Special Issue on
Automated Design and Assessment of Heuristic Search Methods
Evolutionary Computation Journal, MIT Press
http://ecj.lri.fr/
SUBMISSION DEADLINE: December 31, 2010

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Description:
There is a renewed and growing research interest in automating the design and improving the empirical assessment of heuristic search methods. Different strategies have recently been proposed for supporting the generation, selection, or tuning of effective search and optimization algorithms. By providing sound statistical and adaptive techniques, these strategies enable an interactive or even an automated way for improving search heuristics. Several approaches have been proposed which incorporate machine learning, statistical assessment, or meta-level search over a space of strategy parameters or heuristic components. The quest for these methods is spawning a considerable amount of interdisciplinary research, mainly between the fields of computer science, artificial intelligence, operations research, optimization, statistics, and machine learning.

The aim of this special issue is to collect original work in this interdisciplinary area. We look for submissions advancing the quality of experimental methods and proposing automated or interactive methodologies for designing, tuning, and generating search heuristics. The overall goal of submitted papers should be the development of more scientifically sound and generally applicable search methodologies. The publication of the special issue is tentatively scheduled for Summer 2012. Relevant topics are:

- Adaptive operator selection and multi-meme algorithms
- Applications to multi-objective and dynamic environments
- Hyper-heuristics
- Generation of class-specific heuristics (e.g. using genetic programming)
- Generation of data sets for benchmarking
- Methods for algorithm selection in algorithm portfolios
- Modeling algorithm behavior over time and applications of survival analysis
- Learning methods for algorithm analysis and design
- Simulation techniques and meta models for algorithm analysis
- Tuning and configuration: new methods and comparison of existing ones

Submission:
Authors should submit their manuscripts to the Evolutionary Computation Editorial Manager at `http://ecj.lri.fr/`. When submitting a paper, please send at the same time also an email to Gabriela Ochoa (`gxo@cs.nott.ac.uk`) *and* a copy to `ecj@lri.fr` mentioning the special issue, the paper title, and author list to inform about the submission.