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A Study on Relative Performance of an Reinforcement Learning Agent and Human in a Psychometric Assessment Game

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Abstract

A previous study used the Antarjami gaming framework to determine the OCEAN personality traits. In this study, a reinforcement learning agent is being compared to its human counterpart through various levels in the game. A Deep-Q Network(DQN) is proposed here for playing the Antarjami game autonomously. The DQN takes as input the image of the game screen and decides the moves/actions it wants to play in the game. A collection of DQNs having uniform architectures is used, where each DQN is trained on a particular level of the game. The starting position of each player within a game level is random in the Antarjami framework, therefore the training of the reinforcement learning agent is agnostic to any bias about the initial positions of the players. The work shows how an RL-Agent gathers scores in a greedy fashion irrespective of any psychological inclinations.