CONTENT BASED IMAGE RETRIEVAL USING SALIENT ORIENTED HISTOGRAM
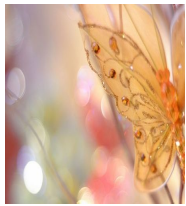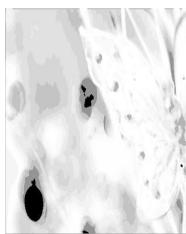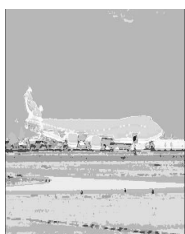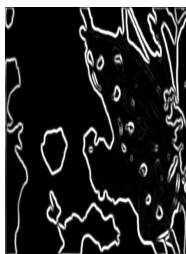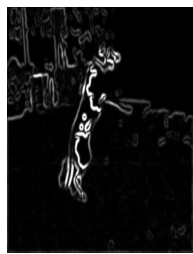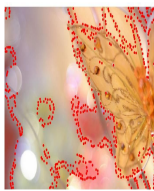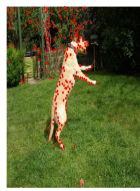
Report

Submitted by:
Sukanya Bhattacharjee (174050012)
Krunal Parmar (173059010)
Sneha Bhakare (150050040)

INPUT					
SALIENCY MAP					
MASK					
EDGE MAP					
HARRIS CORNER DETECTION BASED FEATURE POINTS					

MHEC BASED FEATURE POINTS					

RETRIEVAL RESULTS:

SOH USING HARRIS FEATURE POINTS:

SOH USING MHEC FEATURE POINTS:

ACCURACY:

SOH USING HARRIS FEATURE POINTS:

DATABASE	AVERAGE		MAXIMUM	
	T50	T100	T50	T100
Butterfly	44.5	47.5	52	53
Coffee Mug	56.22	56.88	70	65
Dog Jump	58.71	58.57	78	80
Giraffe	21.71	21.28	30	28
Plane	56.5	63.08	76	76

SOH USING MHEC FEATURE POINTS:

DATABASE	AVERAGE		MAXIMUM	
	T50	T100	T50	T100
Butterfly	54.5	54.25	58	57
Coffee Mug	61.33	61	70	69
Dog Jump	68	68.14	76	74
Giraffe	31.42	29	40	35
Plane	72	70.08	80	78

OBSERVATIONS:
- The strength of this method lies in how much precise the mask computation is. We have tried both adaptive thresholding and grabcut for this purpose. Grabcut is an interactive method by which we can manually cut out the mask, thus giving better results. But in this case it is not possible as we have huge dataset. Thus, the accuracy is affected.
- Harris corner detector at times works better than MHEC as it selects only corner. So when the mask is not accurate, this reduces the error as compared to MHEC which selects the edges as well.

THUR15K ACCURACY for T5,T10,T20:

SOH USING MHEC FEATURE POINTS:

DATABASE	AVERAGE(Dataset Labelled)			Average(Visually Labelled)		
	T5	T10	T20	T5	T10	T20
Butterfly	45	45	51.25	45	52.5	58.75
Coffee Mug	68.69	64.44	63.33	93.33	82.22	82.78
Dog Jump	61.42	63.57	66.78	84.28	87.85	90.35
Plane	75	80	78.75	96.67	96.67	95

Since the dataset contained missing labels for some true positive cases, we tried visually labelling the retrieved results and calculated the precision for T5, T10, T20 cases.

COREL10K Dataset

ACCURACY:

Each Class with 20 noise images:

CLASS	AVERAGE		
	T5	**T10**	**T20**
Class 2	82.8571	85.7143	85
Class 3	100	98.333	92.5000
Class 11	94.28	90	90.71
Class 41	85.71	90	88.57
Class 71	92	92	88
Class 74	100	95	92.5
Class 94	97.14	97.14	97.85

Each Class with 100 noise images:

CLASS	AVERAGE		
	T5	**T10**	**T20**
Class 2	80	78.57	76.42
Class 3	80	76.67	70
Class 11	74.28	71.42	69.28
Class 41	71.42	65.71	57.85
Class 71	80	80	79
Class 74	82.5	80	73.75
Class 94	82.85	81.42	82.14

Corel10K Observations:

- Since the dataset is well labelled, and the dataset contains images for which masks generated are better than the ones generated in THUR15K (Less background noise is retained), the retrieval performance for COREL10K dataset is better.
- Link to dataset: http://www.ci.gxnu.edu.cn/cbir/Dataset.aspx