

AI4Games 2020

Exercise 5

SameGame

4 points

Deadline: 22.12 (project proposals); 31.12 (SameGame)

Project proposal [2p.]

Projects should be made in groups of 2-4 students. Some propositions for the topics can be found on SKOS¹. One person from each group should send a pdf with a project topic, its short description, and the names of all group members. We will discuss sent proposals during the consultation time.

The maximum for project is 20 points. The deadline for the project presentation will be the end of the semester.

SameGame Easy [1p.]

Write any algorithm that passes the SameGame² puzzle with the score at least 6,500. Describe it in the report.

SameGame Medium [1p.]

Write any algorithm that passes the SameGame puzzle with the score at least 30,000. Describe it in the report.

Selective policy [+1p.]

Implement simulations for SameGame using Tabu color strategy. Describe impact of this feature in the report.

Zobrist hashing [+1p.]

Implement Zobrist hashing for Same Game. Describe impact of this feature in the report.

NRPA [+2p.]

Implement Nested Rollout Policy Adaptation algorithm for SameGame. Describe obtained results in the report.

NMCS [+2p.]

Implement Nested Monte Carlo Search algorithm for SameGame. Describe obtained results in the report.

SP-MCTS [+2p.]

Implement Single-Player Monte Carlo Tree Search algorithm for SameGame. Describe obtained results in the report.

¹<https://skos.ii.uni.wroc.pl/mod/page/view.php?id=20765>

²<https://www.codingame.com/multiplayer/optimization/samegame>