

6th International Conference on Control and Robotics (ICCR 2024), Yokohama, Japan, 5 - 7
December 2024

A perspective on the integration of ABB industrial robots into Open AI Gym using vision-based reinforcement learning

Dikole, Realeboga G; Faniso-Mnyaka, Zimbini; Sekopa, Teboho L

Abstract

Reinforcement learning-based robotic manipulation has risen to prominence recently due to the rise of frameworks such as Open AI Gym. Although there has been much success in reinforcement learning applied to manipulators such as the Kuka iiwa, Franka Emika Panda, UR5 robots, there has been little to no exploration of the application of reinforcement learning on ABB robotic manipulators. This paper presents a perspective on integrating vision-based reinforcement learning and ABB robots with Open AI Gym environments. We focus mainly on the pick-and-place and push environments using proximal policy optimisation due to its simplicity and ease of memory. Our results affirm the possibility of vision-based reinforcement learning with ABB robots with the best training performance yielding a success rate of close to sixty-five percent.