Applying Reinforcement Learning to Improve NPC game Character Intelligence

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ABSTRACT

Today, video games are the most popular entertainment for young people. With rapidly developed computer technology, the quality and complexity of AI (Artificial In-telligence) used in computer games are gradually increasing. Today, AI has become a vital element of computer games. Intelligent NPC (Non-Player Character) which can act as playmates is becoming the essential element for most video games. How to enhance the intelligence of game characters has become an important research topic. This study proposes a cooperative reinforcement learning structure of NPC agents that share the common global states and the overall reward mechanism. Agents trained through our reinforcement learning mechanism will be able to develop an action strat-egy to complete their missions in the virtual game environment. Our empirical result has shown some promising result. Even the NPC agents are tested in different game level environments, all agents that share with the same goal will learn to perform ap-propriate actions and achieve the common goal reasonably.

Keywords : Machine Learning ; Video game ; Reinforcement Learning

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