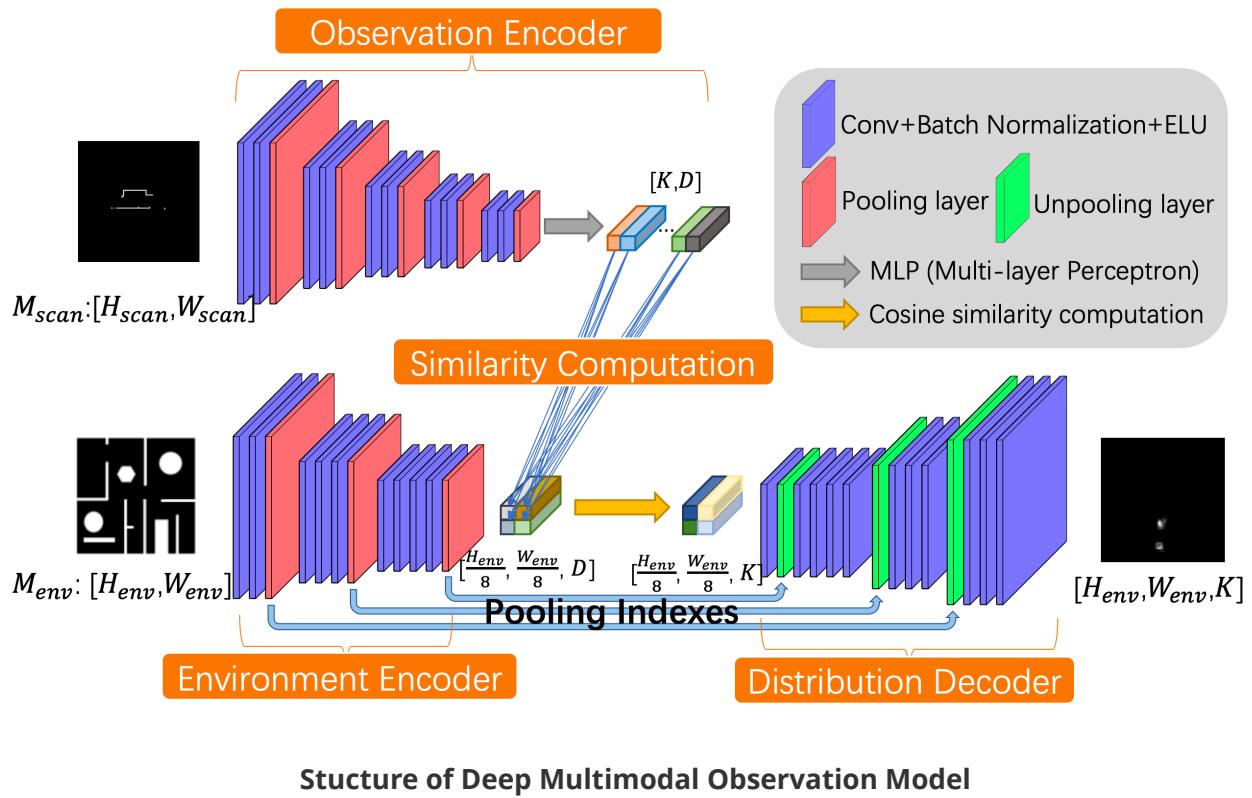


# A Samplable Multimodal Observation Model for Global Localization and Kidnapping



## Requirements

To install requirements:

```
conda create --name <your_env_name> --file requirements.txt
```

## Training

To generate synthetic datasets for training:

```
cd Data_processor  
python <dataset>
```

<dataset> can be Bicocca\_rc\_dataset.py, synthetic\_dataset.py, or UPO\_rc\_dataset.

To train the model in the paper, run this command:

```
python Main.py --operation train --dataset <dataset> --subdataset <subdataset>
```

## Evaluation

You can download the evaluation sequences here and put them in directory DMOM/Dataset/

- [Evaluation Datasets](#).

To evaluate DMOM and Adaptive Mixture MCL:

```
python Main.py --operation test_MCL --dataset <dataset> --subdataset <subdataset> --update_mode Adaptive_Mixture_MCL --w_cut 0.6 --particle_num 200 --load_model <path_to_model>
```

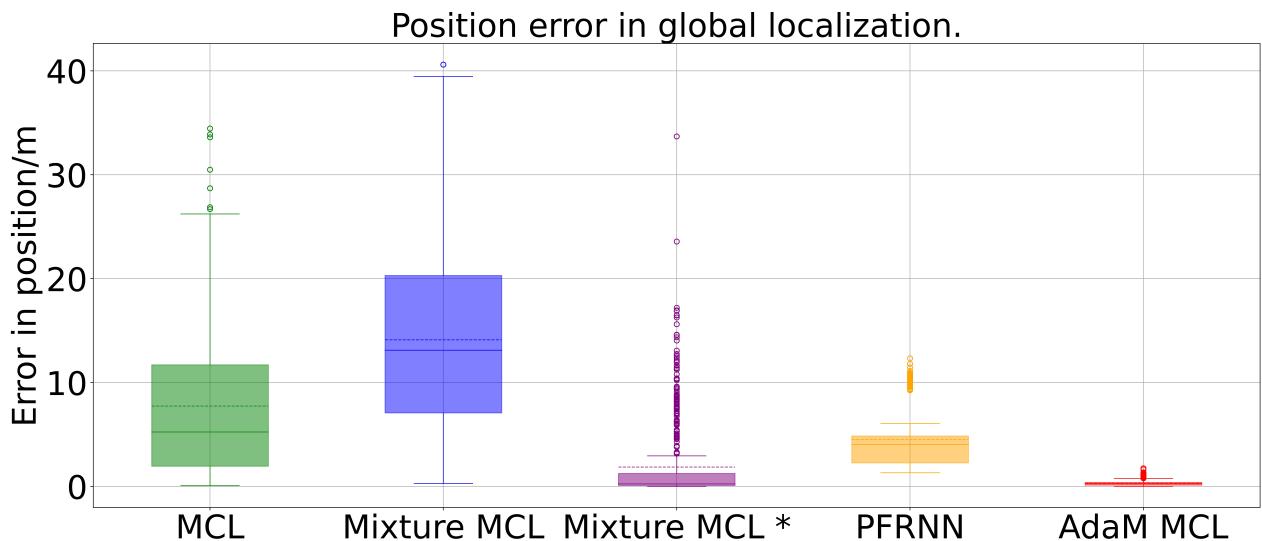
## Pre-trained Models

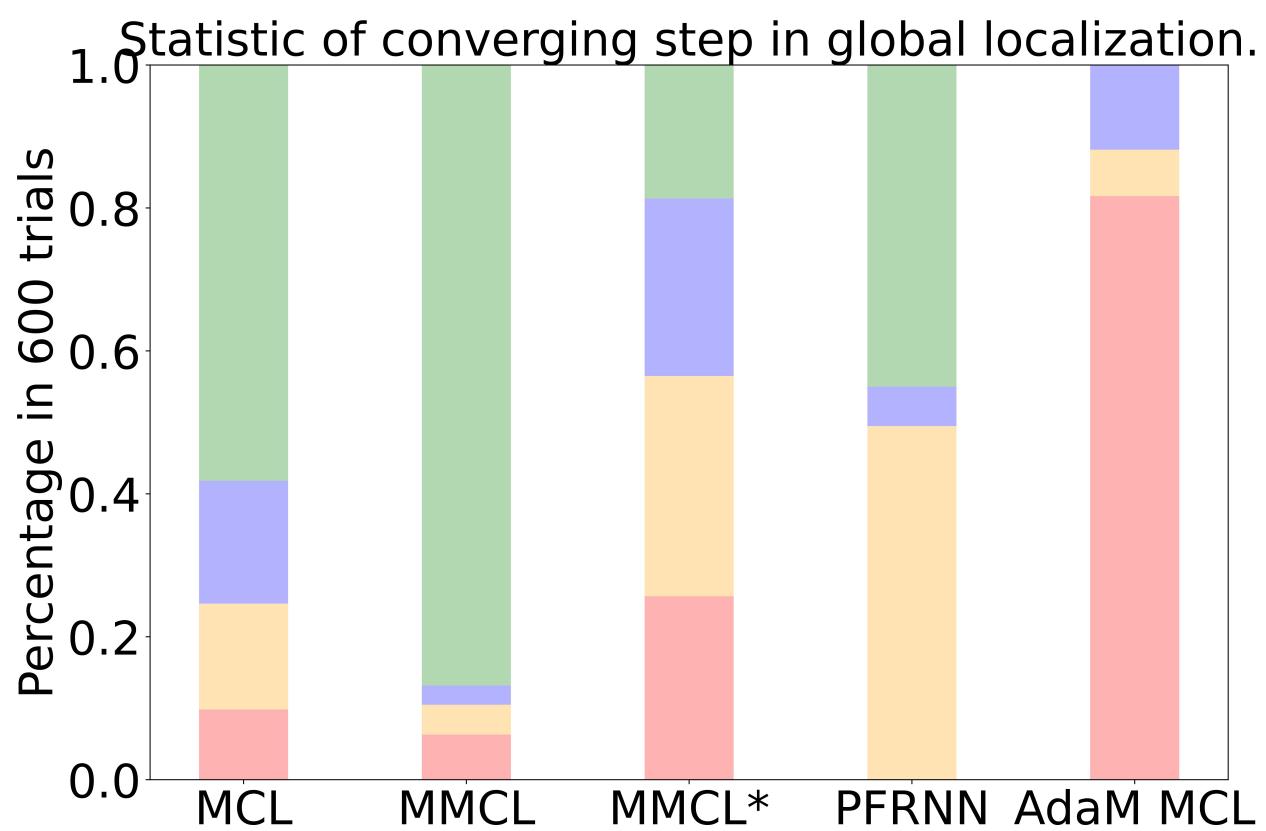
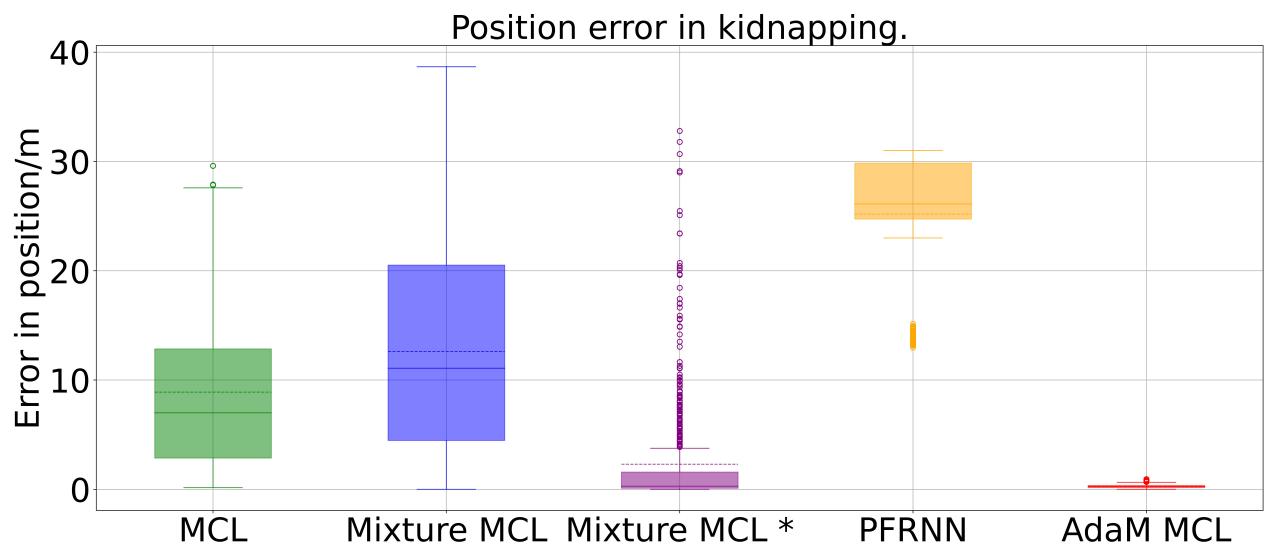
You can download pretrained models here and put them in directory DMOM/Trained\_models/

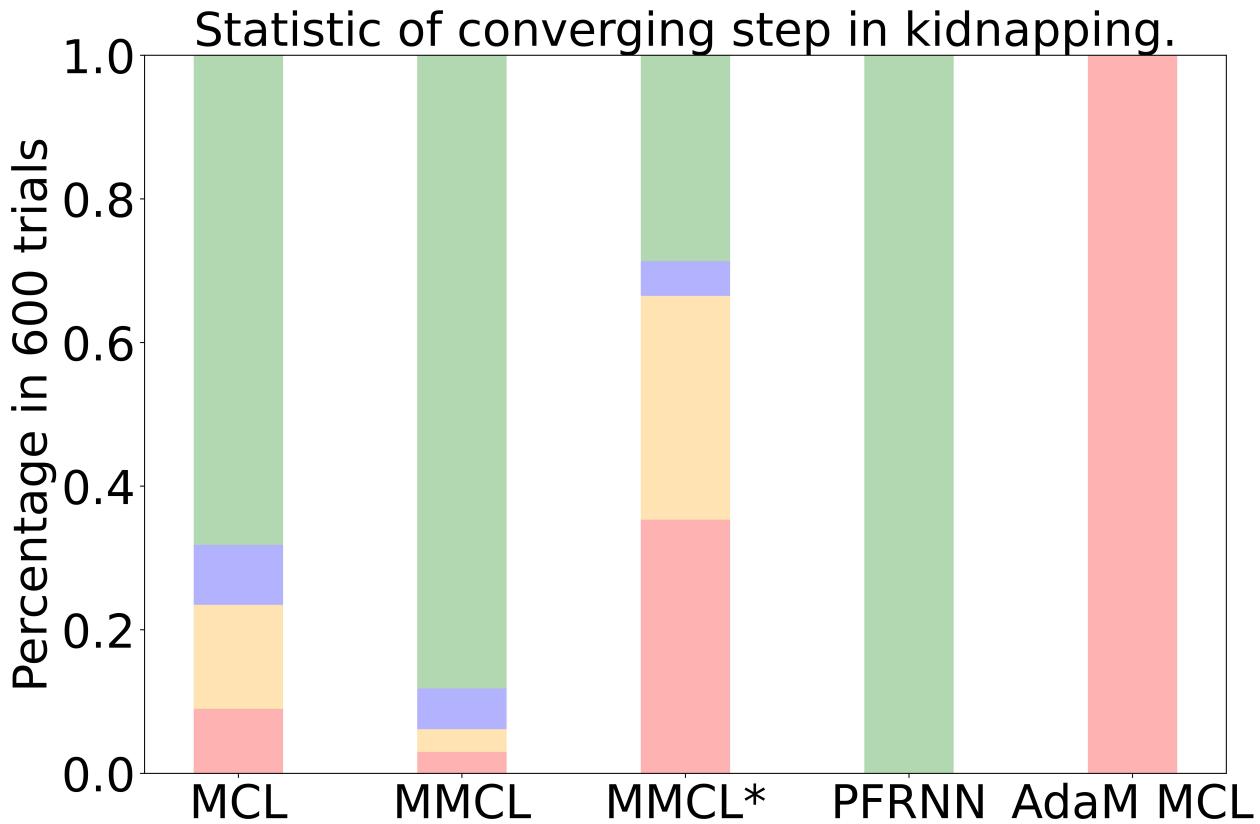
- [Pretrained Models](#).

## Results

Our model achieves the following global localization and kidnapping performance on our synthetic dataset.







Our model achieves the following global localization and kidnapping performance on the UPO dataset collected in a real palace.

