安装

Linux or macOS

```
python3 -m pip install --upgrade nni
```

跑示例代码

Run the MNIST example.

Linux or macOS

```
nnictl create --config nni/examples/trials/mnist-tfv1/config.yml
```

命令行输出

```
INFO: Starting restful server...
INFO: Successfully started Restful server!
INFO: Setting local config...
INFO: Successfully set local config!
INFO: Starting experiment...
INFO: Successfully started experiment!
-----------------------------------------------------------------------
The experiment id is egchD4qy
The Web UI urls are: http://223.255.255.1:8080   http://127.0.0.1:8080
-----------------------------------------------------------------------

You can use these commands to get more information about the experiment
-----------------------------------------------------------------------
         commands                       description
1. nnictl experiment show        show the information of experiments
2. nnictl trial ls               list all of trial jobs
3. nnictl top                    monitor the status of running experiments
4. nnictl log stderr             show stderr log content
5. nnictl log stdout             show stdout log content
6. nnictl stop                   stop an experiment
7. nnictl trial kill             kill a trial job by id
8. nnictl --help                 get help information about nnictl
-----------------------------------------------------------------------
```

NNI使用流程

1. 定义搜索空间

   json文件，给出超参数和候选值

```
{
    "LSTM_UNIT_NUM": { "_type": "choice", "_value": [64, 128] },
    "BATCH_SIZE": { "_type": "choice", "_value": [64, 128, 256] }
}
```

2. 改动模型代码
    - 导入 import NNI
    - 获取参数值 nni.get_next_parameter()（最好能将要调优的超参数封装成一个字典，方便进行对接）

    ```
    if __name__ == '__main__':
        PARAMS = {"LSTM_UNIT_NUM":128, "BATCH_SIZE":128}
        RECEIVED_PARAMS = nni.get_next_parameter()
        PARAMS.update(RECEIVED_PARAMS)
        train(PARAMS)
    ```

    - 返回中间结果 nni.report_intermediate_result(metrics)
    - 返回最终结果 nni.report_final_result(metrics)

    > 或者不改动执行逻辑，在代码中加入 Annotation
    >
    > ```
    > """@nni.variable(nni.choice(50, 250, 500), name=batch_size)"""
    >     batch_size = 128
    > ```

3. 定义Experiment配置

    config.yml文件

4. 运行

    输入命令

    ```
    nnictl create --config nni/examples/trials/mnist-tfv1/config.yml
    ```

    即可在8080端口看到可视化的实验过程和结果

其他

.cfg是什么文件

Config.cfg，配置文件，可以直接用文本编辑器打开。