

Hindsight Goal Prioritization for Sparse Reward Environments

Final Project

Reinforcement Learning

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Problem statement

1 Introduction

Real-world environments

- Multi goal: value functions take as input also the goal
- Sparse rewards
- Continuous action space





- Vanilla off-policy algorithms are not suited for multi-goal reinforcement learning with sparse reward
- Since the goal is not fixed, we may never get reward 1
- Problem with exploration



HER

Sampling future goals

To start working with sintefbeamer

Intuition

```
\documentclass{beamer}
```

Drawbacks

```
\documentclass{beamer}
```



HGR

Prioritizing future goals

Intuition

```
\documentclass{beamer}
```

Enhancements over Vanilla HER

```
\documentclass{beamer}
```



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Why Robotics Environments

2 Environment



Fetch

2 Environment



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Learning Algorithm

3 Implementation



Replay Buffer

3 Implementation



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Thank you for listening!
Any questions?