

HASS Final Project Report

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Poet Relationship Diagram:

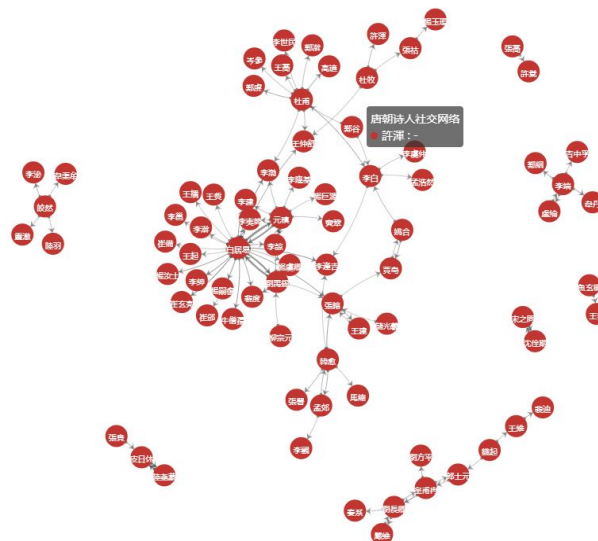
Workflow:

- Word level analyze:
 - Count character/author/frequency of different word
Setup own vocab
 - Apply word slicer `thulac` (<https://github.com/thunlp/THULAC-Python>)
 - Save only Chinese characters to dataset
 - Vectorize dataset
- Generate relational html diagram by opencc:

```
# 基于词的分析
print('\n\n基于词的分析')
# 地名排名
print('\n地名词排名')
print_counter(genre_counter['ns'].most_common(10))
# 时间排名
print('\n时间词排名')
print_counter(genre_counter['t'].most_common(10))
# 场景排名
print('\n场景词排名')
print_counter(genre_counter['s'].most_common(10))
```

Some debug footages

Result:



Full Tang Poet Relationship

Poem Generation:

Methods: The input of the model is a set of chinese characters, for example: 刀山火海. The output of the model will be a poem. The first character of each sentence will form the line of the input, as shown in the figure below.

刀山火海
刀生心义是诸生，山石壁丝苦有余。
火到朝雷明月缺，海风吹扰涨江潮。

The data source comes from a database on github.

<https://github.com/chinese-poetry/chinese-poetry>

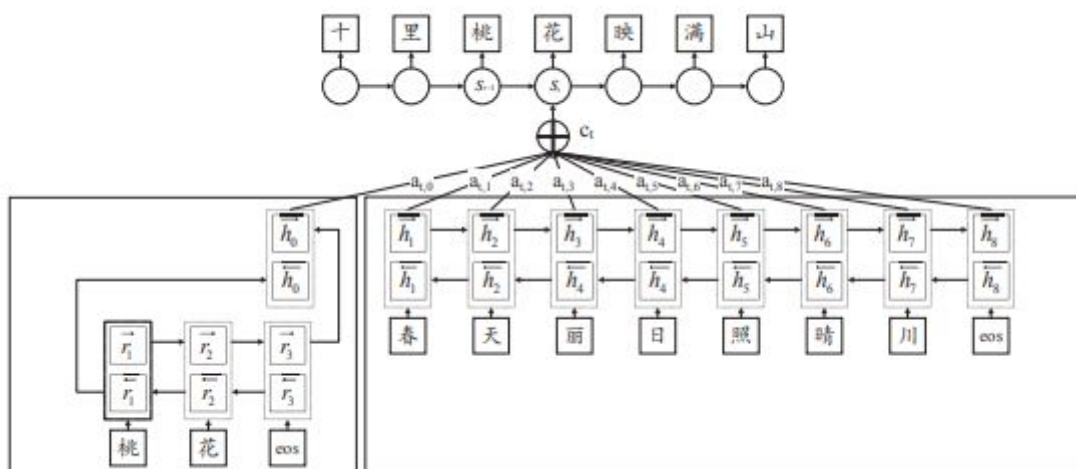
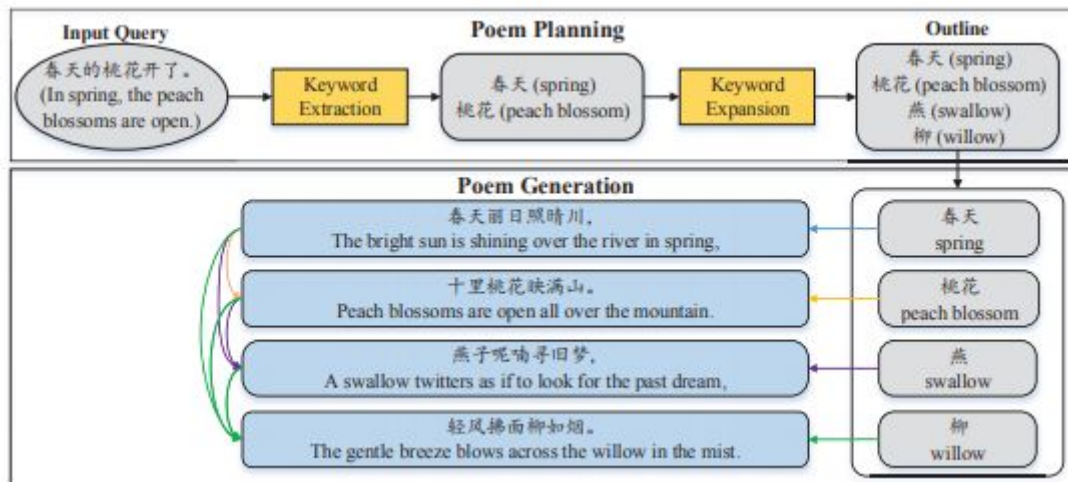
In the meantime, the poem is generated based on the principle below.

古诗JSON结构

```
[
  {
    "strains": [
      "平平平仄仄，平仄仄平平。",
      "仄仄平平仄，平平仄仄平。",
      "平平平仄仄，平仄仄平平。",
      "平仄仄平仄，平平仄仄平。"
    ],
    "author": "太宗皇帝",
    "paragraphs": [
      "秦川雄帝宅，函谷壮皇居。",
      "绮殿千寻起，离宫百雉余。",
      "连营遥接汉，飞观迥凌虚。",
      "云日隐层阙，风烟出绮疏。"
    ],
    "title": "帝京篇十首 一"
  },
  ... 每个JSON文件1000条唐诗记录。
]
```

The diagram below demonstrates how the poem is generated. Inspired by the observation that a human poet shall make an outline first before writing a poem, we propose a planning-based poetry generation approach (PPG) that first generates an outline according to the user's writing intent and then generates the poem. Our PPG system takes user's writing intent as input which can be a word, a sentence or a document, and then generates a poem in two stages: Poem Planning and Poem Generation.

The user's input writing intent can be represented as a sequence of words. There is an assumption in the Poem Planning stage that the number of keywords extracted from the input query Q must be equal to the number of lines N in the poem, which can ensure each line takes just one keyword as the sub-topic. If the user's input query Q is too long, we need to extract the most important N words and keep the original order as the keywords sequence to satisfy the requirement.



WORKING PRINCIPLE

In Shan Shui paintings, there are three basic elements that make up a painting: Mountains, rivers, and on occasion, waterfalls. Hence the Chinese name Shan Shui ("mountain-water") for landscape art. Usually, mountains are the "heart" of a Chinese landscape painting.

In order to recreate and redraw different elements of ancient Chinese landscape painting, we created a web-based ancient Chinese landscape element recombination webpage. With a single click, and give a random integer (aka. seed), our program would perform recombination based on user input and generate a recombination of ancient Chinese landscape painting.



SPECIAL FEATURES

Landscape painting is traditionally at the top of the hierarchy of Chinese painting styles. It is very popular and is associated with refined scholarly taste. Thus, we selected various typical elements in ancient Chinese painting, including but not limited to:

- Trees
- Houses
- Mountains
- Waterfalls
- Water Ponds
- Stones
- Wood
- Leaves

Also, we specifically designed the background and each single element in order to give the drawing an authentic feeling. If we pay more attention to traditional painting, we can observe that there are a lot of overlapping in the drawing, such as Trees and Houses; Stones and Wood etc. We also take this into consideration and make sure that the ratio of overlapped items is maintained well.

User has an option to change seed to try different combinations of ancient Chinese painting elements. By using the same seed, user can repeat the generated element combination and save the whole page as picture.

LEARNINGS AND HARVESTS

Chinese landscape paintings have been around for thousands of years, but the techniques used to make these paintings and the meaning behind these paintings has not changed at all since Shan Shui started to take off during the Tang Dynasty. The paintings of ancient times are just as eye-catching and contemplative now as they were almost 2,000 years ago, and the meaning is still the same.