

---

**blobrl**

**Jan 18, 2021**



<b>1</b>	<b>Installation</b>	<b>1</b>
1.1	Installation of pytorch . . . . .	1
1.2	Installation of blobrl . . . . .	1
<b>2</b>	<b>Getting started</b>	<b>3</b>
<b>3</b>	<b>Install BlobRL</b>	<b>5</b>
3.1	Initializing an environment . . . . .	5
3.2	Initializing an agent . . . . .	5
3.3	Training . . . . .	5
3.4	Evaluation . . . . .	6
<b>4</b>	<b>Trainer – train.py</b>	<b>7</b>
<b>5</b>	<b>Training</b>	<b>9</b>
<b>6</b>	<b>Parameters</b>	<b>11</b>
<b>7</b>	<b>Exemples</b>	<b>13</b>
<b>8</b>	<b>Agent interface</b>	<b>15</b>
<b>9</b>	<b>Agent_random</b>	<b>17</b>
<b>10</b>	<b>DQN</b>	<b>19</b>
<b>11</b>	<b>Double_dqn</b>	<b>21</b>
<b>12</b>	<b>Categorical_dqn</b>	<b>23</b>
<b>13</b>	<b>Explorations package</b>	<b>25</b>
13.1	Greedy_exploration_interface . . . . .	25
13.2	Adaptative_epsilon_greedy . . . . .	25
13.3	Epsilon_greedy . . . . .	25
13.4	Greedy . . . . .	25
<b>14</b>	<b>Memories package</b>	<b>27</b>
14.1	Memory_interface . . . . .	27

14.2 Experience_replay . . . . .	27
<b>15 Environments package</b>	<b>29</b>
<b>16 Base_network</b>	<b>31</b>
<b>17 Simple_network</b>	<b>33</b>
<b>18 C51_network</b>	<b>35</b>
<b>19 Indices and tables</b>	<b>37</b>

### 1.1 Installation of pytorch

For installing *pytorch* follow [Quick Start Locally](#) for your config.

### 1.2 Installation of blobrl

Download files:

```
git clone https://github.com/french-ai/reinforcement.git
```

Move to reinforcement directory:

```
cd reinforcement
```

Install blobrl

- to use it:

```
pip install .
```

- to help development:

```
pip install ".[dev]" .
```



## CHAPTER 2

---

Getting started

---





Follow installation.

### 3.1 Initializing an environment

```
import gym
env = gym.make("CartPole-v1")
```

### 3.2 Initializing an agent

```
from blobrl.agents import AgentRandom
action_space = env.action_space
observation_space = env.observation_space
agent = AgentRandom(observation_space=observation_space, action_space=action_space)
```

### 3.3 Training

Create Trainer

```
from blobrl import Trainer
trainer = Trainer(environment=env, agent=agent)
```

Start training:

```
trainer.train(render=True)
```

Visualize training metrics:

```
tensorboard --logdir runs
```

## 3.4 Evaluation

*Not implemented yet*

## CHAPTER 4

---

Trainer – train.py

---

You can start training by using train.py.



## CHAPTER 5

---

### Training

---

Go to blobrl directory

```
cd blobrl
```

start training

```
python train.py
```



## CHAPTER 6

---

### Parameters

---

–agent:

StringDefault : agent\_randomName of agent listed [*agent\_random*, *dqn*, *double\_dqn*, *categorical\_dqn*]

–env:

StringDefault : CartPole-v1Name of gym environment listed in [gyms.openai.com](https://gymnasium.openai.com)

–max\_episode

IntegerDefault : 100Number of episode to train

–render

BooleanDefault : FalseShow render on each step or not





## CHAPTER 7

---

### Exemples

---

Start training with DQN on CartPole-v1 with 1000 episodes and show environment

```
python train.py --agent dqn --env CartPole-v1 --render 1 --max_episode 1000
```



## CHAPTER 8

---

Agent interface

---



## CHAPTER 9

---

Agent\_random

---



## CHAPTER 10

---

DQN

---





# CHAPTER 11

---

Double\_dqn

---



## CHAPTER 12

---

Categorical\_dqn

---



# CHAPTER 13

---

Explorations package

---

**13.1 Greedy\_exploration\_interface**

**13.2 Adaptative\_epsilon\_greedy**

**13.3 Epsilon\_greedy**

**13.4 Greedy**



## CHAPTER 14

---

Memories package

---

**14.1 Memory\_interface**

**14.2 Experience\_replay**





## CHAPTER 15

---

### Environments package

---

We use gym environment to begin.

You can see [gymnasium.openai.com](https://gymnasium.openai.com) for more informations.

We will add more environment.



## CHAPTER 16

---

Base\_network

---



## CHAPTER 17

---

Simple\_network

---



## CHAPTER 18

---

C51\_network

---





## CHAPTER 19

---

### Indices and tables

---

- `genindex`
- `modindex`
- `search`