**1.Two angles to distinguish chat robots**

The type of chat bot can be distinguished from two aspects of application purpose or technical means. According to the application purpose, it can be divided into Goal Driven VS No-Goal Driven chat bot. According to technical means, it can be divided into a search chat robot and a production chat robot.

Goal Driven VS No-Goal Driven chat bots are differentiated according to the purpose of the application.

Goal Driven chat bots are developed for specific areas, such as website customer service, car assistants, and more.

No-Goal Driven driving is purely for chat or entertainment chat.

**2. Search VS generation**

Search VS Generating chat bots are distinguished by technical means.

Searching requires a large number of dialog libraries to support. If the library is large, the more problems it covers, the more user questions can be matched. The advantages are:

1. The quality of the answer is high

2. The answer is natural (from the real dialogue library)

The disadvantage is : Need a large dialogue library.

The generation does not match the search for user questions but uses specific means (only the deep learning method is described below) to generate the answer. The advantage is that it can cover all the problems of the user. The disadvantage is that the answer may not be of high quality (there is a problem with the grammar, no fluency, etc.).

**3. Good chat robot features**

1. reply is consistent with the user problem logic

2. grammatically correct (some difficulty for the current production model)

3. Answers should be humorous and interesting (some questions cannot simply reply to "good", "yes" and other uninteresting results)

4. “Humanity” (for how many times you have the same question “How old are you”, you need to ensure that the answers are consistent) instead of “schizophrenia” (for background, hobbies, language styles should be consistent)

**4. Mainstream technical ideas**

1. Artificial template: Manually write templates for different scenarios to describe problems and answers, such as Siri. Advantages: Accuracy, disadvantages: large manual work; poor scalability.

2. Search: Search engine route. Need to establish a dialogue library, fuzzy matching in the dialogue library according to the problem.

3. Machine Translation: Unlike common ones, translate user questions into question answers. Advantages: The migration of mature technology for statistical machine translation can be applied.

4. Deep learning: Most are improvements in the deep learning technology framework of encoding-decoding (or sequence-sequence). Advantages: Simple ideas; scalable.

Personally, the machine translation problem-answer is a bit like the encode-decode process in the deep learning process.

**5. Construction of deep learning ideas**

**…processing…**