HT_Pi Stylized Motion Configuration Manual

This manual is intended to guide the configuration of the stylized motion calling function on the physical robot after recording a .boost motion file in Pi Teach Mode. The specific steps are as follows:

1. Confirm Motion File Format Requirements

The motion files recorded in Teach Mode are saved by default in the path: `/home/hightorque/sim2real_master/install/share/sim2real/action_config` with the default filename `test.boost`. Motion files recorded in Teach Mode must use the `.boost` suffix; the filename can be customized (the default recorded filename is `test.boost`), but it is mandatory to ensure the file format suffix is strictly `.boost`.

2. Open the Motion Configuration File

Navigate to the path: `/home/hightorque/sim2real_master/install/share/sim2real/action_config/config/pi`
Locate and open the `base_waypoint.yaml` file. This file has preconfigured mappings between gamepad buttons and motions by default, as shown in the figure.

```yaml
multi_waypoint_config:
  - key: "rt+a" # 手柄组合按键
    name: "niuyao" # 动作名称，唯一
    path: "action_config/niuyao.boost" # boost文件路径
    # path: "action_config/hello.boost"
    type: 5 # 1: 线性插帧 2: 慢入快出 3: 快入慢出 4: 慢入慢出 5: 三次样条插值
    duration: 0.05 # 1~4类型为 boost文件每个点的时间间隔 5类型是先插帧计算，然后最新的插帧数组间隔
    torque: 0.0 # 最大力矩，0表示不限制
    velocity: 0.0 # 速度，0表示不限制
    back_to_zero: false # true回到初始位置站立不动，false 手臂动作后保持当前姿势，腿部进入亮源
    back_to_walk: true # 暂未启用
    loop: false # true循环播放，false 播放一次
    # type5用的参数
    time_interval: 1.00 # boost文件每个点的时间间隔 * boost文件点的数量等于执行时间

  - key: "rt+b"
    name: "yizima"
    path: "action_config/yizima.boost"
    type: 5
    duration: 0.05
    torque: 0.0
    velocity: 0.0
    back_to_zero: false
    back_to_walk: true
    loop: false
    # type5用的参数
    time_interval: 1.00
```

3. Configure Custom Motion File Path

In the `base_waypoint.yaml` file, find the `path` configuration item corresponding to the button mapping, and modify its value to the name of your actual .boost motion file (the default in the example is `test.boost`). Save the file promptly after modification to ensure the configuration takes effect, as shown in the figure.

```yaml
multi_waypoint_config:
  - key: "rt+a" # 手柄组合按键
    name: "niuyao" # 动作名称，唯一
    path: "action_config/test.boost" # boost文件路径
    # path: "action_config/hello.boost"
    type: 5 # 1: 线性插帧 2: 慢入快出 3: 快入慢出 4: 慢入慢出 5: 三次样条插值
    duration: 0.05 # 1~4类型为 boost文件每个点的时间间隔 5类型是先插帧计算，然后最新的插帧数组间隔
    torque: 0.0 # 最大力矩，0表示不限制
    velocity: 0.0 # 速度，0表示不限制
    back_to_zero: false # true回到初始位置站立不动，false 手臂动作后保持当前姿势，腿部进入亮源
    back_to_walk: true # 暂未启用
    loop: false # true循环播放，false 播放一次
    # type5用的参数
    time_interval: 1.00 # boost文件每个点的时间间隔 * boost文件点的数量等于执行时间

  - key: "rt+b"
    name: "yizima"
    path: "action_config/yizima.boost"
    type: 5
    duration: 0.05
    torque: 0.0
    velocity: 0.0
    back_to_zero: false
    back_to_walk: true
    loop: false
    # type5用的参数
    time_interval: 1.00
```

4. Restart the Device and Verify the Motion

1. Turn off the power of the motor and the upper computer, then restart the device;

2. Follow the gamepad operation guidelines in the device user manual to enter DEFAULT mode;

3. Press the gamepad buttons `RT+A` simultaneously to reproduce the configured recorded motion in Reinforcement Learning Mode.

Extended Configuration (Optional)

The lower part of the `base_waypoint.yaml` file also reserves mapping configuration positions for the gamepad buttons `RT+B`, `RT+Y`, and `RT+X`. The configuration method is consistent with the above steps.

Users in need can bind more recorded stylized motions to corresponding buttons following the same process.