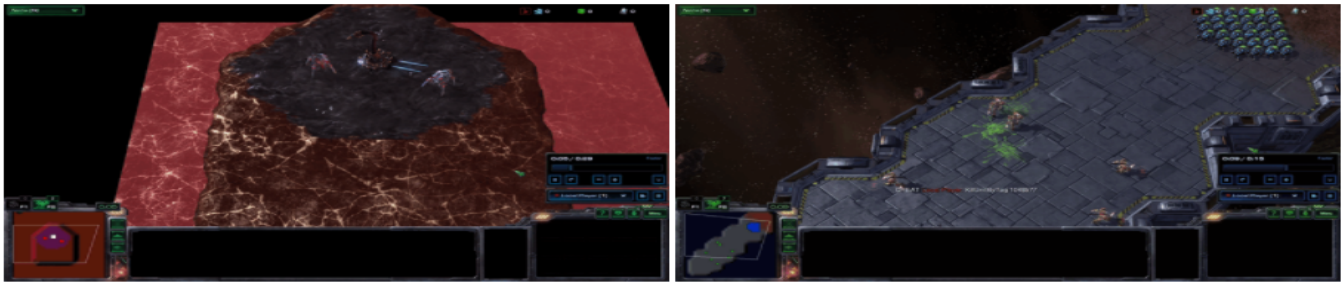
Stochastic Markov Games for Multi-Agent Reinforcement Learning



The project consists of the application of 4 Multi-Agent Reinforcement Learning algorithms in StarCraft II.

Installation

The implementation makes use of PyMARL (writtent in PyTorch) and is built on top of the QMIX implementation.

1. Docker Support

[Skip this step if using a local machine]

Build the Dockerfile using

```
cd docker
bash build.sh
```

2. StarCraft II and SMAC

The following command will download SC2 in the '3rdparty' folder and copy the custom SMAC maps required for experiments-

```
bash install_sc2.sh
```

3. Library Dependencies

Library dependencies are listed in the `requirements.txt` file and can be installed using the following command-

```
pip install -r requirements.txt
```

Executing Experiments

1. Local Machine

Once the installation is complete, QMIX experiments can be executed using the following command:

```
python3 prog/main.py --config=qmix --env-config=sc2 with env_args.map_name=2s3z
```

The config files consist of default hyperparameter values. To change these for QMIX refer to `qmix.yaml` config file located in `prog/config` folder.

2. Docker Container

To run experiments using the Docker container use the following-

```
bash run.sh $GPU python3 prog/main.py --config=qmix --env-config=sc2 with
env_args.map_name=2s3z
```

All results will be stored in the Results folder. For additional details on loading and saving models please refer to the PyMARL page.

License

Code licensed under the Apache License v2.0