Prof. El-Ghazali Talbi

Metaheuristics for multi-objective optimization - A unified view
This talk presents an unified view of metaheuristics for multi-objective optimization.
A substantial number of metaheuristics for multi-objective problem solving has been proposed so far, and an attempt of unifying existing approaches is here presented. Based on a fine-grained decomposition and following the main issues of fitness assignment, diversity preservation and elitism, a conceptual global model is proposed and is validated by regarding a number of state-of-the-art algorithms as simple variants of the same structure.

The presented model is then incorporated into a general-purpose software framework dedicated to the design and the implementation of multi-objective metaheuristics optimization techniques: ParadisEO-MOEO. This package has proven its validity and flexibility by enabling the resolution of many real-world and hard multi-objective optimization problems.

Reference :

-E-G. Talbi, "Metaheuristics: from design to implementation", Wiley, 2009 (Chap 4).
- ParadisOE: http://paradiseo.gforge.inria.fr

Key words: Metaheuristics, Evolutionary algorithms, Multi-objective optimization, Conceptual unified model, Software frameworks.

Biography :
Prof. El-ghazali Talbi received the Master and Ph.D degrees in Computer Science, both from the Institut National Polytechnique de Grenoble in France. Then he became an Associate Professor in Computer Sciences at the University of Lille (France). Since 2001, he is a full Professor
at the University of Lille and the head of the optimization group of the Computer Science laboratory (LIFL). His current research interests are in the field of multi-objective optimization, parallel algorithms, metaheuristics, combinatorial optimization, cluster and grid computing, hybrid and cooperative optimization, and application to logistics/transportation, bioinformatics and networking.

Professor Talbi has to his credit more than 300 publications in journals, chapters in books, and conferences. He is the co-editor of five books. He was a guest editor of more than 10 special issues in different journals (Journal of Heuristics, Journal of Parallel and Distributed Computing, European Journal of Operational Research, Theoretical Computer Science, Journal of Global Optimization). He is the head of the INRIA Dolphin project and the bioinformatics platform of the Genopole of Lille. He has many collaborative national, European and international projects.

He is the co-founder and the coordinator of the research group dedicated to Metaheuristics: Theory and Applications (META). He is the founding co-chair of the NIDISC workshop on nature inspired computing (IEEE/ACM IPDPS). He served in different capacities on the programs of more than 100 national and international conferences. He is also the organizer of many conferences (e.g. EA'2005, ROADEF'2006, META'2008, IEEE AICCSA'2010).