Hindsight Credit Assignment

Assigning credit to past decisions has been a challenging problem due to high variance and boot-strapped estimates. The work addresses this open problem by assigning credit to past decisions in hindsight. More specifically, the work aims to answer the question *"given a state x, how does choosing an action a affect the returns?"*. Taking into account the four main hindrances for efficient credit assignment, the work proposes a novel Hindsight Credit Assignment (HCA) scheme based on conditioned future states (HCA|State) and future returns (HCA|Return). The proposed HCA scheme is found to be efficient in assigning credit to past actions in comparison to vanilla policy gradient.