

About

Imagine learning to ride a bicycle. You cannot learn it simply from given instructions (data), you can only learn how to ride a bicycle by doing; you need to practise it hands-on and gain experience yourself. By using Virtual Reality (VR), this demo gives you the opportunity to look inside the inner workings of a Reinforcement Learning system. Experience at first-hand how such a system can learn from experience and feedback, just like you would learn how to ride a bicycle.

How It Works

You will have to navigate through a maze in order to find a treasure. While wearing the VR headset, look around to explore the possible directions. Using the remote, point in the direction you want to go and press the trigger button to move. Once the treasure is found, you will be dropped at a random spot in the maze and you will have to restart your quest for the treasure. This time you will see that the numbers on the floor might have changed. Higher numbers indicate a higher probability that going in this direction will lead you to the treasure. This way the player can use the knowledge gathered earlier about the maze which demonstrates the nature of Reinforcement Learning.

Relevant technological information

Maze demonstrates a type of Machine Learning called Reinforcement Learning. The system acquires information from its environment and based on that knowledge it learns and improves itself. This is called 'online' learning. Recently, for instance weaving machines have been equipped with this technique. This way the machines can learn which type of thread they are using and blow air accordingly.

Impact

Educational Impact

Technology

Technology Readiness Level: NA
Augmented/ Virtual Reality
Interactive
Machine Learning (Reinforcement Learning)
Self-Improving