LIMIT: Learning Interfaces to Maximize Information Transfer

This is a repository for our paper, "LIMIT: Learning Interfaces to Maximize Information Transfer". We include:

- Implementation of **LIMIT**
- Custom 2D ("Lights") environment to test **LIMIT** with an *Align* Human (see our paper for more information)

Requirements

Requirements are listed in `requirements.txt`:

- python3
- pytorch $\geq$ 1.12.1
- numpy $\geq$ 1.24.2
- matplotlib $\geq$ 3.7.1
- scipy $\geq$ 1.9.3

Requirements can be installed using pip:

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

Instructions

To run a demonstration of **LIMIT**, run `python main.py`. **LIMIT** will train with the *Align* human, and the result should be similar to the plot below:

You can also provide arguments to adjust the behavior of **LIMIT**:

- `--episodes`: change the number of episodes that AlignHuman uses **LIMIT**. Default is 200
- `--online`: passing this flag enables **LIMIT** to learn online. Since AlignHuman updates *after* each interaction, do not an expect a significant performance boost from this. When interacting with real humans, **LIMIT** performs better when it learns online.

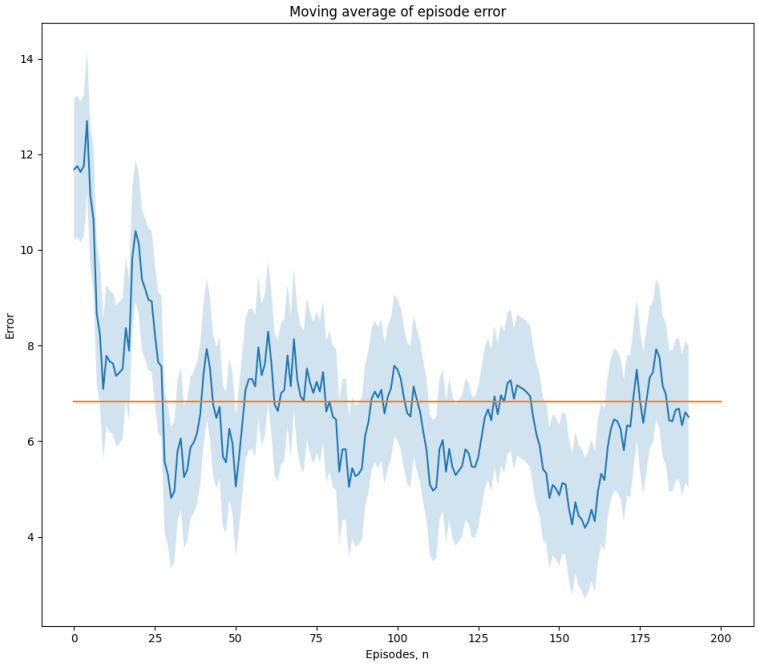

Figure 1: Plot of Error of LIMIT and Aligned Human