Non-Confidential Description - PSU No. 3242

“Software for Automatic Keywording of Images Called ALIPR™”

Keywords:
Image indexing; image recognition; web searching

Links:
http://www.alipr.com/ [an interactive demo]
US Patent 7,394,947
Inventor Website - 1
Inventor Website - 2

Inventors:
Jia Li; James Wang

Fig 1: Categories Suggested for a Photo

Background
Decades of research has shown that designing a generic computer algorithm that can learn concepts from images and automatically translate the content of images to linguistic terms is highly difficult. Many content-based image retrieval systems developed since the early 1990s aimed at general-purpose image indexing and retrieval focused on searching images visually similar to the query image or a query sketch. However, because of the great difficulties in recognizing large numbers of objects, these systems lacked the capability to assign comprehensive textual descriptions automatically to images. This capability is essential for linking images to text and, consequently, broadening the utility and specificity of image-based applications.

Invention Description
In the present invention, categorized images are used to train a dictionary of hundreds of concepts automatically based on statistical modeling. Images of any given concept-category are regarded as instances of a stochastic process that characterizes the category. The likelihood of occurrence of the image based on the stochastic process derived from the category is computed. A high likelihood indicates a strong association, and thus associates the concept-category textual descriptors with the image.

The algorithms and related software of this technology will find application in Digital libraries, medical imaging, video surveillance, web searching, and numerous other applications in biomedicine, military and law enforcement, education, electronic commerce, and other areas.

Advantages/Applications
- Will automatically generate categories for any image
- Employs efficient training and matching algorithm for fast, real-time execution on common hardware
- On-line demo available
- Could be used in any digital library application where indexing or categorizing of images is beneficial
- Could be used in filtering of image-based spam

Contact: Bradley A. Swope
Sr. Technology Licensing Officer
The Pennsylvania State University

Phone: (814) 863-5987
Fax: (814) 865-3591
E-mail: bradswope@psu.edu

Sep-06