



Reinforcement Learning for the Soccer Dribbling Task

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We propose a reinforcement learning solution to the \emph{soccer dribbling task}, a scenario in which a soccer agent has to go from the beginning to the end of a region keeping possession of the ball, as an adversary attempts to gain possession. While the adversary uses a stationary policy, the dribbler learns the best action to take at each decision point. After defining meaningful variables to represent the state space, and high-level macro-actions to incorporate domain knowledge, we describe our application of the reinforcement learning algorithm \emph{Sarsa} with CMAC for function approximation. Our experiments show that, after the training period, the dribbler is able to accomplish its task against a strong adversary around 58% of the time.

Subjects: **Learning (cs.LG)**; Robotics (cs.RO); Machine Learning (stat.ML)

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