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Comparison of selection operators in Genetic algorithms for the function optimization

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The basic concepts of Genetic algorithms and the most frequently used selection operators are described. Firstly, the known effects of selection operators on the De Jong's test bed functions are exposed. After that, the new selection operators are applied on the same test bed functions and the obtained results are presented. On this way the relation between the old and new selection operators for Genetic algorithms are established.

NUMIN - Educational Software For Numerical Integration

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The main goal of this package created for the first-year students at the Faculty of Civil Engineering, is to help students to understand and accept the methods and ideas of numerical analysis through one of its topics:numerical integration. The importance of numerical integration may be appreciated from the fact that for most integrals there is no representation in terms of elementary functions and approximation becomes necessary.

The use of this software does not require much background because it is self-explanatory. The user can make a choice between three major parts of the package. The first part is theoretical and gives all the formulae (illustrated by examples and graphs) for the trapezoidal rule, the Simpson's rule, etc., the correction terms, explains error sources and different methods of error estimation, develops the idea of adaptive integration. The second part is the one with solved problems, where complete solutions are given. It involves also the comparison of results when different methods are used for the same function and/or when the data are augmented by adding new points in the interval of integration. The concluding part gives supplementary problems which the user has to solve. Each step is controlled and corrected, if necessary. Some appropriate notices follow the answers/results because there is no any other reward except the pleasure of learning and understanding.

Simulation Of Artificial Neural Networks On Multiprocessor Neural Computer NEURON

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In this paper the software support for the multiprocessor neural computer Neuron is presented. This neural computer was developed in the Laboratory for automatic control. The neural computer Neuron is based on MULTIBUS II system. One MULTIBUS II neural module consists of 32 processing elements, which are controlled by the module's controller. Also, module's controller connect them with the parallel system bus. Every neuron of artificial neural network is simulated by one processing element of the multiprocessor system. The purpose of described software is simulation of multilayer feed-forward neural networks. The neural network is trained by the back-propagation learning algorithm. Simulation results are shown and discussed in this paper. The neural computer with 6 processing elements is observed and results are extrapolated for systems with up to few hundreds processing elements.

Computational Analysis of a Multi Level Tabu Search Technique

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The paper proposes a multilevel Tabu Serach technique for solving global optimization problems and analyses its dependence on the choice of parameters. In particular, the analysis focuses on Tabu lists lengths and Tabu cube sizes. The tests are performed on some standard examples from the literature.