Programming Environment for Applications of Parallel Genetic Algorithms

Fact Sheet

Project Information

PAPAGENA

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Project closed

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24 August 1992

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Specific research and technological development programme (EEC) in the field of information technologies, 1990-1994

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No data

EU contribution
No data

Coordinated by
Brainware Gesellschaft für Artificial Intelligence Systementwicklung und -beratung mbH
Germany

Objective

Genetic algorithms in general, and parallel genetic algorithms in particular, are of major importance in the development of the new generation of IT applications. The potential which parallel genetic algorithms offer over existing information processing techniques is enormous. Genetic algorithms are ideally suited to the processing,

classification and control of large-volume and varied data.

The PAPAGENA project aims to demonstrate applications and develop a programming environment for parallel genetic algorithms. The applications will underscore the usefulness of genetic algorithms in the European industry, while the programming environment work aims to establish a European standard.

The environment, called GAME (Genetic Algorithm Manipulation Environment), under development at present, provides a general-purpose toolkit for the programming and simulation of a wide range of genetic algorithm applications. It comprises a library of common genetic algorithms and a powerful graphical interface. In addition, the project exploits the intrinsic parallelism of genetic algorithms and will develop a compiling and mapping system for users of European high-performance supercomputers (particularly transputer-based systems) and future architectures to be provided by OMI (the Open Microprocessor Systems Initiative).

The target application areas for the demonstrators will be:

- protein folding, where the aim is to develop a method for calculating optimal polypeptide conformations by combining force-field energy calculations (based on semi-empirical parameters) with parallel genetic algorithms
- financial modelling, where a credit marketing and risk assessment decision-support tool will be developed - economic modelling, where a model for predicting industrial site clustering in Brandenburg has been developed.

To advance the application of genetic algorithm technology, a Genetic Algorithm European Economic Interest Group (EEIG) is in the process of being formed, comprising leading companies from across Europe. By allowing leading companies to monitor the building of genetic algorithm applications in PAPAGENA and giving them early access to the GAME programming environment, the consortium hopes to encourage the rapid take-up of the technology.

Fields of science (EuroSciVoc)

engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > computer hardware > **computer processors**

natural sciences > biological sciences > biochemistry > biomolecules > proteins > **protein folding**

engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > computer hardware > **supercomputers**

natural sciences > computer and information sciences > data science > **data processing**

Programme(s)

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Topic(s)

Data not available

Call for proposal

Data not available

Funding Scheme

Data not available

Coordinator

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EU contribution

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Total cost

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Total cost

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