



Adaptive Operator Selection and Management in Evolutionary Algorithms

Submitted by Frédéric Saubion on Wed, 03/11/2015 - 10:41

Titre Adaptive Operator Selection and Management in Evolutionary Algorithms

Type de publication Chapitre

Type Ouvrage scientifique

Année 2012

Langue Anglais

Pagination 161-189

Titre de l'ouvrage Adaptive Operator Selection and Management in Evolutionary Algorithms

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Editeur Springer-Verlag

ISBN 978-3-642-21434-9

Résumé en anglais

One of the settings that most affect the performance of Evolutionary Algorithms is the selection of the variation operators that are efficient to solve the problem at hand. The control of these operators can be handled in an autonomous way, while solving the problem, at two different levels: at the structural level, when deciding which operators should be part of the algorithmic framework, referred to as Adaptive Operator Management (AOM); and at the behavioral level, when selecting which of the available operators should be applied at a given time instant, called as Adaptive Operator Selection (AOS). Both controllers guide their choices based on a common knowledge about the recent performance of each operator. In this chapter, we present methods for these two complementary aspects of operator control, the ExCoDyMAB AOS and the Blacksmith AOM, providing case studies to analyze them in order to highlight the major issues that should be considered for the design of more autonomous Evolutionary Algorithms.

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DOI 10.1007/978-3-642-21434-9_7 [8]

Lien vers le document http://dx.doi.org/10.1007/978-3-642-21434-9_7 [8]

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