

Installing and Playing tensorkart

Set up a python virtual environment. Currently the project works only with Python 2. Probably use the command `virtualenv2 <env_name>`

```
git clone https://github.com/emomicrowave/TensorKart`

mkdir mupen64plus-src && cd "$_"
git clone https://github.com/emomicrowave/gym-mupen64plus
git clone https://github.com/emomicrowave/mupen64plus-input-bot

cd mupen64plus-input-bot

# switch to the multiplayer branch
git branch remotes/origin/multiplayer
git checkout branch multiplayer

make all
sudo make install
```

Manually install wxPython from

link...

- check whether you have gtk2 or gtk3
- select a package, which has `cp_27` in its name (Python 2.7)
- use `pip install --pre <link_to_package>` to install wxPython. Both versions 3.0.3 and 4.0.0 work.
- remove *wxPython* from the requirements of the packages. `gym_mupen64plus/setup.py` and `TensorKart/requirements.txt`

Install pip dependencies

- do one of the following:
- tensorflow GPU requires Cuda

```
pip install tensorflow
pip install tensorflow-gpu

• install dependencies

cd TensorKart
pip install -r requirements.txt

cd ../gym_mupen64plus
pip install -e .
```

Other dependencies

The following dependencies cannot be installed with pip. Use your package manager. For archlinux for example

```
sudo pacman -S virtualgl libjpeg6-turbo tk
```

If you have problems with *libpng*, then try an earlier version of *wxPython*

Here also modify the `gym_mupen4plus/envs/config.yaml` and disable the `USE_XFCV` flag.

ROM

The Mario Kart 64 is not provided with the project. Acquire it and paste it in `mupen64plus-src/gym-mupen64plus/gym_mupen64plus/ROMs/marioKart.n64`

Specifications

Training takes a long time. A Lenovo W520 with Quadro 1000M doesn't support tensorflow's required version of CUDA, so we have to use the CPU to train. For example training two samples takes ~10 Minutes. Training with 7 samples takes ~100 Minutes

Decisions and stuff

Update 14/06 - Training doesn't seem to be going so well, and there are a couple of suspected reasons.

- Recording and playing screens are not aligned and are off by one or two pixels. (looks like KDE title bar height is 24 pixels, so in the configs off Mario Kart I set `OFFSET_Y=25` in `config.yml` and `utils.py`)
- Might be that the recording script needs to take screenshots and register input more frequently. I've doubled the `RATE` variable in `record.py`. Training will take longer, but probably will be better. Testing right now...
- May be a different way that the recorder and the player are resizing the screenshots. I have to go look at the source code, but it's difficult to follow it.