Team members

1-Mahmoud Ahmed Ahmed Elsharkawy

2-Mostafa Mohamed Aslan Metwally

3-Mahmoud El-Sayed Ahmed Ahmed

Description

--the game is called the 3D ball game with our own design and modification :- basically the game is an Ai agent(a ball) who wants to get to a goal (which is another ball) without falling off the platform or hitting a bomb(a cube) the agent learns with time how to get to his goal by hitting every thing and learning what it is(using the **Reinforcement learning** in the **ppo** algorithm)

--start and end time ( from 15 march to 9 May)

--(PEAS)

•Performance: the Agent actually learns very fast (in about 15 min) and he becomes really good at the game and also he has a memory(like a brain or a neural network)

•Environment: there is a bomb(cube) the agent shouldn’t hit and there is a platform the agent shouldn’t fall off

•Actuators: the agent is moving by the Ai machine and there is also controls for testing

•Sensors: actually the agent senses by hitting object around it and he memorizes the objects and the steps and he knows where this specific object is (in the code by giving random spawn coordinates each time the agent hits the anything and Re-spawn )

--(ODESDA)

•Partially Observable: the agent knows where the ball and the bomb is but he does not know where the edges of the platform is and he knows by falling and dying and getting a punishment (will discuss more in the video)

•Stochastic: the agent is not certain where every thing is but he knows by time because he learns

•Sequential: the agent takes actions by learning from previous actions and memorizing it

•Semi dynamic: when the Agent hits the goal more it gets higher score

•Continuous

•Multi Agent/Competitive

•Utility based Agent : because when the ball , bomb and the goal Re-spawns every time at different locations there is multiple ways the agent can get to the goal but it choses the simples and shortest way to get to it(note that the agent also has a memory like a neural network so he knows what to hit and what not to hit)

• video links:

Drive :- https://drive.google.com/file/d/1es8uZ9aspg9Zb12mYKHiqgDnYerOHUnO/view?usp=sharing