

**Melab, N.; Cahon, S.; Talbi, E-G.**

**Grid computing for parallel bioinspired algorithms.** (English) Zbl 1103.68977

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This paper focuses on solving large size combinatorial optimization problems using a Grid-enabled framework called ParadisEO-CMW Parallel and Distributed EO on top on Condor and the Master Worker Framework). The latter is an extension of ParadisEO, an open source framework originally intended to the design and deployment of parallel hybrid meta-heuristics on dedicated clusters and networks of workstations. Relying on the Condor-MW framework, it enables the execution of these applications on volatile heterogeneous computational pools of resources. The motivations, architecture and main features will be discussed. The framework has been experimented on a real-world problem: feature selection in near-infrared spectroscopic data mining. It has been solved by deploying a multi-level parallel model of evolutionary algorithms. Experimentations have been carried out on more than 100 PCs originally intended for education. The obtained results are convincing, both in terms of flexibility and easiness at implementation, and in terms of efficiency, quality and robustness of the provided solutions at run time.

**MSC:**

**68W10** Parallel algorithms in computer science

**68M10** Network design and communication in computer systems

Cited in **7** Documents

**Keywords:**

meta-heuristics; parallelism; frameworks; Grid computing; spectroscopic data mining

**Software:**

ParaDisEO; EasyLocal++; EOLib; MALLBA; HTCCondor MW

**Full Text:** [DOI](#)