

Metaheuristic Chess Artificial Intelligence

Maciej Borkowski 195968@student.pwr.edu.pl Mariusz Waszczyński xxxxxx@student.pwr.edu.pl

Paweł Pałus zzzzzz@student.pwr.edu.pl

Abstract

Index Terms: chess, metaheuristics, artificial intelligence, ant colony, genetic, simulated annealing

1 Introduction

Hello

2 Optimization Problem

The problem describes a standard game of chess, with a square board of 64 fields. Two players have to consecutively move a piece the board onto another field according to complex, well-defined rules. Our task is to find the series of movements in a game of chess that gives the best chance of winning the game in the end. The starting position of pieces can be arbitrary.

2.1 Mathematical model

From card, expand on it

3 Experimentation system

About the application

- 3.1 UCI
- 3.1.1 Firenzina
- 3.2 GUI

About the GUI

4 Algorithms

- 4.1 Ant colony
- 4.1.1 what?
- 4.1.2 gui/experiment
- 4.1.3 result
- 4.2 Genetic algorithm
- 4.2.1 what?
- 4.2.2 gui/experiment
- 4.2.3 result
- 4.3 Simulated Annealing
- 4.3.1 what?
- 4.3.2 gui/experiment
- 4.3.3 result

5 Conclusion

It was fun / not fun.

References

- [1] Vecek, N.; Crepinsek, M.; Mernik, M.; Hrncic, D., A comparison between different chess rating systems for ranking evolutionary algorithms
- [2] Dorigo, M.; Maniezzo, V.; Colorni, A., Ant system: optimization by a colony of cooperating agents
- [3] DAVID, O.E.; VAN DEN HERIK, H.J.; KOPPEL, M.; NETANYAHU, N.S., Genetic Algorithms for Evolving Computer Chess Programs
- [4] S. Kirkpatrick; C. D. Gelatt; M. P. Vecchi., Optimization by Simulated Annealing

 $[5] \ R. \ Huber, \ S. \ Meyer-Kahlen, \ Universal \ Chess \\ Interface, \ http://www.shredderchess.com/chess-info/features/uci-universal-chess-interface.html, \\ 2015/06/01$