

# Machine Learning Homework

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## I. PREPROCESSING

### A. Description

- 1.左圖：dataset原始圖像。
  - 2.右圖：處理過後的圖像。
- 1) step 1: resize成256\*256。
- 2) step 2: 彩圖轉成灰階圖。

### B. Picture

Cartoon:

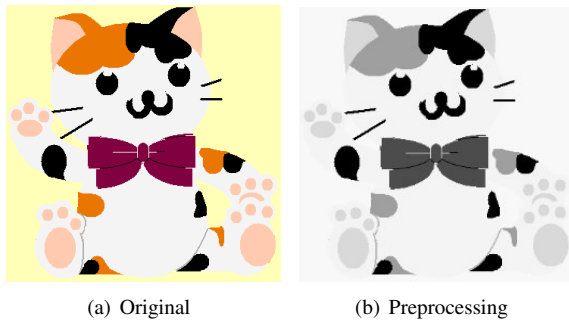


Fig. 1. Cartoon

Texture:

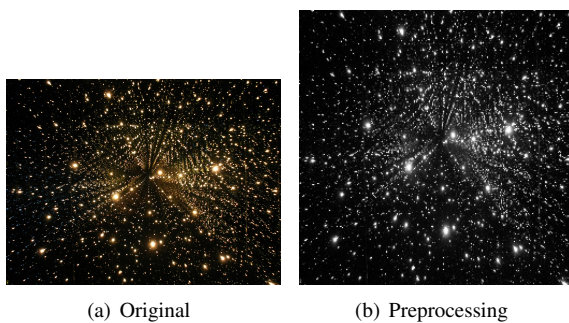


Fig. 2. Texture

## II. LEARN TWO DICTIONARIES

### A. Description

Learn two dictionaries respectively for the data in each folder.

### B. Method

1. Split image:  
Cut the pre-processed image into a small 16\*16 image.

2. Reshape:  
Pulls a 16\*16 matrix into a 256\*1 matrix.

### C. Result

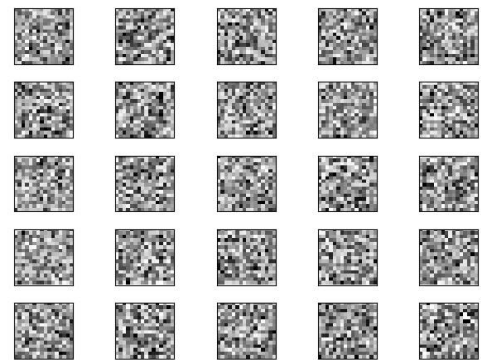


Fig. 3. Cartoon dictionary

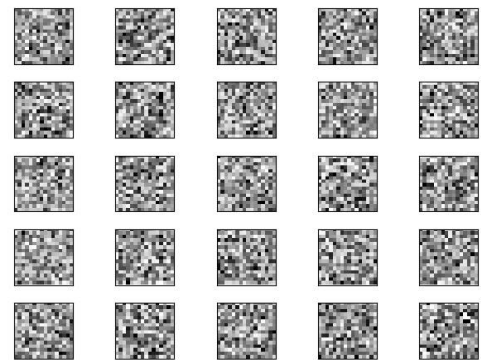


Fig. 4. Texture dictionary