

Special Issue on
“Theoretical Foundations of Evolutionary Computation”
in *Theoretical Computer Science* (Elsevier)

Submission Deadline: September 30, 2009.

Guest Editors:

Per Kristian Lehre, University of Birmingham, UK. p.k.lehre@cs.bham.ac.uk

Frank Neumann, Max Planck Institute for Informatics, Germany. fne@mpi-inf.mpg.de

Jonathan E. Rowe, University of Birmingham, UK. j.e.rowe@cs.bham.ac.uk

Xin Yao, University of Birmingham, UK. x.yao@cs.bham.ac.uk

Description:

The theory of evolutionary computation (including, for example, run-time analysis of evolutionary algorithms, population dynamics, and fitness landscape analysis) has grown rapidly in recent years. Many papers have appeared in the last few years on various aspects of evolutionary computation theory. However, most of these papers were scattered among different journals in evolutionary computation, operations research and computer science, addressing different theoretical issues. It is high time to bring all such theoretical work together and examine the fundamental challenges in a single venue. The primary aim of this special issue is to report the latest development in **foundations** of evolutionary computation. It is envisaged that this special issue will serve as a milestone in reporting the latest breakthroughs and setting new directions in evolutionary computation.

Potential authors are invited to submit papers describing **original** contributions to **foundations** of evolutionary computation. Although we are most interested in theoretical foundations, computational studies of a foundational nature may be considered. We interpret evolutionary computation in a broad sense in this special issue to include all meta-heuristics such as evolutionary algorithms, swarm intelligence (e.g., ant colony optimisation and particle swarm optimisation), differential evolution, culture algorithms, artificial immune systems, etc. This special issue will consider papers on a number of topics, including but not limited to, population dynamics, self-adaptation, run-time analysis of meta-heuristics, fitness landscapes and problem difficulty, and no free lunch theorems. All problem domains will be considered, including combinatorial and continuous optimisation, single-objective and multi-objective optimisation, constrained handling, dynamic and stochastic optimisation, co-evolution and evolutionary learning.

Submission:

Authors should submit their manuscripts to the *Theoretical Computer Science* Editorial Manager at <http://ees.elsevier.com/tcs/> and indicate “**Special Issue: T. F. Evolution. Comp. (Yao)**” for their submission. All submitted papers must be the original work, not published before nor under consideration by another journal or conference.