

CHATBOT 分享

赵英俊

[HTTPS://GITHUB.COM/ZHAOYINGJUN](https://github.com/ZHAOYINGJUN)

- chatbot项目工程简介

- 整体工程架构
- 配置文件和web工程
- 适配的框架版本

- SeqGAN版本分享

- SeqGAN原理简介
- SeqGAN实现过程设计
- 核心代码分析

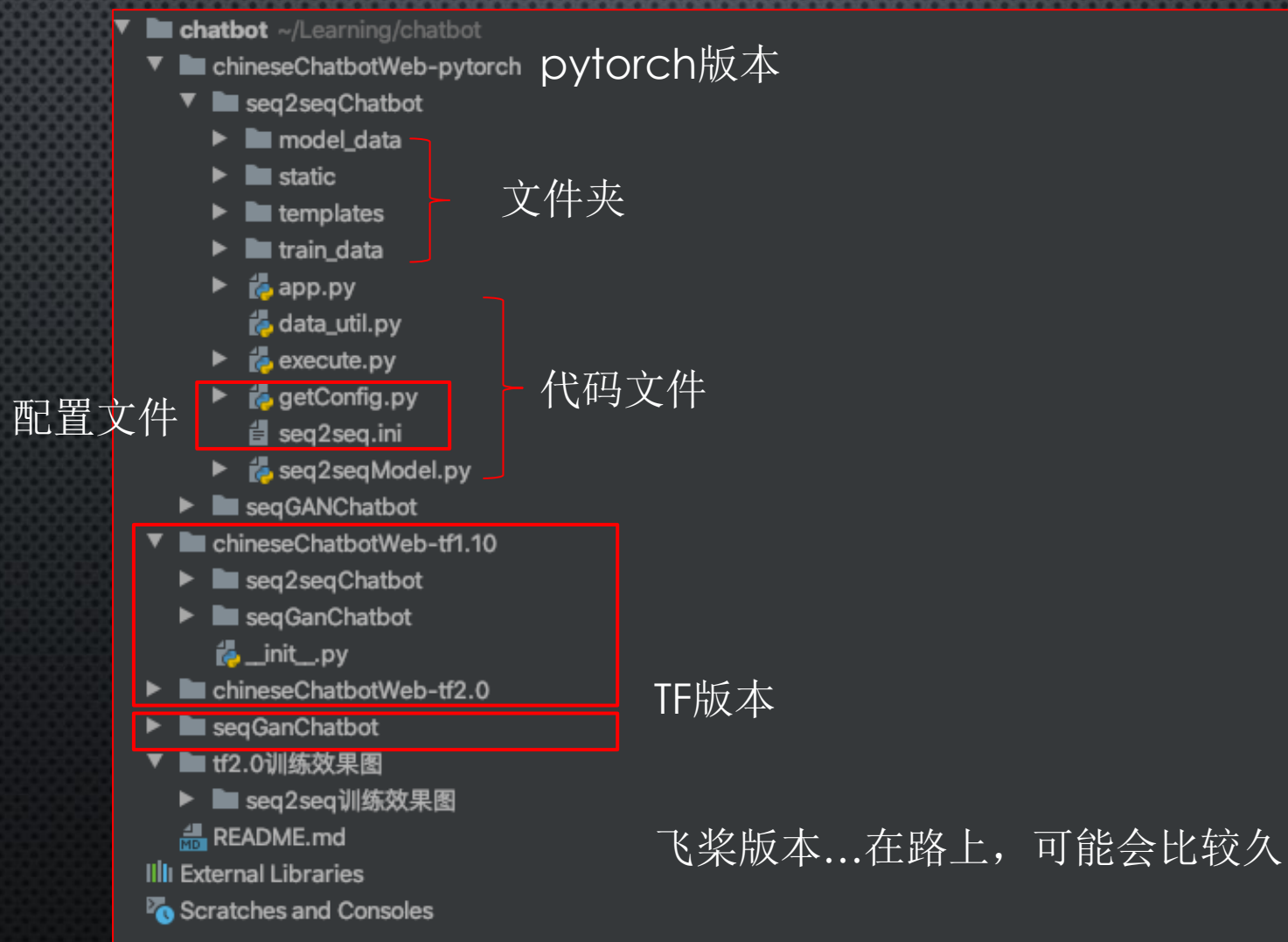
- 核心模块介绍TF2.0 vs pytorch

- seq2seqModel
- execute
- app

- 项目路标

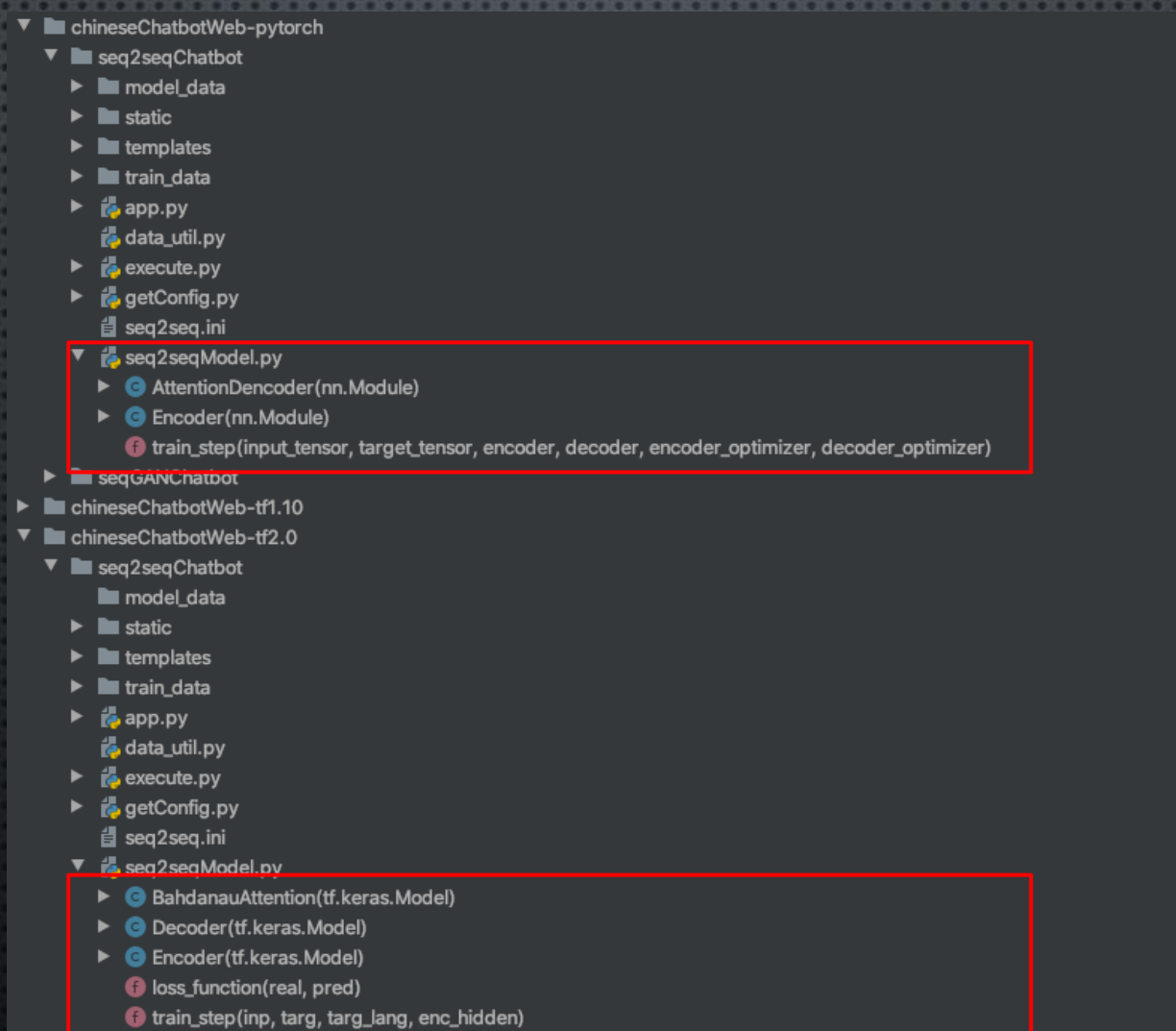
- SeqGAN的TF2.0 pytorch版本更新
- 飞桨平台适配
- 多轮情感聊天机器人版本

chatbot项目工程简介



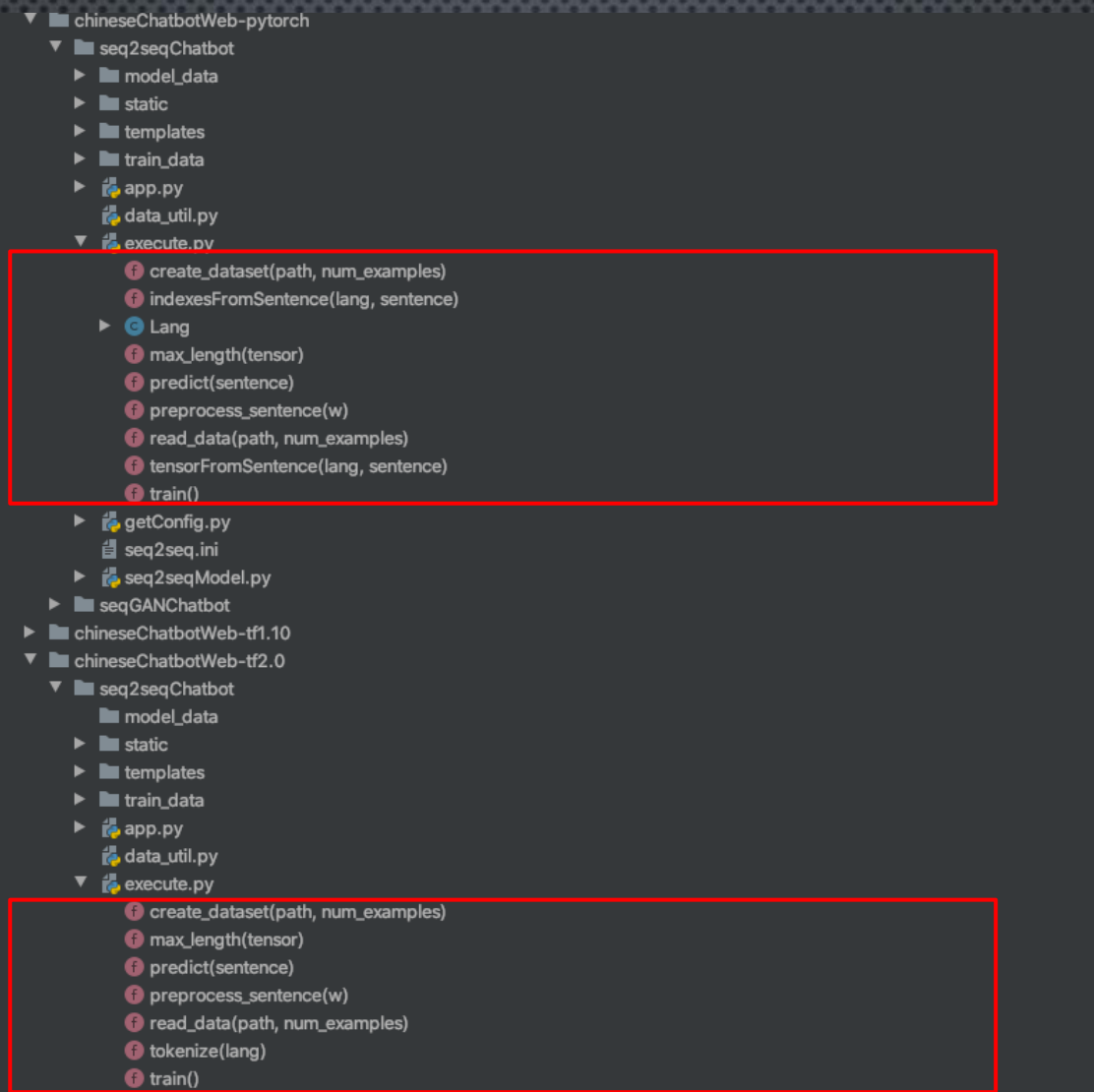
核心模块介绍

Model=encoder+attention+decorder+loss



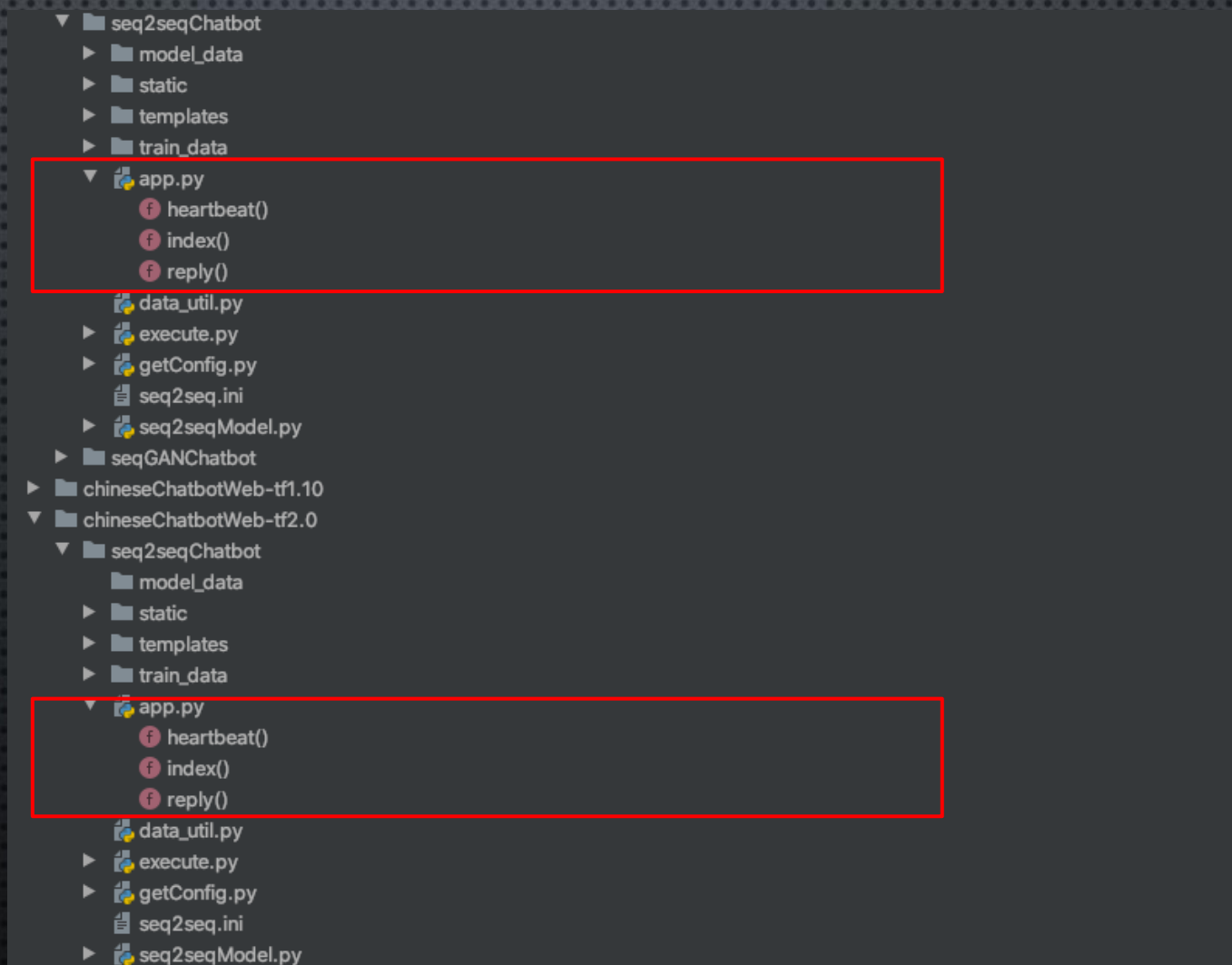
核心模块介绍

execute=create_data+preprocess_sentence+tokenize+train+predict

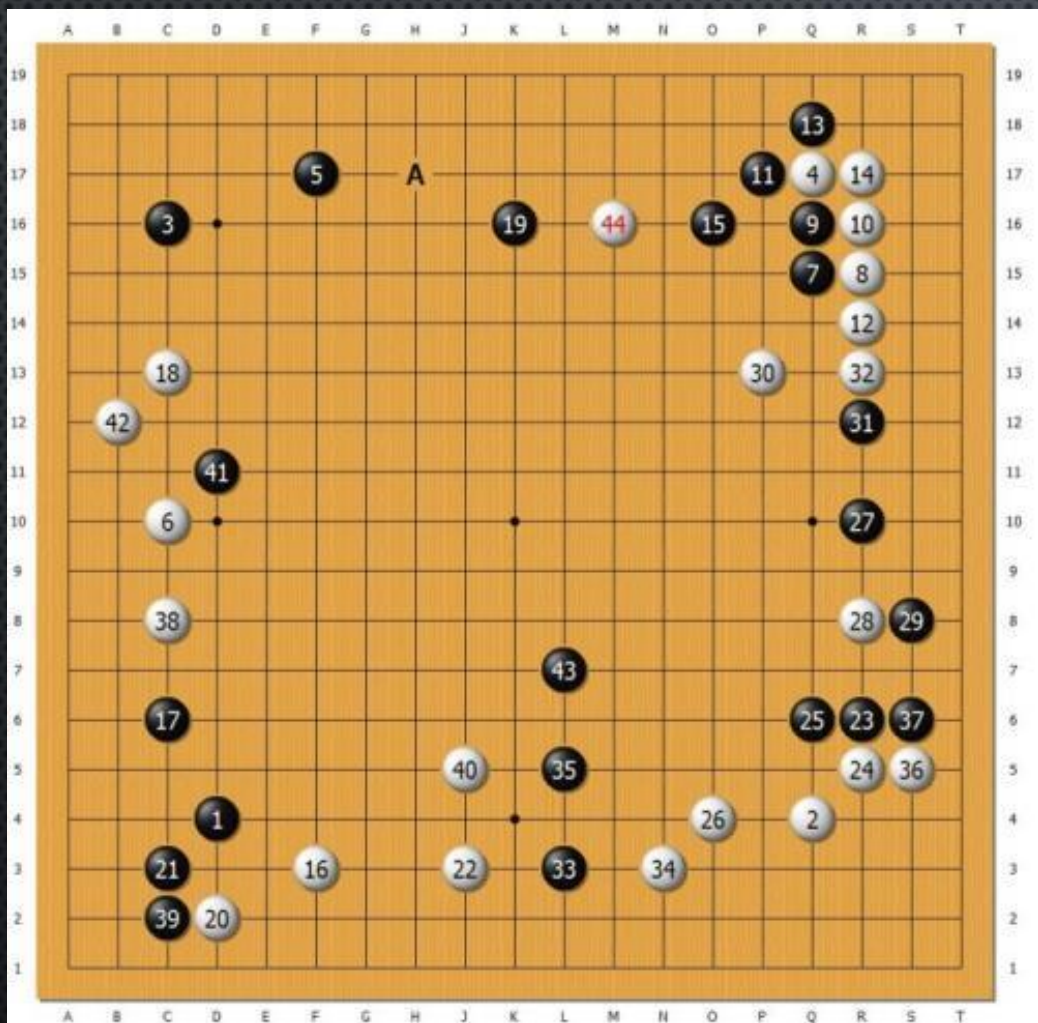


核心模块介绍

app=heartbeat+index+reply

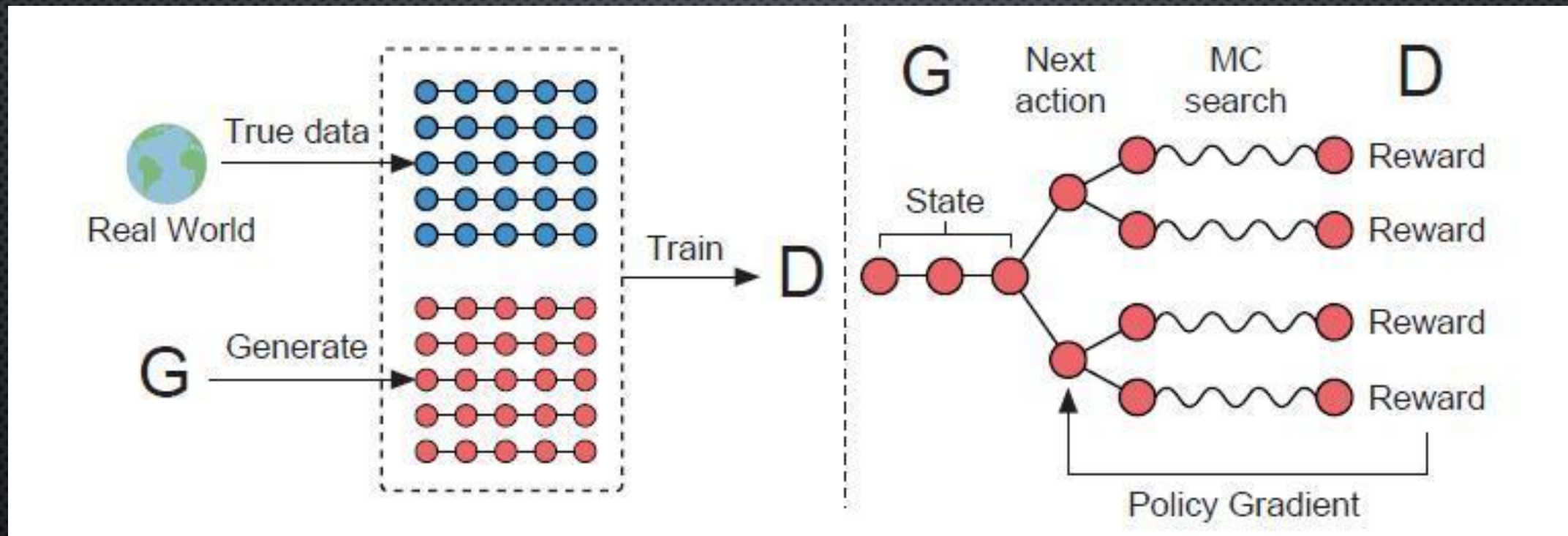


SeqGAN版本分享：围棋和自然语言一样都是离散的，那么围棋可以，自然语言也可以。



围棋和语言一样都是离散的，那么围棋可以，自然语言也可以
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

SeqGAN版本分享：seqGAN原理（内力不行，外力驱动）

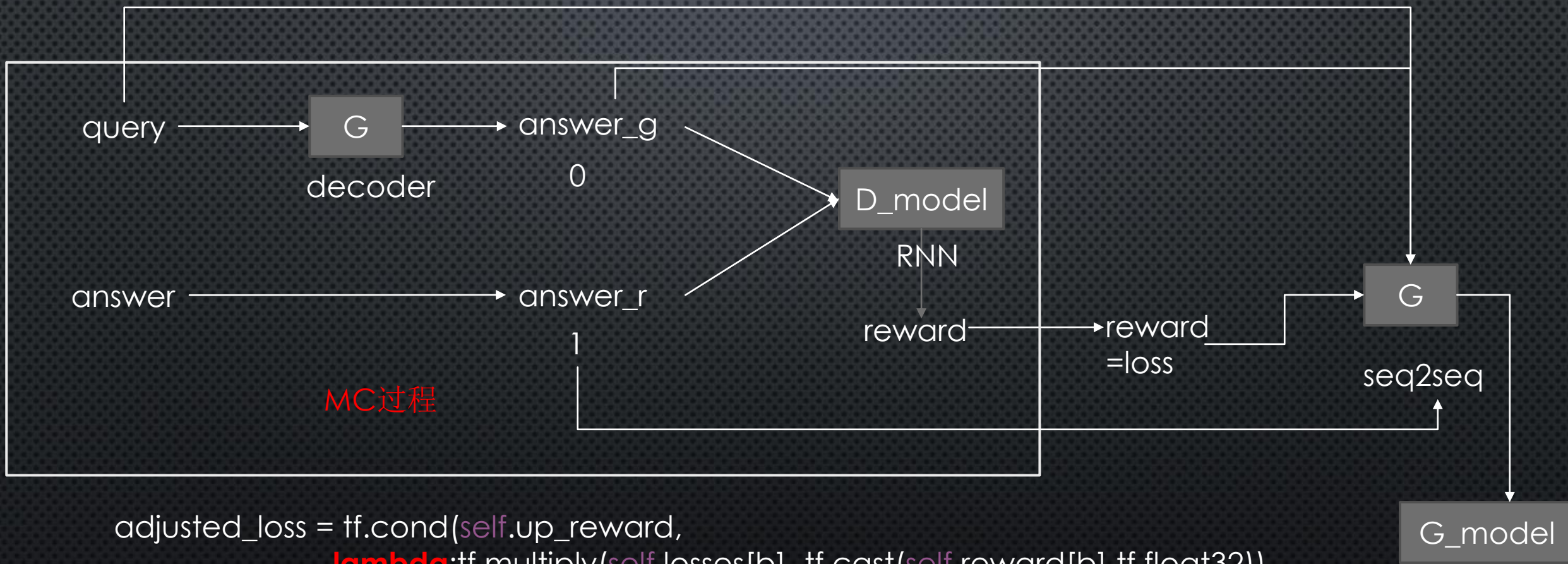


自然语言序列是离散的，那么单纯的GAN输出也是离散的，导致梯度不可导，无法驱动参数更新。那么就用策略梯度来驱动，根据Reward来驱动逼近极值。

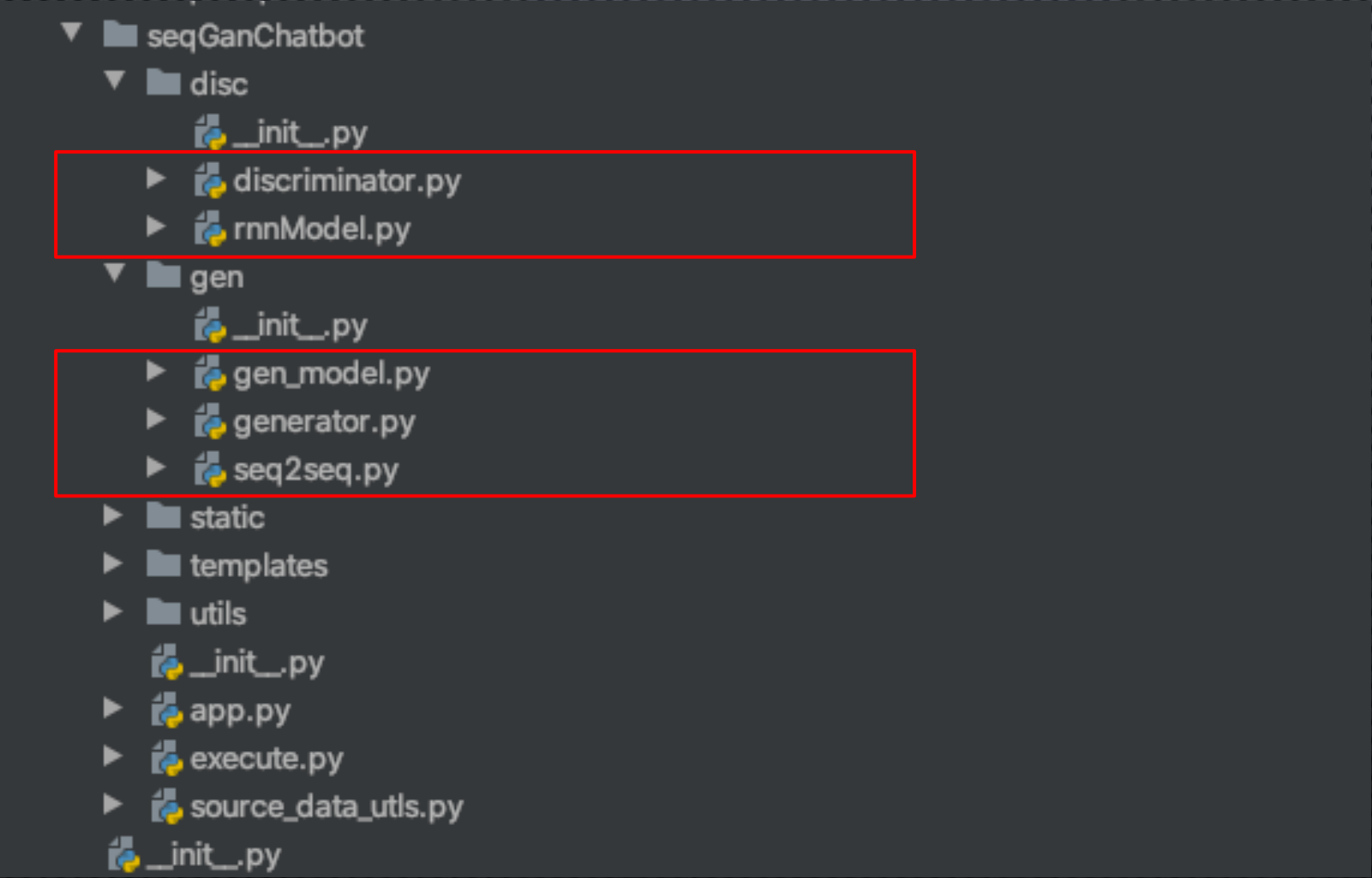
SeqGAN版本分享：seqGAN实现过程设计-更新D



SeqGAN版本分享：seqGAN实现过程设计-更新G



SeqGAN版本分享：seqGAN核心代码分析



```
graph TD
    seqGanChatbot[seqGanChatbot] --> disc[disc]
    seqGanChatbot --> gen[gen]
    seqGanChatbot --> static[static]
    seqGanChatbot --> templates[templates]
    seqGanChatbot --> utils[utils]
    seqGanChatbot --> app[app.py]
    seqGanChatbot --> execute[execute.py]
    seqGanChatbot --> source[source_data_utls.py]
    seqGanChatbot --> init_main[_init_.py]
    disc --> init_disc[_init_.py]
    disc --> discriminator[discriminator.py]
    disc --> rnnModel[rnnModel.py]
    gen --> init_gen[_init_.py]
    gen --> gen_model[gen_model.py]
    gen --> generator[generator.py]
    gen --> seq2seq[seq2seq.py]
```

seqGanChatbot

- disc
 - `_init_.py`
 - `discriminator.py`
 - `rnnModel.py`
- gen
 - `_init_.py`
 - `gen_model.py`
 - `generator.py`
 - `seq2seq.py`
- static
- templates
- utils
- `_init_.py`
- `app.py`
- `execute.py`
- `source_data_utls.py`
- `_init_.py`

SeqGAN版本分享：seqGAN实现过程设计-更新G

```
def decoder(num_roll):
    for _ in xrange(num_roll):
        _, _, output_logits = gen_model.step(sess, encoder_inputs, decoder_inputs, target_weights, bucket_id,
                                             forward_only=True)

        seq_tokens = []
        resps = []
        for seq in output_logits:
            row_token = []
            for t in seq:
                row_token.append(int(np.argmax(t, axis=0)))
            seq_tokens.append(row_token)

        seq_tokens_t = []
        for col in range(len(seq_tokens[0])):
            seq_tokens_t.append([seq_tokens[row][col] for row in range(len(seq_tokens))])

        for seq in seq_tokens_t:
            if data_utils.EOS_ID in seq:
                resps.append(seq[:seq.index(data_utils.EOS_ID)]:gen_config.buckets[bucket_id][1]))
            else:
                resps.append(seq[:gen_config.buckets[bucket_id][1]])

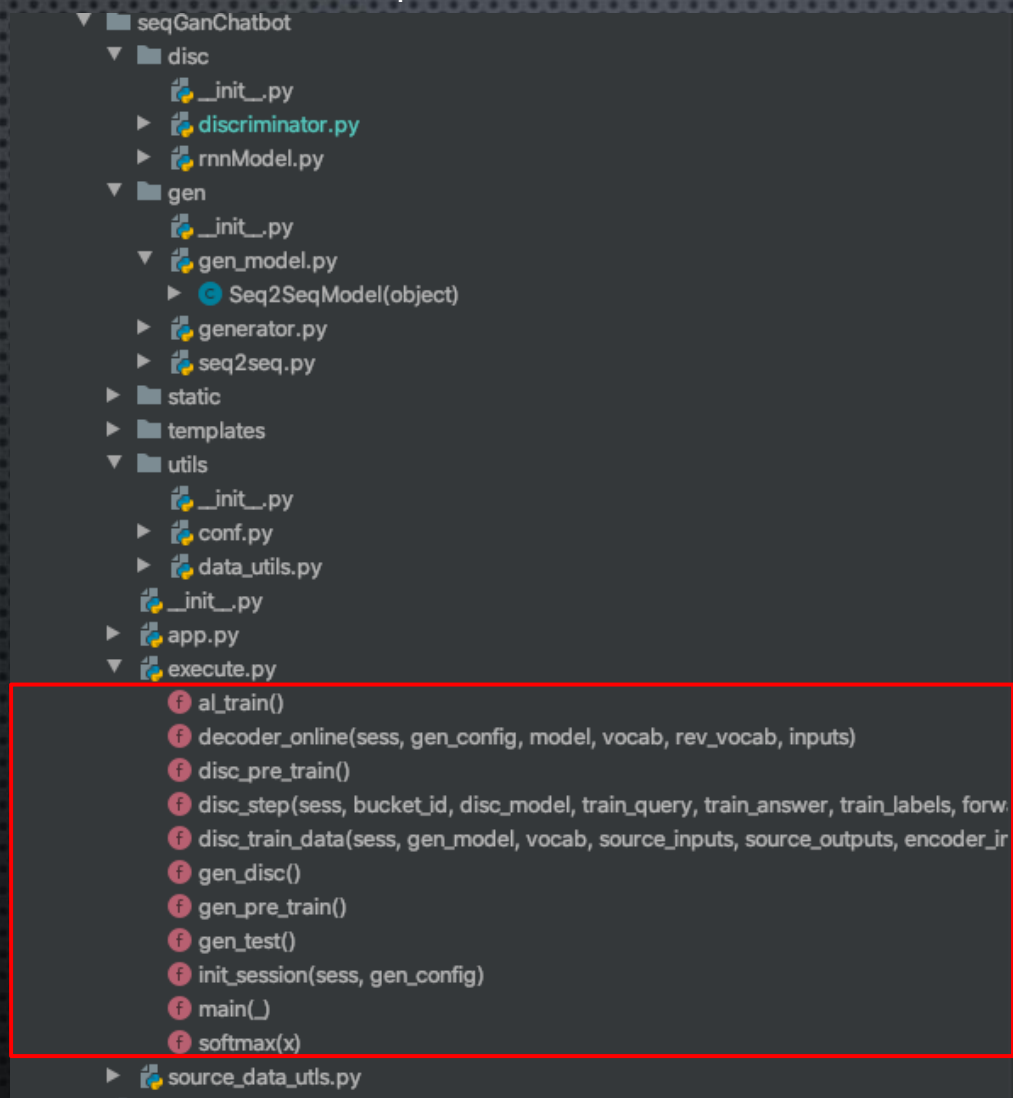
        for i, output in enumerate(resps):
            output = output[:answer_len] + [data_utils.PAD_ID] * (answer_len - len(output) if answer_len > len(output) else 0)
            train_query.append(train_query[i])
            train_answer.append(output)
            train_labels.append(0)

    return train_query, train_answer, train_labels

if mc_search:
    train_query, train_answer, train_labels = decoder(gen_config.beam_size)
else:
    train_query, train_answer, train_labels = decoder(1)

return train_query, train_answer, train_labels
```


SeqGAN版本分享：seqGAN核心代码分析



- 项目路标:

- SeqGAN的TF2.0 – 春节期间更新, pytorch版本更新待定, 预计在国庆节期间
- 飞桨平台适配-21年6月
- 多轮情感聊天机器人版本-待定