pytorch常用操作日常记录

1 、 如何求tensor的均值和方差

1. **torch.mean**
2. **torch.val**
3. **torch.var_mean**

2、如何交换维度顺序

1. **torch.transpose**
2. **torch.permute**

区别在于，transpose一次只能完成两个维度的转换，permute可以同时完成多个维度转换。

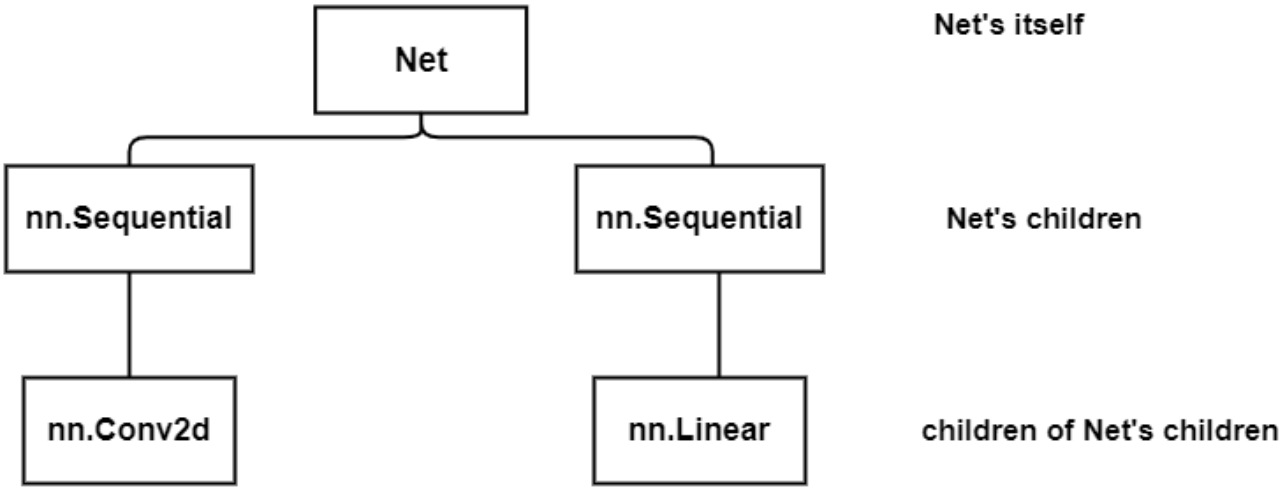
3、如何计算tensor的形状

1. tensor.shape
2. tensor.size()

4、如何拼接和切割tensor

1. **tensor.cat**
2. **tensor.stack**
3. **tensor.split**
4. **tensor.chunk**

5、如何遍历整个模型



1. **modules()**

```
class Net(nn.Module):
    def __init__(self):
        super(Net, self).__init__()
        self.features = nn.Sequential(
            nn.Conv2d(3, 48, kernel_size=11, stride=4, padding=2)
        )
        self.classifier = nn.Sequential(
            nn.Linear(128 * 6 * 6, 2048),
        )
        for idx, m in enumerate(self.modules()):
            print(f"{idx} -> {m}")

0 -> Net(
  (features): Sequential(
    (0): Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4), padding=(2, 2))
  )
  (classifier): Sequential(
    (0): Linear(in_features=4608, out_features=2048, bias=True)
  )
)
1 -> Sequential(
  (0): Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4), padding=(2, 2))
)
2 -> Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4), padding=(2, 2))
3 -> Sequential(
  (0): Linear(in_features=4608, out_features=2048, bias=True)
)
4 -> Linear(in_features=4608, out_features=2048, bias=True)
```

2. **named_modules()**

```
0 -> ('', Net(
  (features): Sequential(
    (0): Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4), padding=(2, 2))
```

```
  )
  (classifier): Sequential(
    (0): Linear(in_features=4608, out_features=2048, bias=True)
  )
))
1 -> ('features', Sequential(
  (0): Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4), padding=(2, 2))
))
2 -> ('features.0', Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4),
padding=(2, 2)))
3 -> ('classifier', Sequential(
  (0): Linear(in_features=4608, out_features=2048, bias=True)
))
4 -> ('classifier.0', Linear(in_features=4608, out_features=2048,
bias=True))
```

3. **children**

```
0 -> Sequential(
  (0): Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4), padding=(2, 2))
)
1 -> Sequential(
  (0): Linear(in_features=4608, out_features=2048, bias=True)
)
```

4. **named_children**

```
0 -> ('features', Sequential(
  (0): Conv2d(3, 48, kernel_size=(11, 11), stride=(4, 4), padding=(2, 2))
))
1 -> ('classifier', Sequential(
  (0): Linear(in_features=4608, out_features=2048, bias=True)
))
```

self.modules()采用**深度优先遍历**的方式，存储了net的所有模块，包括`net itself`，`net's children`，`children of net's children`。self.children()只包括网络模块的第一代儿子模块，而self.modules()包含网络模块的自己本身和所有后代模块。