

AI4GAMES - Code Keeper

Bot description

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18 grudnia 2021

1 Bot Idea

After a failed attempt to implement a solid solution with MCTS I decided to go with a heuristic approach.

I keep a global current game state, where I update the info each time I receive the input. Every turn I check what are the possible moves given our current state and run a heuristic function to select the best one.

1.1 Heuristic overview

First thing I consider is whether I can do some damage in this turn. Within this selection I have some tweaks to try and make solid fighting moves - prioritizing moves that kill monsters, hit multiple enemies, don't use bows on units that you can kill with a sword etc...

Then I check if I am low on HP and if I should consider going towards the nearest potion. Otherwise I go to the closest treasure if available. If not, then I explore the map by visiting an empty field that will uncover some unknown fields. Here before deciding I simulate the move and see if I am going to lose hp. If yes I consider attacking again to see if that might prevent that.

If through all these steps I haven't found a good move, I will run a flatMC on 5 moves depth to determine the next move.

1.2 Some background implementation

Every turn I run a modified bfs to determine distances and first tile on the way to all entities that we can get to, where I use some penalties and rewards to optimize our target and path selection.

On several occasions I want to see what outcome will a move have, so I have recreated the game engine to be able to simulate that.

1.3 Final remark

Overall the code is full of minor tweaks and adjustments that I found useful through experiments. It would be pointless to describe them in detail here as they are easy to examine in the code. I will be happy to talk about them during the discord call.