HASS 02.137 Introduction to Digital Humanities

Nanyang Art Style

1004602 John Lim Jie Sheng , 1004655 Saw Yi Xuan

Background

The Nanyang Art Style is a sinocentric art movement that has been spearheaded by Chinese migrants between 1930s and 50s in Singapore, integrating fundamentals of both Chinese painting traditions as well as styles from the Western schools of Paris like post-Impressionism and Cubism.

Research Questions ???

To what extent does the Nanyang Art Style, interpreted through Chen Wen Hsi's work, intermingle both Chinese and Western elements? How prominent are the Chinese and Western elements reflected in different types of subjects? What approaches should we use to accurately compare the art works? How do the results of these comparisons hold up against our expectations?

Methodology

1. Data Set Building

Our research is focused on unpacking Chen Wen Hsi's work as he primarily works in the Chinese Ink medium, but is also known for his modernist approach to the traditional medium which makes his art work a suitable candidate for study of both the western and traditional Chinese influences of the Nanyang art movement.

2. Pre-processing Dataset

We are aiming to retrieve data that is based on the use of brushstrokes, shading and the use of lines across the entire painting using a Gabor filter as a form of edge detection. It is a linear gaussian filter, that uses frequency and angles to build a series of kernels that can be used as image masks.

3. Feature Extraction

Each image has 4 filtered images tied to it. In order to find patterns within these filtered images we make use of grey level co-occurrence matrices (GLCM) which describes the texture or patterns of pixel brightness across the image. A pixel is compared with its neighbour at distance d and at direction angle Θ.

4. Machine Learning

Before the values are used in machine learning, we normalise the matrix along each feature. These features use a support vector model, with a gaussian kernel. To build the two categories, the Paris School and the Shanghai School. Then we input Chen Wen Hsi's work based on selected subjects.

5. T-sne Graph

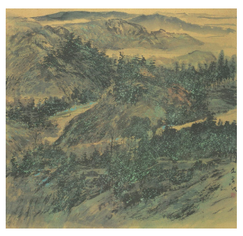
A method of dimensional reduction. Where we can reduce each image's normalised long vector into 2 dimensions for purposes of visualisation.

Dataset/Results

1. Categorisation based on P values:

Here are some of the artworks that we have used in our research, categorised into various subjects: Chicken, Duck, Gibbon, Heron, Koi Fish, Landscape, Lotus, Sparrow.
Categorisation based on the p values from our support vector model.

Paris



Paris_p =0.69
Chen wen hsi 1

Paris_p =0.667
Chen wen hsi chickens 13

paris_p = 0.5
Chen wen hsi egrets

Shanghai

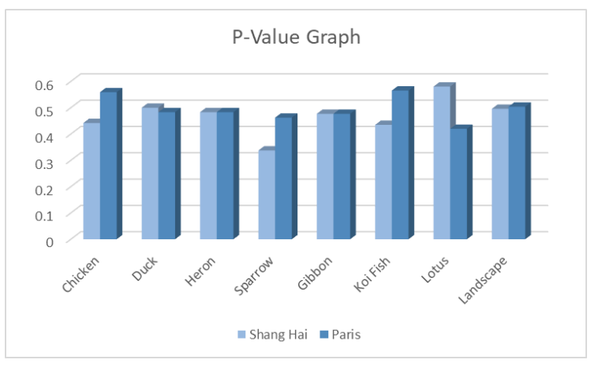
Shanghai_p = 0.5
Chen wen hsi egrets

Shanghai_p =0.601
Chen wen hsi assembling chickens

Shanghai_p =0.607
Chasing cwh

2. P- Value Graph:

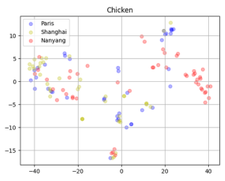
Before the values are used in machine learning, we normalise the matrix along each feature. The model generates two p values, one for likeness to Shanghai dataset and one to the Paris dataset.



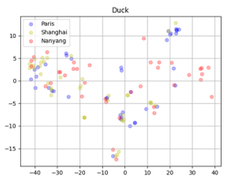
3. T-SNE Graph:

A breakdown of the different works by Chen Wen Hsi based on their subject

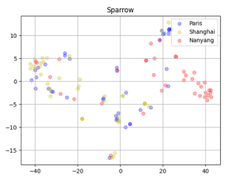
Chicken



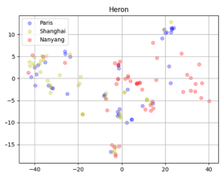
Duck



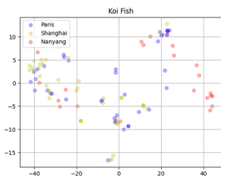
Sparrow



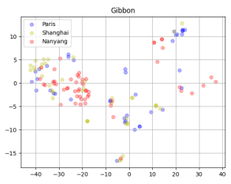
Heron



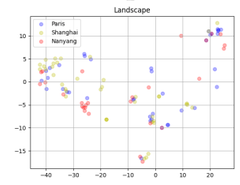
Koi Fish



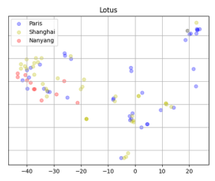
Gibbon



Landscape



Lotus



Analysis

Observation

In the paintings that are categorised under the Paris style, we observe a greater use of colour to depict depth and texture. The colours appear to be more naturalistic, though still highly stylised, than those categorised under the Shanghai style.
Under the Shanghai Style category there is amix of abstract and traditional elements with bolder brush strokes and the use of colour for shape.
In paintings of similar probablities we observe a variety in colour tones and the use of bold strokes to depict our subjects.

Limitation

1. Under the gabor filter and GLCM feature extraction, the bolder brushwork may be hard to differentiate from the traditional style which has a high contrast between the subject and the muted background.
2. The images scraped are of low resolution and this can reduce the features we can detect.

Conclusion

We genuinely wish that our proposal will be able to exacerbate the appreciation and comprehension of the Nanyang Art Style. The potentiality to unsheathe deductions through the comparison of different art styles can assuage us in identifying resemblance and uniqueness in future art styles. Especially with the consistent growth of the flourishing art scene in Singapore, it is crucial to introduce a convenient and efficient procedure for consumers to smoothly tackle comparisons among art movements.