

Foundations of Game AI

Exercise Session 8

Q-learning Part 1: TicTacToe

This is the first part of the Q-learning lab.

We will implement a basic TicTacToe game, but we will also train it using Q-learning.

Essentially, we want to create an autonomous controller that plays against itself, and learns while doing so.

In the “*book_pseudocode.py*” file you will find the code that is shown in the book. We will do our best to follow the same structure when training, but we will also structure in a way that allows to “compartmentalize” the tasks that need to be done.

Specifically, we will have:

1. A “State” structure that holds information about the current state of the game, as well as for progressing the learning by calling the necessary functions;
2. A “Player” structure for defining the functions and actions that each player (aka the controller) should take.

Similarly to the last lab, the code is thoroughly documented and commented. Follow from there.