# **Artificial Intelligence**

Semantic Analysis of real world images

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## Reference paper

- Chuan-Yu Chang ,
- Hung-Jen Wang ,
- Chi-Fang Li

published in the year 2009

Link:

http://www.sciencedirect.com/science/article/pii/S 0957417409003066

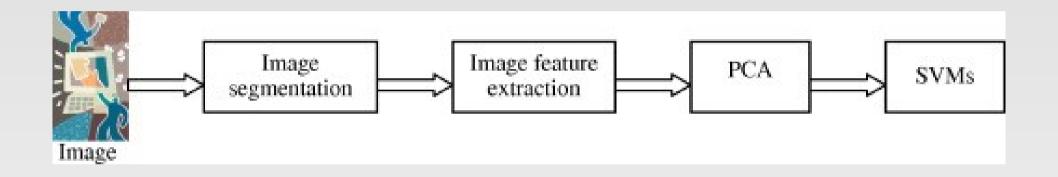
### Earlier.....

Conventionally, systems represent an image via a set of feature attributes such as color, texture, shape etc. these features are stored in database with image.

The retrieval was performed by matching the feature attributes.

However, users doesn't think in low level features. For example, <u>Show me the images of sunrise from the database</u>...

# Approach.....



#### Source:

http://www.sciencedirect.com/science/article/pii/S 0957417409003066

# J-seg Algorithm

- B.S.Manjunath
- Yining Deng
- Hyundoo Shin

#### Reference Link:

202.197.191.206:8080/44/course/chap18/sourse/ 99CVPRSeg.pdf

# J-segmentation





#### Source:

Database link:

202.197.191.206:8080/44/course/chap18/sourse/ 99CVPRSeg.pdf

# J-segmentation





Source :same database

# J-seg code

Vision Research Lab

Link:

http://vision.ece.ucsb.edu/segmentation/jseg/

### **Feature Extarction**

Color feature

**HSV** color space

H: Hue

S: Saturation

V: Value

- Texture Analysis
- Edge Direction histogram

Low level features, which form a feature vector of each object region, color, texture and shape are extracted from each semantic category. Feature Vector consists of 64 color, 20 textures, 24 shapes and thus a total of 108 to represent an individual object.

# Dimensionality reduction

Original Paper have PCA as dimensionality reduction and we are doing <u>both PCA and ICA as Dimensionality Reduction</u>
<u>Techniques</u>.

### Classifier

Support Vector Machine (SVM).

We 've used SVM , a non-probabilistic binary linear classifier to classify the images....

## Our Progress so far

- Able to segment the image
- Able to extract the color and texture features
- Able to apply pca on image
- Got code for SVM

### Results

