

Call For Papers

Special issue of

IEEE Transactions on Evolutionary Computation

on

Analysis and Design of Representations and Operators

Guest editors: F. Rothlauf and D. Thierens

Aim

Successful and efficient use of evolutionary algorithms (EAs) depends on the choice of the problem representation and the variation operators. These choices cannot be made independently of each other. The question whether a certain representation leads to better performing EAs than an alternative representation, can only be answered when the operators applied are taken into consideration. The reverse is also true: deciding between alternative operators is only meaningful in the context of a given representation. Clearly, this choice is problem-dependent, but despite the importance of choosing proper representation-operator combinations on the performance of EAs, little general applicable theory and knowledge is available to help understanding and guiding the construction of high-quality representations and operators for solving problems successfully and efficiently with EAs.

The aim of the special issue is to provide a clear view of the state-of-the-art in the analysis and design of representations and operators. We are therefore soliciting papers that discuss the influence and importance of a proper choice of representations and operators for EA design, ranging from theoretical analysis to relevant and interesting real-life applications.

Topics

- Theoretical and empirical properties of representations and/or operators
- Interference between representations and operators
- Predictive performance measures for evaluating representation and operator choices
- Practical guidelines to design representation/operator combinations for a particular problem
- Redundant versus non-redundant problem representations
- High-locality versus low-locality representations
- Search space bias of representations and operators

Author instructions

All manuscripts should be prepared following the format standards of the journal available at <http://www.ieee-nns.org/pubs/tec/tecauthors.html>. Articles should preferably be submitted electronically to one of the guest editors, or *six* copies should be sent by regular mail to one of the addresses below. An IEEE Transactions LaTeX and Microsoft Word style file can be obtained by email at help@ieee.org or downloaded from <http://www.ieee.org/pubs/authors.html>.

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