

**Introduction to Computer Vision**

**Coursework**

**Submission 1**

**Your name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Student number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Question 1(a):**

Your image

****

**Rotated images:**

θ = -50 deg

****

θ = 60 deg

****

θ = 30 deg

****

θ = 120 deg

****

**Skewed images:**

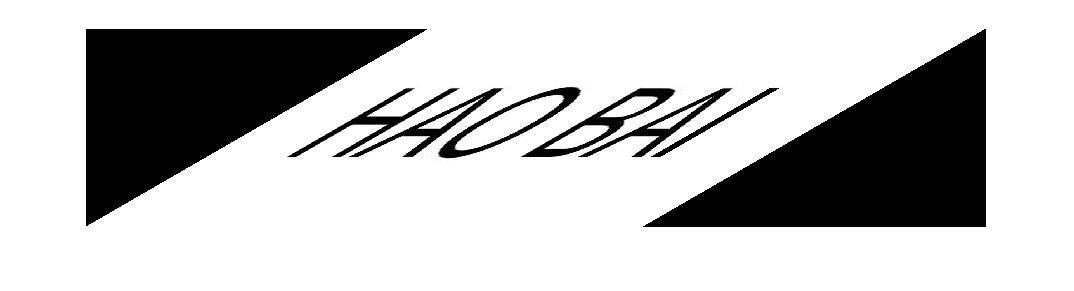
θ = 10 deg

****

θ = 40 deg

****

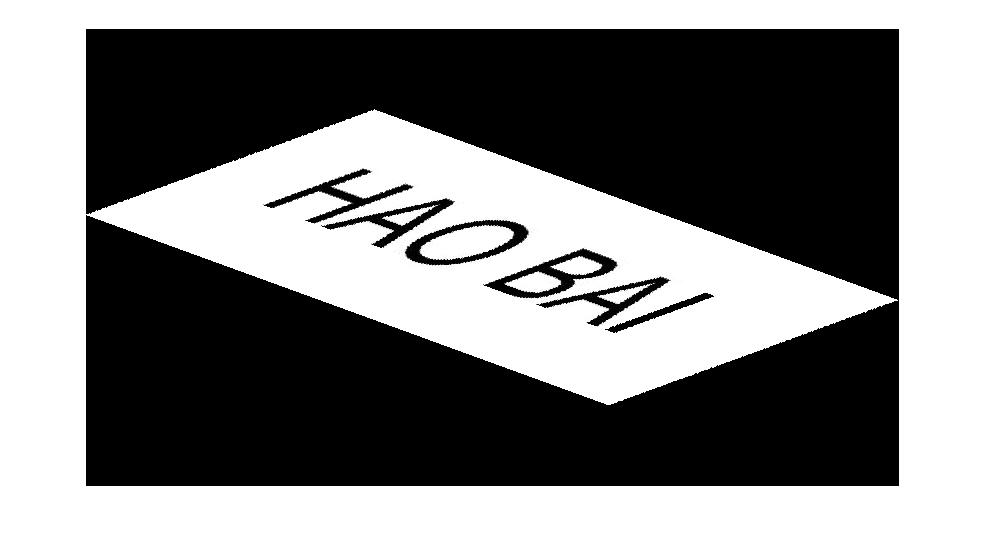
θ = 60 deg

****

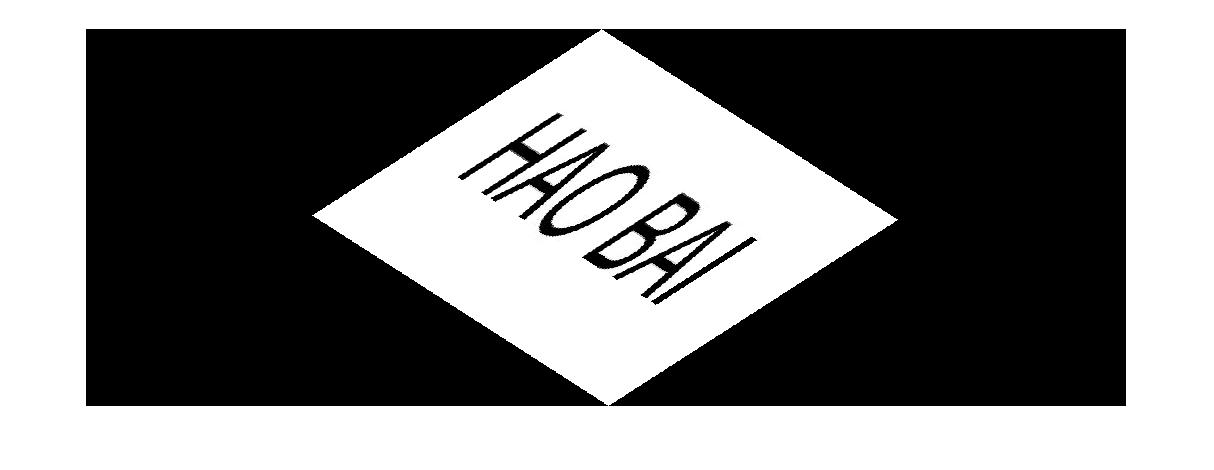
**Your comments:**

**Question 1(b):**

θ2=50 and θ1=20 clockwise



θ1=20 clockwise and θ2=50



**Your comments:**

**Question 2(a)**:

**Designed kernel:**

**1,1,1**

**1,1,1**

**1,1,1**

Averaged image



Original image



**Your comments:**

**Question 2(b):**

**Filtered image with kernel A**



**Filtered image with kernel B**



**Your comments:**

**Question 2(c):**

A followed by A



**A followed by B**



**B followed by A:**



**Your comments:**

**Question 2(d):**

**Extended kernels of A and B (5x5):**

**Results obtained by applying 5x5 kernel:**

**B followed by A**

**A followed by B**

**A followed by A**

**Extended kernels of A and B (7x7):**

**Results obtained by applying 7x7 kernel:**

**A followed by A**

**B followed by A**

**A followed by B**

**Your comments:**

**Question 3(a):**

**Two non-consecutive frames:**

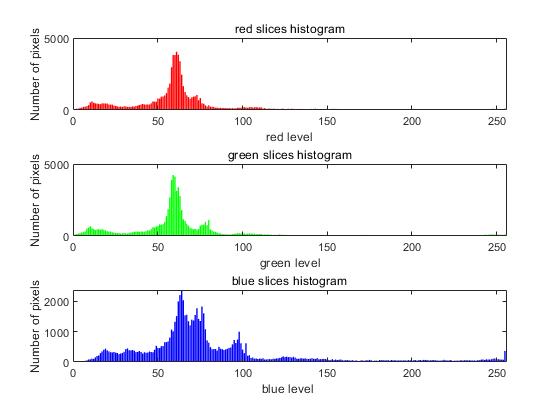
Image 1

Image 2

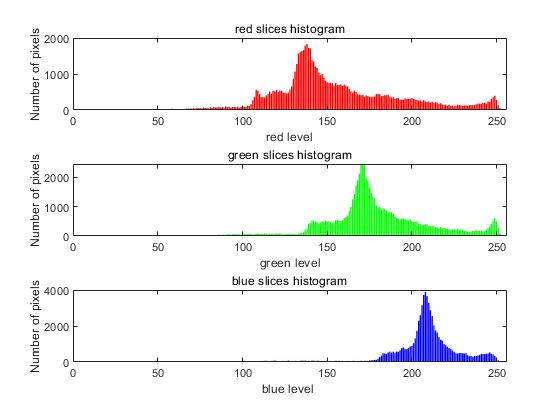


**Corresponding colour histograms:**

Histogram 2



Histogram 1



**Your comments:**

**Question 3(b):**

**Example 1:**

It



Frame3

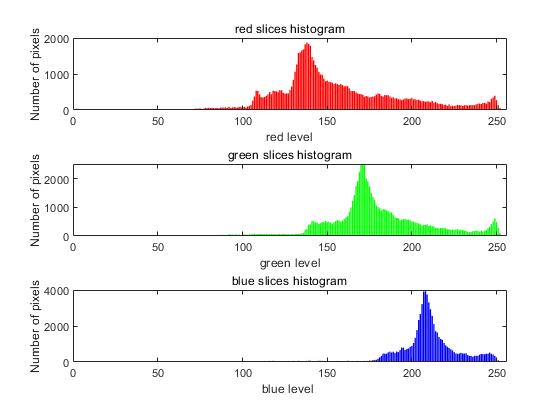
It+1



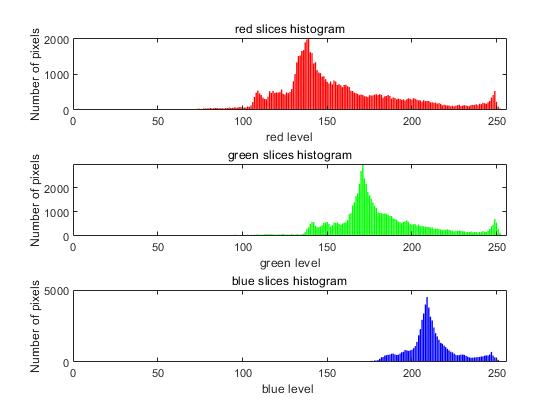
Frame4

**Histograms:**

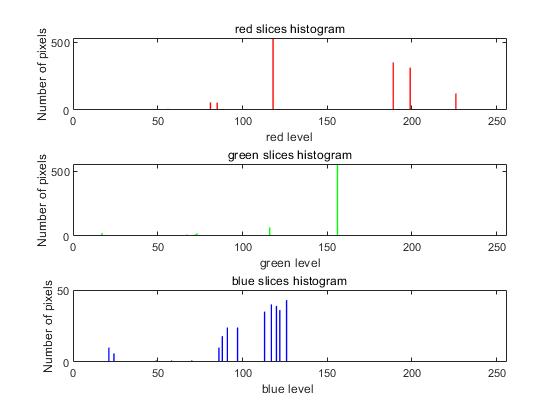
Histogram of It



Histogram of It+1



Intersection result



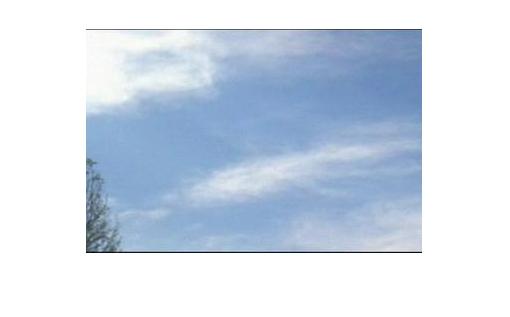
**Example 2:**

It+1



Frame10

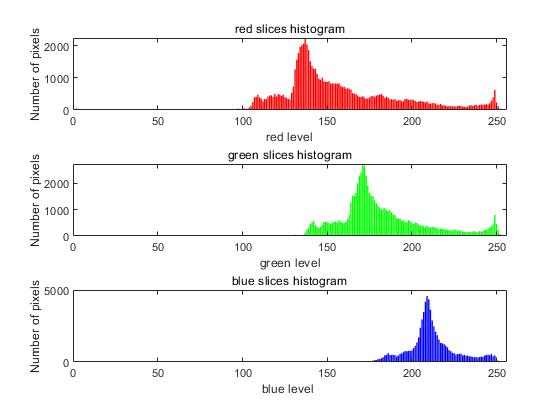
It



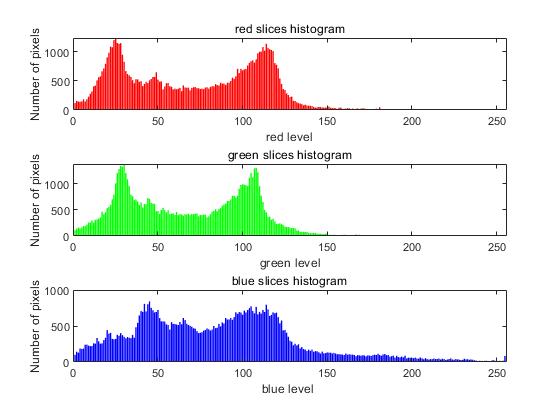
Frame9

**Histograms:**

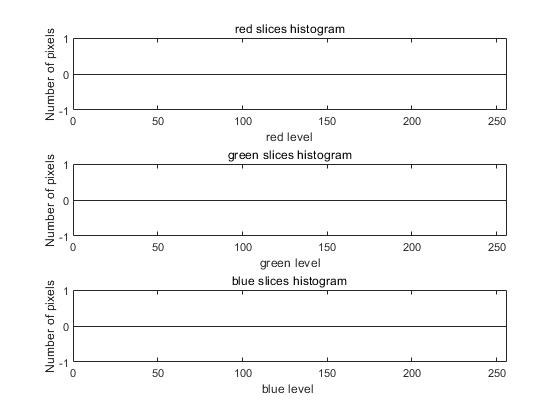
Histogram of It



Histogram of It+1



Intersection result



**Your Comments:**

**Question 3(c):**

**Comments:**

The intersection can be used to reprecent the scene changes in the video. As can be seen in the intersection histogram, there are no intersection value of the consecutive frames histograms (9th frame and 10th frame in DatasetB.avi). The intersection histogram can not show the location of each colors. However, it represented that the two frames RGB levels differnece and the amount of distributed color values. If there are no value in consecutive frames intersection histogram, the scene might be changed.