Xerox Generic Visual Toolbox (GVT)

Xerox developed the GVT technology to extract digital signatures of images and to compute distance between such signatures. This technology has different applications, for example:

- categorization (compare signature of an input image with signature distributions for categories),
- searching for similar images,
- finding duplicates,
- clustering groups of images, or
- filtering out some classes of images.

Xerox Image Categorizer

There are at least three different types of end-user application scenarios for image categorization:

1) auto-tagging: provision of a list of visual labels (tags) that can be manually edited and complemented (e.g., with conceptual, emotional and aesthetic labels);
2) content-based image retrieval (e.g., find/sort all images of cats in a collection);
3) object or scene identification (e.g., interactive systems based on immediate analysis of scene capture).

Content-Based Image Retrieval Web Demo

To illustrate some of the capabilities of the Xerox Image categorizer a web demo can be accessed at https://imagesearch.services.open.xerox.com/. The first step is to select a category out of the available list by typing a few letters in an auto-complete entry list dialog box. The category list keeps expanding. An example map can be found at http://xipo.xrce.xerox.com/Map-685-categories.pdf. Categories are mapped along the following themes: Sceneries, Activities, Objects, Plants, Animals, Food, Drawing.

Once the category name is selected, the web page ranks and displays images from the “10millionphotos” Flickr group based on the scores obtained by the pictures for the selected category.

The photo collection that is used for this demo gathers pictures from the 50,000+ members of “one of the few groups that encourage you to dump ALL your photos into the pool” (see www.flickr.com/groups/10millionphotos/). It is more illustrative for certain categories than for others (e.g., rare varieties of plants or animals). It should come as no surprise that there are more Ferrari cars than fleas in this collection.

Shift-clicking on one of the pictures on display will show the top category labels assigned by the Xerox image categorizer, whereas a simple click will retrieve similar images from the collection. Note that for this demo similarity-based image retrieval relies on a different size of digital signature than category-based image retrieval.

Commercialization

The Xerox image categorizer web service is available for commercial use. It can be customized with specific categories and adapted to end-user requirements. Please contact us for more information.