

Optimized MCTS with DQN in Connect Four Environment

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Avairable in March 30th 2025

Abstract

This paper presents an optimized Monte Carlo Tree Search (MCTS) algorithm combined with a Deep Q-Network (DQN) for enhanced decision-making in the game of Connect Four. The hybrid approach leverages reinforcement learning for efficient state evaluation and MCTS for improved action selection, achieving superior gameplay performance compared to standalone methods. This document details the architecture, training methodology, and empirical evaluation of our approach.