### Deep Reinforcement Learning algorithms for autonomous systems

Prof. Pietro Michiardi - Eurecom Week Report 16/09/2019

Prof. Elena Baralis - Politecnico di Torino Piero Macaluso

# Contents

# 1 Steps Made

#### 1.1 Cozmo-DDPG

The first work carried out this week was to implement the DDPG algorithm for Cozmo. The changes were painless, but the ultimate goal would be to propose a sort of baseline for both SAC and DDPG. This enhancement could be a help for those who want to develop their code: it would give the possibility to exploit the common elements of the algorithms (e.g. train loop, test loop) by implementing only the changed parts (e.g. update phase).

# 1.2 Refactoring Replay-Memory and Save'n'Restore

Another enhancement in the code was the refactoring of the class Replay Buffer using Python deque instead of a simple buffer in order to optimize the process of insertion and deletion of the experience memory. Therefore, we made the mechanism of "Save and Restore" process lighter, optimizing the process of dumping and loading.

# 1.3 Experiments