some of the new and emerging hot research areas within heuristic search.

I found the book rather interesting, informative and refreshing even though I was familiar with most of the content; so I believe it would be a valuable addition to the reader whether or not he/she is aware of these techniques. I was even more interested by a few chapters that happened to be easy to read and addressing those new research avenues which I also believe to be academically challenging and practically worthwhile.

This book is useful for those who already have experience in some of the meta-heuristics or those researchers that enjoy exploring various meta-heuristics without any bias towards any special one. At £153, it could be hard to find individual people interested in buying it. However, this can be an interesting and a valuable addition to our libraries, research centres or institutions, and also to those IT/OR consultants who can enhance their competitive advantage by understanding the strengths and the weaknesses of a given meta-heuristic that might be used and adapted to their practical needs. Finally, it is worth noting that this book can also be accessed free of charge via the web that could hopefully be helpful and attractive to students so as to get them interested in this fascinating area of research.

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