

# Spiele in der Informatik

10. April 2014

## 1 Themenübersicht

THEMA 1: Das Nash-Gleichgewicht [8] (N.N.)

THEMA 2: Der Minimax-Algorithmus und  $\alpha\beta$ -Pruning [8] (Sander Bruggink)

THEMA 3: Conway's Game of Life [1] (Jan Stückrath)

THEMA 4: Computer-Go [3] (N.N.)

THEMA 5: Computer-Poker [2] (Sander Bruggink)

THEMA 6: Bisimulationsspiele [10] (Sebastian Küpper)

THEMA 7: Nebenläufige Erreichbarkeitsspiele [5] (Henning Kerstan)

THEMA 8: Spieltheoretische Charakterisierung von Baumweite [9] (Barbara König)

THEMA 9: Minesweeper ist NP-vollständig [7] (Barbara König)

THEMA 10: Tetris ist NP-vollständig [4] (Jan Stückrath)

THEMA 11: Rush Hour ist PSPACE-vollständig [6] (Jan Stückrath)

THEMA 12: Auktionen [11] (Sebastian Küpper)

## 2 Literatur

[1] Elwyn R. Berlekamp, John Horton Conway, and Richard K. Guy. *Winning Ways, for Your Mathematical Plays: Games in particular*. Winning Ways. Academic Press, 1982.

[2] Darse Billings, Aaron Davidson, Jonathan Schaeffer, and Duane Szafron. The challenge of poker. *Artificial Intelligence*, 134(1-2):201–240, 2002.

- [3] Bruno Bouzy and Tristan Cazenave. Computer go: An AI oriented survey. *Artificial Intelligence*, 132(1):39–103, 2001.
- [4] Ron Breukelaar, Erik D. Demaine, Susan Hohenberger, Hendrik Jan Hoogeboom, Walter A. Kusters, and David Liben-Nowell. Tetris is hard, even to approximate. *International Journal of Computational Geometry & Applications*, 14(1-2):41–68, 2004.
- [5] Luca de Alfaro, Thomas A. Henzinger, and Orna Kupferman. Concurrent reachability games. In *Proceedings of the 39th Annual Symposium on Foundations of Computer Science*, pages 564–575. IEEE, 1998.
- [6] Gary William Flake and Eric B. Baum. Rush hour is PSPACE-complete, or “why you should generously tip parking lot attendants”. *Theoretical Computer Science*, 270(1-2):895–911, 2002.
- [7] Richard Kaye. Minesweeper is NP-complete. *The Mathematical Intelligencer*, 22(2):9–15, 2000.
- [8] Peter Morris. *Introduction to Game Theory*. Undergraduate texts in mathematics. Springer, 1994.
- [9] Paul D. Seymour and Robin Thomas. Graph searching and a min-max theorem for tree-width. *Journal of Combinatorial Theory, Series B*, 58(1):22–33, 1993.
- [10] Colin Stirling. Introduction to game theory, 1997.
- [11] Elmar Wolfstetter. Auctions: an introduction. *Journal of Economic Surveys*, 10(4):367–420, 1996.