



Senior Design Project

Game AI Agent using Deep Reinforcement Learning

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Agreement Form

We take great pleasure in submitting our senior design project report on “Game AI Agent Using Deep Reinforcement Learning”. This report is prepared as a requirement of the Capstone Design Project CSE 499 A & B which is a two semester long senior design course. This course involves multidisciplinary teams of students who build and test custom designed systems, components or engineering processes. We would like to request you to accept this report as a partial fulfillment of Bachelor of Science degree under Electrical and Computer Engineering Department of North South University.

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Game AI Agent using Deep Reinforcement Learning

Abstract

Nowadays, the field of deep learning is expanding very fast. We can use deep learning strategies in almost all of the decision making, intelligence problems as well as searching from insanely big amounts of data. In this project, we present an AI agent that learns how to play games from visionary input data. We, humans, also play games by seeing the screen where the game is being played. Our games have limited discrete action space. Our goal is to train an AI agent that has no previous idea of the games' environments but can successfully learn the strategies of playing games and get scores same as humans. Even we have managed to gain scores more than humans. Our model successfully learns how to play games effectively and in a short amount of time. As we are working with image data, we have to consider the difficulties of processing and training that huge amount of data. Eventually, by implementing a model based on some deep learning strategies, we were able to reach our goal.