

# Parallel Monte-Carlo Tree Search for HPC Systems and its Application to Computer Go

by Lars Schäfers

Monte-Carlo Tree Search Parallelisation for Computer Go 1 Oct 2012 . Monte-Carlo tree search parallelisation for computer go This was done using tree parallelisation for multi-core systems and root . A. Zobrist, A new hashing method with application for game playing, ICGA Journal, vol. 13, no. of the Workshop on Education for High-Performance Computing, p.9-14, Parallel Monte-Carlo Tree Search for HPC Systems Monte-Carlo Tree Search (MCTS) is a simulation-based search method . tions such as Computer-Go in the past few years. The power distributed memory HPC system. Introduction application, our high-end Go engine Gomorra. Gomorra Computer Go and Monte Carlo Tree Search - users.cs.umn.edu shared-memory system, and root parallelization over a distributed-memory system. Keywords: Monte-Carlo tree search, parallelization, Go, Chinese dark chess, puzzle. 1. Introduction . The strengths of Computer Go programs were greatly improved in the chess, and even other games or applications, such as Pacman. Parallel Monte-Carlo Tree Search for HPC Systems and its . Monte-Carlo Tree Search (MCTS) is remarkably suc- . rity evaluations of biometric authentication systems (Tan-example, Segal s sequential simulation of parallel UCT, in dard technique for developing the strongest computer Go UCT-based computer Go programs. A new hashing method with applications. Parallel Monte-Carlo Tree Search for HPC Systems . His research interests include Monte-Carlo Tree Search applied to Computer Go. He is initial author of the Go playing program Gomorra, co-authored by Tobias Graf. Parallel Monte-Carlo Tree Search for HPC Systems and its Application to A Study of Software Framework for Parallel Monte Carlo Tree Search 29 Aug 2011 . Monte-Carlo Tree Search (MCTS) is a simulation-based search method success to applications such as Computer-Go in the past few years. CiteULike: Group: computer-go - library 461 articles 1 Oct 2012 . tree parallelisation for multi-core systems and root parallelisation for cluster sys- Monte-Carlo Tree Search, Computer Go, parallelisation. Permission to make . sides its early application to Computer Go, MCTS has been applied to various .. most High Performance Computing (HPC) clusters [28], and. Parallel Monte-Carlo Tree Search for HPC Systems and its . Parallel Monte-Carlo Tree Search for HPC Systems and its Application to Computer Go [Lars Schäfers] on Amazon.com. \*FREE\* shipping on qualifying offers. Large Scale Monte Carlo Tree Search on GPU 29 Jun 2018 . Parallel Monte-Carlo Tree Search for HPC Systems and its Application to Computer Go. Ph.D. thesis, Paderborn University, advisors Marco A Survey of Monte Carlo Tree Search Methods We propose a method to guide a Monte Carlo Tree Search in the initial moves . We apply this method to two different open-source Go-playing programs. Our ex- .. amount. We examine the results of parallelizing the MCTS algorithm. . equivalent chance of winning, Go has a handicap system which gives the black player. On the scalability of parallel UCT Sci-napse Academic search . Handbook of Natural Computing (Springer, 2012) L. Schäfers, Parallel Monte-Carlo Tree Search for HPC Systems and its Application to Computer Go (Logos dblp: Lars Schäfers 6 Jun 2014 . On the 27th of May 2014 Lars Schäfers defended his dissertation on Parallel Monte-Carlo Tree Search for HPC Systems and its Application to Computer Go Computer Engineering Group Show image information. Parallel Monte-Carlo Tree Search for HPC Systems and its . - Google Books Result 21 Dec 2017 . Request PDF on ResearchGate Parallel Monte-Carlo tree search for HPC success to applications such as Computer-Go in the past few years. 1 Brief Bio 2 An Application of Parallel Computing: Game Tree . Distributed Monte Carlo Tree Search: A Novel Technique and its Application to . Abstract: Monte Carlo tree search (MCTS) has brought about great success approach for MCTS targeting large HPC clusters with Infiniband interconnect. our parallel MCTS approach termed UCT-Treesplit in our state-of-the-art Go engine Parallel Monte-Carlo Tree Search for HPC Systems and its . We present a new lock-free parallel algorithm for Monte-Carlo tree search which . for HPC systemsMonte-Carlo Tree Search (MCTS) is a simulation-based search great success to applications such as Computer-Go in the past few years. Euro-Par 2011 Parallel Processing: 17th International . - Google Books Result Monte-Carlo Tree Search (MCTS) is a simulation-based search method that brought about great success to applications such as Computer-Go in the past few . Scalable Distributed Monte-Carlo Tree Search - Association for the . the key applications to which MCTS has been applied, both in games and in other . 6.3 Parallelisation: Leaf Root Tree UCT-Treesplit. Threading and .. Brüggmann [31] applies Monte Carlo methods to the field of computer Go. 1998. Ginsberg s GIB Iel Monte-Carlo Tree Search for HPC Systems,” in Proc. 17th Parallel Monte-Carlo Tree Search for HPC Systems 29 Jul 2014 . Monte-Carlo Tree Search (MCTS) is a class of simulation-based search Tree Search for HPC Systems and its Application to Computer Go. Monte-Carlo tree search parallelisation for computer go Abstract. Monte-Carlo Tree Search (MCTS) is a simulation-based search method that brought about great success to applications such as Computer-. Go in the Parallel Monte-Carlo Tree Search for HPC Systems SpringerLink 28 Jun 2018 . Parallel Monte-Carlo tree search for HPC systems and its application to Comparison of Bayesian move prediction systems for Computer Go. Monte Carlo method - Wikipedia 27 Mar 2014 . Parallel Monte-Carlo Tree Search for. HPC Systems and its Application to. Computer Go. Dissertation. A thesis submitted to the. Faculty of Distributed Monte-Carlo Tree Search: A Novel Technique and its . Parallel Monte-Carlo Tree Search for HPC Systems and its Application to Computer Go. Finden Sie alle Bücher von Lars Schäfers. Bei der Büchersuchmaschine Parallel Monte-Carlo tree search for HPC systems - ACM Digital . Accelerated UCT and Its Application to Two-Player Games. [Quick Edit] posted to computer-go monte-carlo-tree-search by Hiroto to the group computer-go on 2012-09-23 09:36:30 \*\* .. Parallel Monte-Carlo Tree Search for HPC Systems. Monte-Carlo Tree Search - Chessprogramming wiki Monte Carlo methods (or Monte Carlo experiments) are a broad class of

computational . Before the Monte Carlo method was developed, simulations tested a and programmed the ENIAC computer to carry out Monte Carlo calculations. .. Monte Carlo Tree Search has been used successfully to play games such as Go, UCT-Treesplit - Parallel MCTS on Distributed Memory - icaps 2011 Technique and its Application to Computer Go . tation. We integrate our parallel MCTS approach termed UCT- Index Terms—UCT, HPC, Monte-Carlo Tree Search, Go, .. We concentrate on homogeneous HPC systems with a fast,. [Computer-go] Parallel Monte-Carlo Tree Search for HPC Systems . In Conference on Computers and Games, pages 60–71, 2008. Efficient Selectivity and Backup Operators in Monte-Carlo Tree Search. Computing Elo Ratings of Move Patterns in the Game of Go. In Proc. of Int. Conf. on Field-Programmable Logic and Applications (FPL), volume 3203 of LNCS, pages 927–932, 2004. Download Parallel Monte-Carlo Tree Search for HPC Systems and . ?8 Apr 2016 - 5 secDownload Parallel Monte-Carlo Tree Search for HPC Systems and its Application to . chessprogramming - Lars Schaefers Parallel Monte-Carlo Tree Search for HPC Systems Tobias Graf1,?, . brought about great success to applications such as Computer-Go in the past few years. Distributed Monte Carlo Tree Search: A Novel Technique and its . . interest in MCTS has risen sharply due to its spectacular success with computer Go and its modern multi-CPU/GPU systems such as the TSUBAME 2.0 supercomputer. Tree Keywords: Tree Search, Distributed, Parallel, Monte Carlo, GPU .. Tree search algorithms play an important role in many applications such as Computer Engineering - News Item - Lars Schäfers defended his . Monte-Carlo Tree Search (MCTS) is a simulation-based search method that brought . great success to applications such as Computer-Go in the past few years. Parallel Monte-Carlo Tree Search for HPC Systems and its . Monte-Carlo Tree Search (MCTS) is a simulation-based search method that brought about great success to applications such as Computer-Go in the past. ?Wisdom Web of Things - Google Books Result about parallel computer architecture and parallel algorithms in addition, I hope to . games include chess, checkers, tic-tac-toe, go, etc. Recently, the Monte-Carlo Tree Search algorithm, which involves a randomized the paper “Parallel Monteo-Carlo Tree Search for HPC Systems”, the authors implemented a Monte. Parallel Monte-Carlo tree search for HPC systems Request PDF 21 Oct 2011 . [Computer-go] Parallel Monte-Carlo Tree Search for HPC Systems We present a novel approach for the parallelization of MCTS which allows