

Scheduling on new computing platforms

Mots clés :

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- **Unité de recherche** : Laboratoire d'informatique de Paris 6
- **Ecole doctorale** : École Doctorale Informatique, Télécommunications, Électronique de Paris
- **Domaine scientifique principal**: Divers

Résumé du projet de recherche (Langue 1)

The applicative framework is the efficient management of resources (processing, memory, network) on new large-scale computing platforms composed of a huge number of hierarchical computing units (multi-core machines with GPU accelerators). These new features created new hopes for the users, but they also induce new problems. The existing software tools are not well-suited in practice. In particular, they target mostly the maximum completion time of a set of applications. We aim in this Ph-D to study other (unconventional) objectives like lateness or fairness. Moreover, the always growing computing power of the new parallel platforms created new objectives. Thus, we need to study this problem from a multi-objective perspective for taking into account simultaneously these contradictory attempts. The proposed approach will consist in determining adequate execution models, able to take into account the characteristics of the new platforms. We are interested in designing scheduling algorithms determined by exact methods for some specific applications and approximation algorithms with performance guarantee in more general settings.

Résumé du projet de recherche (Langue 2)

The objective of this Ph-D is to study and design new algorithms for scheduling applications in new computing platforms using the most recent analysis techniques. A special emphasis will be put on optimization of non-conventional objectives and multi-objective optimization.