Project proposal
Reinforcement Learning

Paradiso Emiliano,   1940454

November 22, 2024

Project proposal: Hindsight Goal Ranking for Sparse Reward Environments Applied to Fixed-Base Manipulator in Pick-and-Place Tasks.

I want preferably complete the project for the pre-exam session of December.

Objective:

The goal of this project is to implement and evaluate a reinforcement learning (RL) approach using Hindsight Goal Ranking (HGR) in the context of sparse reward environments. The approach will be applied to a fixed-base manipulator performing a pick-and-place operation in simulation. The experiments will be conducted using the OpenAI Gym Fetch environment.

References:

- T. M. Luu and C. D. Yoo, "Hindsight Goal Ranking on Replay Buffer for Sparse Reward Environment,"

- Reinforcement Learning in Sparse-Reward Environments With Hindsight Policy Gradients. Paulo Rauber, Avinash Ummadisingu, Filipe Mutz, Jürgen Schmidhuber.

- Continuous control with deep reinforcement learning.Timothy P. Lillicrap, Jonathan J. Hunt, Alexander Pritzel, Nicolas Heess, Tom Erez, Yuval Tassa, David Silver, Daan Wierstra