Editorial

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The Genetic and Evolutionary Computation Conference (GECCO) 2007 was held July 7–11 in London, United Kingdom. For the first time, it featured a track dealing with theory papers in a strict sense, meaning that all results had to be proven by mathematical means. This special issue contains extended versions of selected papers that were presented in this track.

In the first paper “Continuous lunches are free plus the design of optimal optimization algorithms”, Anne Auger and Olivier Teytaud discuss to what extent the classical No-Free-Lunch theorem holds in infinite search domains. They show that in countable search spaces a weaker version of the results can be proven, while in continuous settings a natural extension the No-Free-Lunch theorem is not true.

The paper “Stability in the Self-Organized Evolution of Networks” of Thomas Jansen and Madeleine Theile deals with the self-organized evolution of networks. In particular, the authors investigate whether stable topologies can be obtained by an evolutionary process and analyze the time until such situations are reached. This leads to improved results for an evolutionary process already known in the literature and a new and natural approach based on local fitness-based selection, which reaches a stable state in expected polynomial time.

In the paper “Analysis of Evolutionary Algorithms for the Longest Common Subsequence Problem”, Thomas Jansen and Dennis Weyland study the behavior of a wide class of evolutionary algorithms for the longest common subsequence problem. They

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present several negative results for the use of evolutionary algorithms when dealing with this problem. Concerning the approximation behavior of their algorithms they even show that they do not obtain a 2-approximation in expected polynomial time.

Finally, in the paper “Evolutionary Algorithms and Matroid Optimization Problems”, Joachim Reichel and Martin Skutella investigate how simple evolutionary algorithms can deal with matroid optimization problems. For this aim they generalize well-known results from the literature. They show that evolutionary algorithms compute minimum weight bases in expected polynomial time and give approximation guarantees for evolutionary algorithms dealing with matroid intersection problems.

The guest editors wish to thank all authors for contributing in this special issue. Furthermore, we thank the referees for their thorough proof-reading and their constructive comments. A big thank you also goes to Professor Ming-Yang-Kao, editor of *Algorithmica*, and his team for their help and support.

Guest Editors