
Parallel Computing (ParCo) Journal from Elsevier (Impact Factor: 1.309)

Special Issue on Parallel Architectures and Bioinspired Algorithms

Bioinspired algorithms are metaheuristics, inspired by natural phenomena in a broader sense, that have proven effective for difficult combinatorial optimization problems appearing in various industrial, economical, and scientific domains. Parallel Computer Architecture and Bioinspired Algorithms have been coming together during the last years. On one hand, the application of Bioinspired Algorithm to solve difficult problems has shown that they need high computation power and communications technology. Parallel architectures and Distributed systems have offered an interesting alternative to sequential counterparts. On the other hand, Bioinspired algorithms comprises a series of heuristics that can help to optimize a wide range of tasks required for Parallel and Distributed architectures to work efficiently. Genetic Algorithms (GAs), Genetic Programming (GP), Ant Colonies Algorithms (ACOs), Estimation of Distribution Algorithms (EDAs) or Simulated Annealing (SA) are nowadays helping computer designers on the advance of Computer Architecture, while improvement on parallel architectures are allowing to run computing intensive Bioinspired algorithms for solving other difficult problems. This special issue particularly welcomes the application of ideas taken from parallel, cluster and grid computing to algorithms inspired by nature and the application of Bioinspired Algorithm for solving parallel architecture optimization problems.

The purpose of this special issue will be to present to the readership of Parallel Computing a reference of the state-of-the-art in the synergies arising from different but related fields: Parallel Computer Architectures, Parallel and Distributed Computing, and Bioinspired Algorithms. Our objective is to present a collection of articles which (1) discuss the role which parallelism has played and is playing nowadays in these algorithms;

(2) present papers dealing with the use of Parallel and Distributed EAs in parallel architecture optimization problems (3) examine the importance of cluster and grid computing techniques, and the problems and challenges that they introduce for attaining successful implementations of Parallel and Distributed Bioinspired Algorithms. The topic is relevant and significant for researchers using Metaheuristics inspired by nature as well as for researchers working on parallel and distributed computing.

Subjects will include (but are not limited to):

- Evolutionary Algorithms for Parallel Computer Architectures optimization
- Computer Architecture optimizations using other biologically inspired algorithms: Ant Colonies, Immune Systems, Artificial Life, Cultural Algorithms, etc.
- Cluster and Grid Deployment of Bioinspired Algorithms.
- Desktop Grids infrastructures for supporting Bioinspired Algorithms.

- Large Scale Parallel Processing.
- Heterogeneous Computing Platforms for Bioinspired Algorithms.
- Improvement on Scheduling techniques by means of Bioinspired Algorithms
- Fault tolerant implementations of PEAs.
- Performance evaluation of Parallel and Distributed EAs implementations and models
- Improvement in system performance through optimization and tuning.
- Parallel Reconfigurable Architectures for Bioinspired Algorithms.
- Graphics processing units and Evolutionary Algorithms
- parallel and distributed evolutionary algorithms models

Important dates:

- * Paper submission deadline: December 15, 2009
- * Notification of acceptance: March 15, 2010

Paper Submission:

Submission to this journal proceeds totally online at <http://ees.elsevier.com/parco/> and you will be guided stepwise through the creation and uploading of your files. The system automatically converts source files to a single PDF file of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF files at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail removing the need for a paper trail.

Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals. All submissions will be peer reviewed subject to the standards of the journal. Manuscripts based on previously published conference papers must be extended substantially.

IMPORTANT NOTE: To ensure that all manuscripts are correctly identified for inclusion into the special issue, it is important that authors select ?Special Issue: PABA? when they reach the ?Article Type? step in the submission process.

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