

A DISSERTATION
ON
GAMES PLAYING USING REINFORCEMENT
LEARNING

In partial fulfilment of the requirements for the award of the degree of
BACHELOR OF TECHNOLOGY

IN
COMPUTER SCIENCE & ENGINEERING
SUBMITTED

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CERTIFICATE

This is to certify that project report entitled “**GAMES PLAYING USING REINFORCEMENT LEARNING**” which is submitted by the **CH.VAMSHI (4511-18-733-017)**, in partial fulfilment of the requirement for award of degree B.Tech Department of Computer science & engineering of University college of Engineering and Technology , panagal, is record of the candidate's own work carried out by them under my/our supervision. The matter embodied in project is original and has not been submitted for the award of any other degree.

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the University or other institute of higher learning. Except where due acknowledgment has been made in the text.

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ABSTRACT

Reinforcement learning is the road to build artificially intelligent machines that can perform tasks similar to that of human beings, without any prior training. A machine learning agent learns from the feedback of the try-and-error in order to predict their next step. The challenge to win a game is that the player needs to come up with a good strategy. In order to produce good strategy, player need to play the game multiple time which are time, energy and money consuming. The objective introduce a reinforcement learning agent in game that run the simulation of the game and produce improved results after each iteration. Then human can imitate the agent performance in order to improve their chance of winning the game It is essential for training an agent to make smart decisions under uncertain conditions and to take small actions in order to achieve a higher over achieving goal. how reinforcement learning and deep learning techniques can be combined, along with an approximation function called Q-learning, to train an agent to play a classic game. This deep neural network model will successfully learn to control policies directly from high-dimensional sensory input using reinforcement learning. The challenge is that the agent only sees the pixels and the rewards, similar to a human player. Q-learning and State-Action-Reward-State- Action method are chosen as both are almost similar except Q-learning is on-policy algorithm. Q-Learning to train agents to play trivial games like Flappy Bird, IBM Deep Blue chess, Alpha Go and we dive into Deep Reinforcement Learning to train the agents to play more complicated games where the tasks are non-trivial.

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