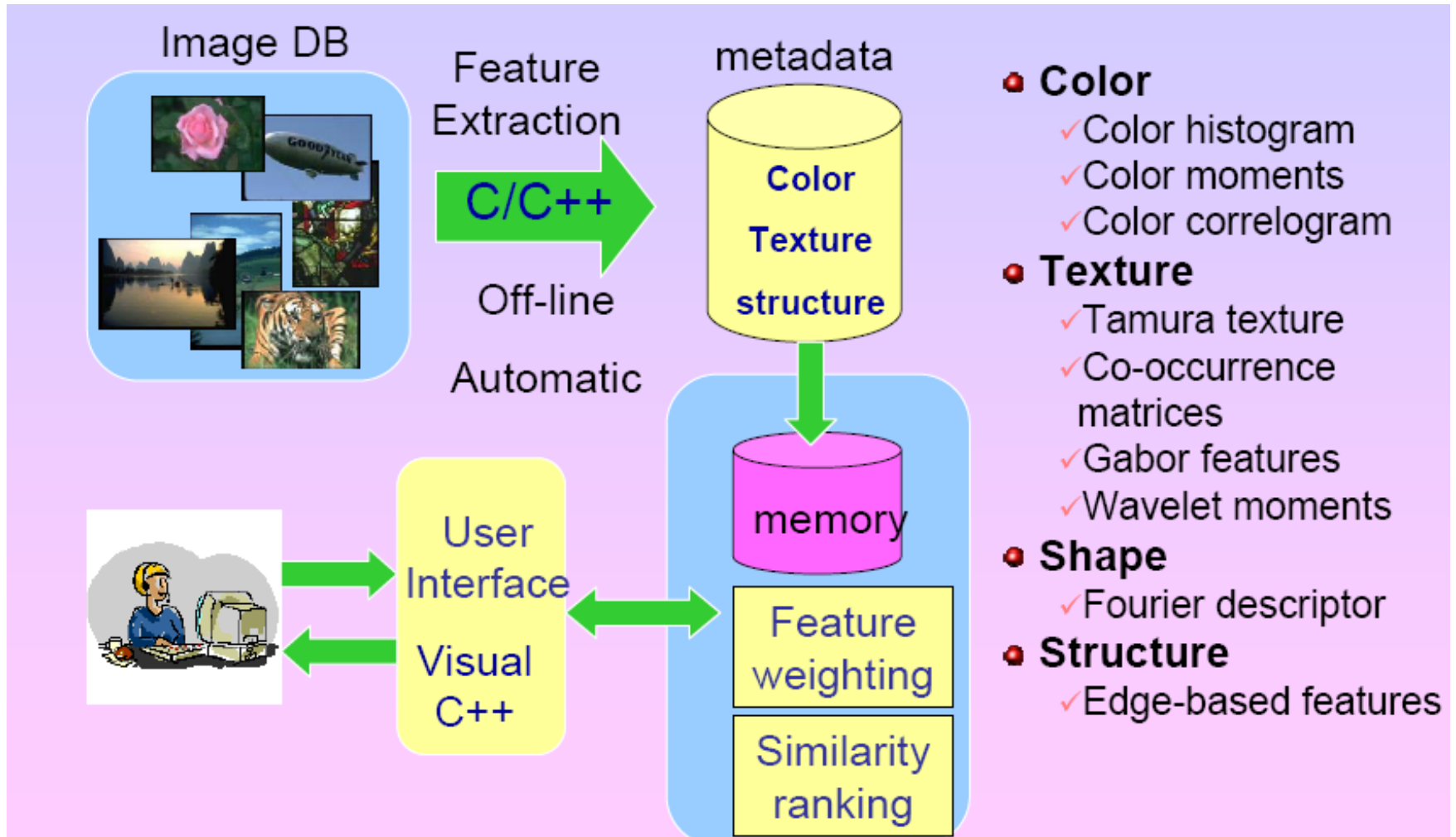
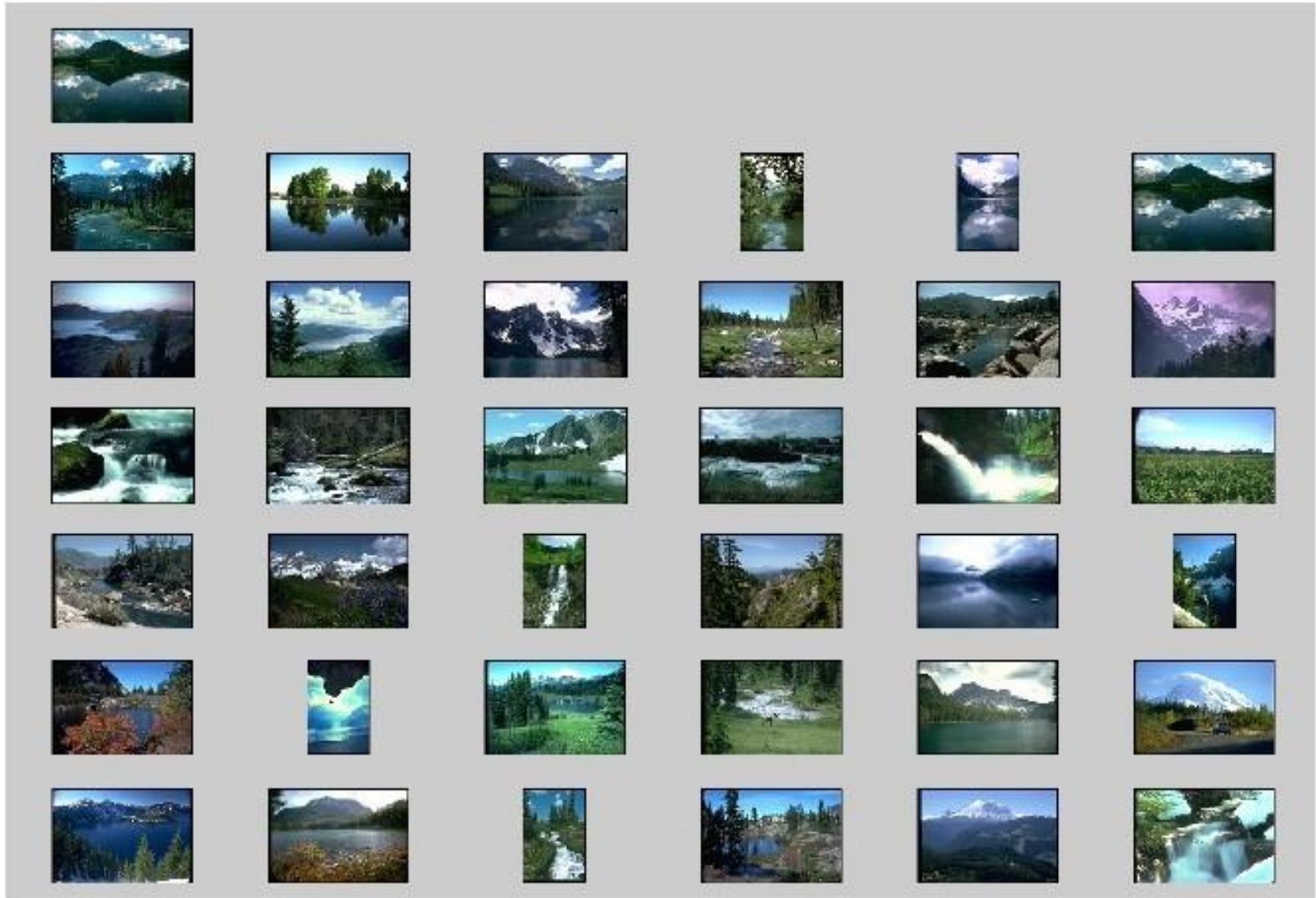


Content-Based Image Retrieval



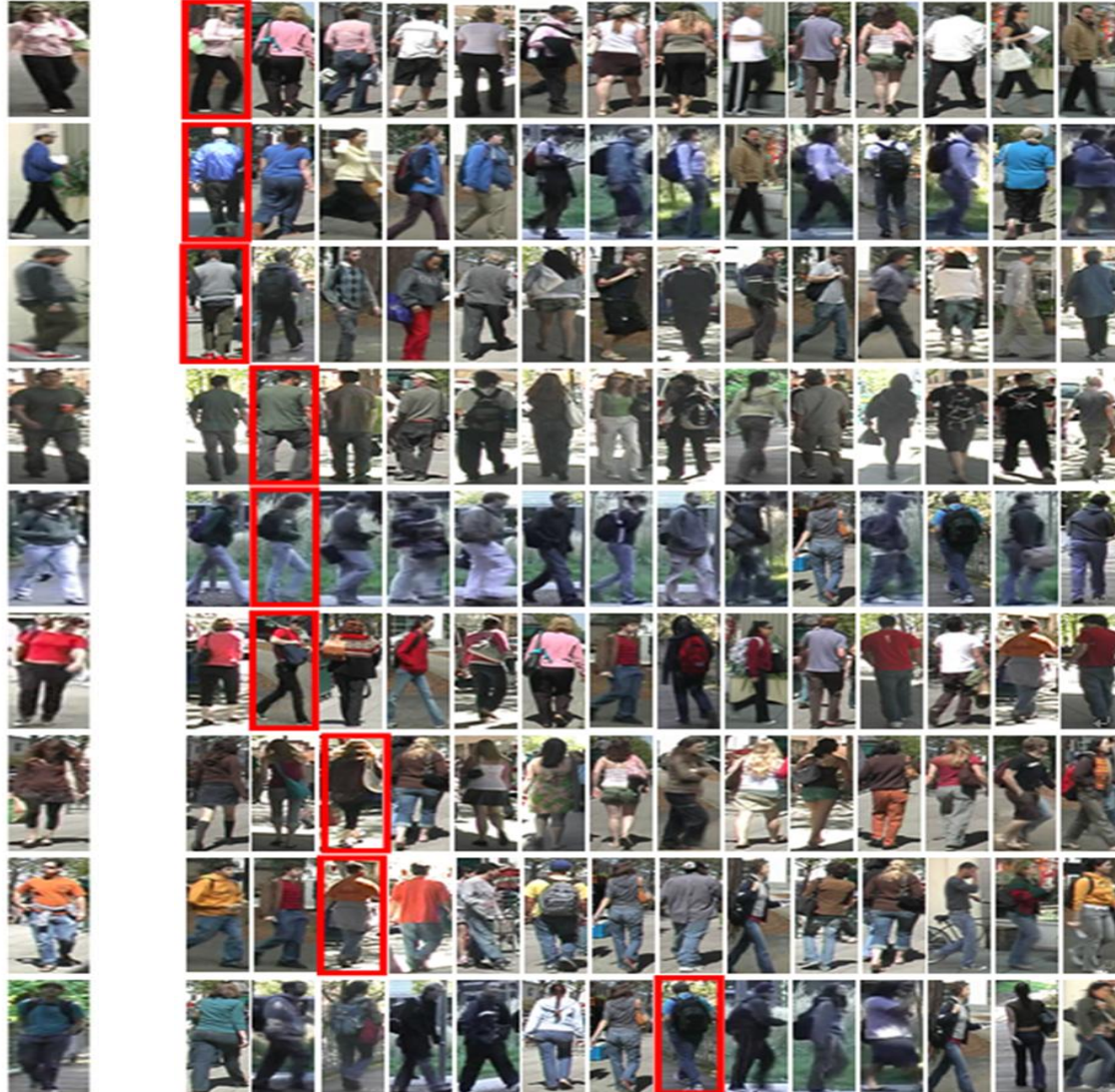
Content-Based Image Retrieval



Person Re-identification

Probe

Top-14-rank candidates



3D Object Retrieval

Query
Correct Class
Wrong Class

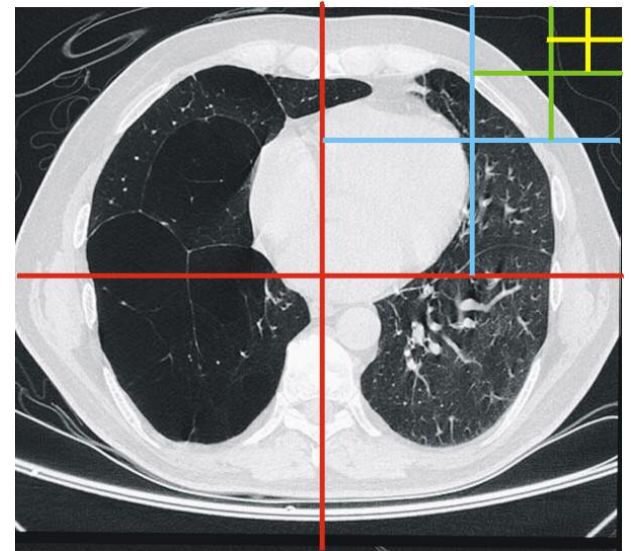


Retrieval similar 3D models from a large 3D database.

Feature extraction is very crucial to the performance.

Common Image Features

- Global **color histogram** (HSV, 18, 3, 3, 4 gray levels)
- **Color blocks** at different scales and locations
- **Histogram** of **Gabor** filter responses
 - 4 directions, 3 scales, quantized in 10 strengths
- **Gabor blocks** at different scales and locations
- ~85,000 possible features,
1,000-3,000 features per image,
distribution similar to words in
text collections



Visual Descriptors in MPEG-7

- Color
 - Color space, color quantization, dominant color, scalable color, color layout, ... etc.
- Texture
- Shape
- Motion descriptors for video
 - Object trajectory, camera motion, activity.
- Localization

Distance Measure

- Euclidean distance
- Cosine distance
 - Given two vectors of attributes, A and B, the cosine similarity, θ , is represented using a dot product and magnitude as

$$\text{similarity} = \cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|} = \frac{\sum_{i=1} A_i \times B_i}{\sqrt{\sum_{i=1}^n (A_i)^2} \times \sqrt{\sum_{i=1}^n (B_i)^2}}$$

- The resulting similarity ranges from
 - -1 : exactly opposite,
 - 1: exactly the same,
 - 0 : usually indicating independence
 - in-between values : indicating intermediate similarity or dissimilarity.

Dataset



- INRIA Holidays dataset
 - Dataset size: 1491 images in total: 500 queries and 991 corresponding relevant images
 - Number of queries: 500 (one per group)
 - Number of descriptors produced: 4455091 SIFT descriptors of dimensionality 128
 - <http://lear.inrialpes.fr/~jegou/data.php>

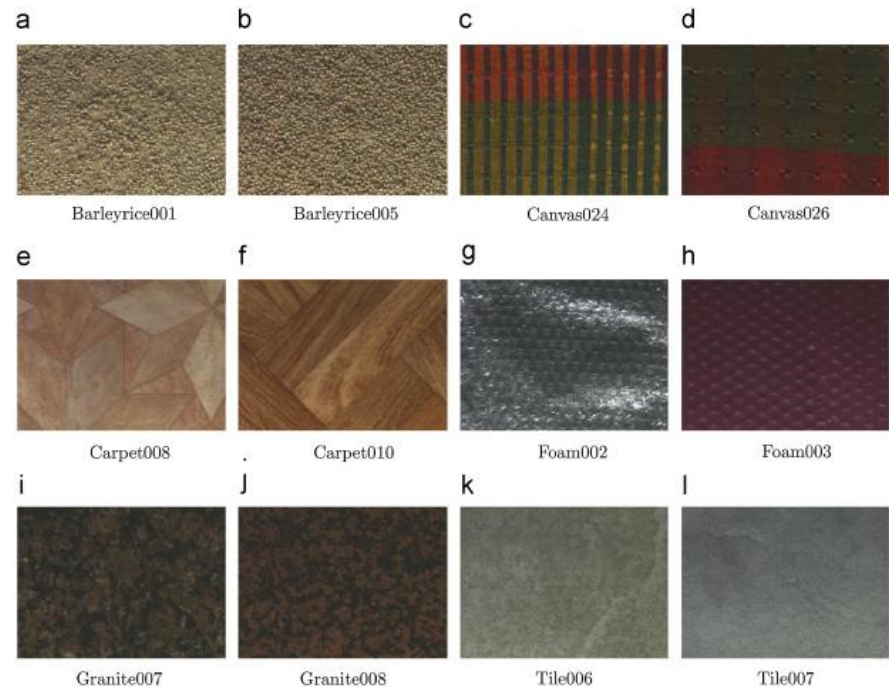
University of Oulu Texture Database

- Databaset Description

- 29 surface categories, there are several groups in each category.

- 320 surface textures

- 27054 images in total



Download :

http://www.outex.oulu.fi/index.php?page=outex_home