Advances in Metaheuristics on GPU

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Abstract. Problems in practice are becoming more and more complex and CPU time-intensive and their resolution requires to harness more and more computational resources. The use of GPU computing has been proven to be extremely useful to speed up many complex algorithms. Indeed, the re-design of parallel metaheuristics models on GPU allows to solve large scale optimization problems. As a main result, we already proposed methodologies for building efficient parallel algorithms on GPUs. In this presentation, we highlight different extensions of our research work. First, an application of our approaches for multiobjective optimization algorithms is presented. Second, we briefly show how our previous contributions can be integrated in the ParadisEO framework. Finally, extra experiments demonstrate the powerful potential of GPU-based metaheuristics compared to cluster or grid-based parallel architectures.