Abstract

In this work, we present a deep learning model based on reinforcement learning that is tied to an AI agent. The agent successfully learns policies to control itself in a virtual game environment directly from high-dimensional sensory inputs. The model is a convolutional neural network, trained with a variant of the Q-learning algorithm, whose input is raw pixels and whose output is a Q-value directly associated with the best possible future action. We apply our method to a first-person shooting game - Doom. We find that it outperforms all previous approaches and also surpasses a human expert.
Playing Doom with Deep Reinforcement Learning

References


Index Terms

Computer Science
Information Sciences

Keywords

Machine Learning  Reinforcement Learning  Q-learning  Dqn  Cnn