



Extreme compass and Dynamic Multi-Armed Bandits for Adaptive Operator Selection

Submitted by Emmanuel Lemoine on Mon, 10/06/2014 - 18:25

Titre	Extreme compass and Dynamic Multi-Armed Bandits for Adaptive Operator Selection
Type de publication	Communication
Type	Communication avec actes dans un congrès
Année	2009
Langue	Anglais
Date du colloque	2009
Titre du colloque	IEEE Congress on Evolutionary Computation, 2009. CEC '09
Titre des actes ou de la revue	IEEE Congress on Evolutionary Computation, 2009. CEC '09
Pagination	365 - 372
Auteur	Maturana, Jorge [1], Fialho, Alvaro [2], Saubion, Frédéric [3], Schoenauer, Marc [4], Sebag, Michèle [5]
Pays	Norvège
Ville	Trondheim
ISBN	978-1-4244-2958-5 / 978-1-4244-2959-2
Mots-clés	adaptive control [6], adaptive operator selection methods [7], Algorithm design and analysis [8], Diversity reception [9], dynamic multiarmed bandits [10], Encoding [11], evolutionary algorithms [12], Evolutionary computation [13], Genetic mutations [14], optimisation [15], Optimization methods [16], process control [17], Programmable control [18], satisfiability problem [19], synergetic effect [20], Testing [21]
Résumé en anglais	<p>The goal of adaptive operator selection is the on-line control of the choice of variation operators within evolutionary algorithms. The control process is based on two main components, the credit assignment, that defines the reward that will be used to evaluate the quality of an operator after it has been applied, and the operator selection mechanism, that selects one operator based on some operators qualities. Two previously developed adaptive operator selection methods are combined here: Compass evaluates the performance of operators by considering not only the fitness improvements from parent to offspring, but also the way they modify the diversity of the population, and their execution time; dynamic multi-armed bandit proposes a selection strategy based on the well-known UCB algorithm, achieving a compromise between exploitation and exploration, while nevertheless quickly adapting to changes. Tests with the proposed method, called ExCoDyMAB, are carried out using several hard instances of the satisfiability problem (SAT). Results show the good synergetic effect of combining both approaches.</p>
Notes	Date du colloque : 05/2009

URL de la notice <http://okina.univ-angers.fr/publications/ua4491> [22]
DOI [10.1109/CEC.2009.4982970](https://doi.org/10.1109/CEC.2009.4982970) [23]
Lien vers le document en ligne <http://dx.doi.org/10.1109/CEC.2009.4982970> [23]

Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=7534](http://okina.univ-angers.fr/publications?f[author]=7534)
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=15500](http://okina.univ-angers.fr/publications?f[author]=15500)
- [3] <http://okina.univ-angers.fr/frederic.saubion/publications>
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=7582](http://okina.univ-angers.fr/publications?f[author]=7582)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=15501](http://okina.univ-angers.fr/publications?f[author]=15501)
- [6] [http://okina.univ-angers.fr/publications?f\[keyword\]=8812](http://okina.univ-angers.fr/publications?f[keyword]=8812)
- [7] [http://okina.univ-angers.fr/publications?f\[keyword\]=8995](http://okina.univ-angers.fr/publications?f[keyword]=8995)
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=8644](http://okina.univ-angers.fr/publications?f[keyword]=8644)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=8996](http://okina.univ-angers.fr/publications?f[keyword]=8996)
- [10] [http://okina.univ-angers.fr/publications?f\[keyword\]=8997](http://okina.univ-angers.fr/publications?f[keyword]=8997)
- [11] [http://okina.univ-angers.fr/publications?f\[keyword\]=8998](http://okina.univ-angers.fr/publications?f[keyword]=8998)
- [12] [http://okina.univ-angers.fr/publications?f\[keyword\]=8813](http://okina.univ-angers.fr/publications?f[keyword]=8813)
- [13] [http://okina.univ-angers.fr/publications?f\[keyword\]=8904](http://okina.univ-angers.fr/publications?f[keyword]=8904)
- [14] [http://okina.univ-angers.fr/publications?f\[keyword\]=8999](http://okina.univ-angers.fr/publications?f[keyword]=8999)
- [15] [http://okina.univ-angers.fr/publications?f\[keyword\]=3763](http://okina.univ-angers.fr/publications?f[keyword]=3763)
- [16] [http://okina.univ-angers.fr/publications?f\[keyword\]=8878](http://okina.univ-angers.fr/publications?f[keyword]=8878)
- [17] [http://okina.univ-angers.fr/publications?f\[keyword\]=6678](http://okina.univ-angers.fr/publications?f[keyword]=6678)
- [18] [http://okina.univ-angers.fr/publications?f\[keyword\]=9000](http://okina.univ-angers.fr/publications?f[keyword]=9000)
- [19] [http://okina.univ-angers.fr/publications?f\[keyword\]=9001](http://okina.univ-angers.fr/publications?f[keyword]=9001)
- [20] [http://okina.univ-angers.fr/publications?f\[keyword\]=9002](http://okina.univ-angers.fr/publications?f[keyword]=9002)
- [21] [http://okina.univ-angers.fr/publications?f\[keyword\]=4024](http://okina.univ-angers.fr/publications?f[keyword]=4024)
- [22] <http://okina.univ-angers.fr/publications/ua4491>
- [23] <http://dx.doi.org/10.1109/CEC.2009.4982970>

Publié sur *Okina* (<http://okina.univ-angers.fr>)