ImageCLEF 2006

Text and/or Content-Based Cross Language Image Retrieval

First Announcement and Call for Participation

Photographic retrieval task

Goal: given a multilingual statement describing a user information need, find as many relevant images as possible from an image collection. At its simplest this is a bilingual ad-hoc retrieval task that requires translating the query from the source to target language(s). This task simulates text-based retrieval from photographs with multilingual captions.

Image analysis: not required, but can augment text-based retrieval methods and results of an example visual retrieval system will be made available. In addition, 25 visual-only queries will be provided.

Queries: 25 information needs, each described by a short text in a range of languages including Dutch, Italian, Spanish, French, German, Chinese, Japanese and Russian, and example image(s). A range of topics will be offered to emphasise both more semantic and more visual queries.

Collection: ~25,000 high-resolution colour photographs with semi-structured captions in English, German and Spanish.
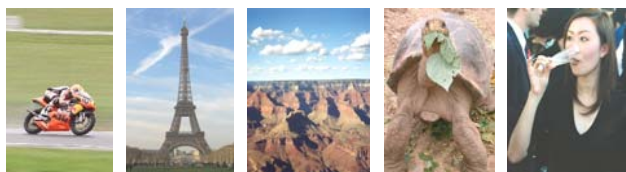
Challenges: short multilingual queries, short caption texts (~50 words), semi-structured captions in English, German and Spanish, combining visual and text-based retrieval methods.

Aims: to compare query translation methods, query expansion, using text and content-based methods separately or combined, retrieval models, indexing methods, and different annotation types.

Interactive retrieval task

Goal: to investigate how native speakers of languages other than English interact with a CL image retrieval system in two scenarios: (1) an ad hoc retrieval task, and (2) a known-item search.

Image analysis: not required, but can augment text-based retrieval methods

Collection: subset of Flickr (www.flickr.com).

Aims: to explore areas such as: browsing support, automatic and interactive query expansion, relevance feedback, query formulation using both image and text, presentation of search results (e.g. image only or image and caption, clustering images, categorising results), and failure support.

Track Co-ordinators

Paul Clough University of Sheffield, UK
Henning Müller Uni. of Geneva and Hospitals, Switzerland

Medical retrieval task

Goal: given an information need described by medical images and a short text find other images from the dataset that fulfil the information need. This task simulates a medical practitioner needing to find cases similar to that one already being worked on which can be important for case-based reasoning or evidence-based medicine as well as for teaching.

Image analysis: not required for all tasks, results of an example visual retrieval system will be made available.

Queries: 30 information needs described by a short text and image(s) (visual, mixed and semantic queries).
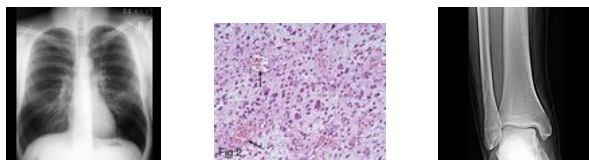
Collection: ~50,000 anonymised medical images of four teaching files are combined to create one large, heterogeneously annotated resource. Notes in French, German and English in varying quality are available.

Challenges: combining text and content-based methods for retrieval, tackling the domain-specific medical terminology and notes of varying quality in mixed target languages.

Aims: to compare methods of visual and text-based retrieval and their complementary influence on results, to investigate how heterogeneous annotations can be exploited, and to compare translation methods, retrieval models, indexing methods, and query expansion techniques.

Automatic image annotation

Goal: to investigate how well systems can classify unknown images automatically. For reference, a mono-hierarchical classification scheme with 4 axis is used, each of 3 or 4 levels. According to the hierarchy, the automatic annotation should rather be incomplete than wrong. For training, 10,000 images with complete code are provided.

Image analysis: required for retrieval

Collection: IRMA x-rays (http://www.irma-project.org)

Aims: to identify the anatomic region, biosystem imaged, imaging device used for creation, and viewing direction. This can be used for multilingual image annotations, automatic parameterization of image processing, as well as for DICOM header corrections.

Task Organisers

William Hersh Oregon Health and Science University, USA
Michael Grubinger Victoria University, Melbourne, Australia
Thomas Lehmann RWTH Aachen University, Germany
Thomas Deselaers RWTH Aachen University, Germany
Allan Hanbury Vienna University of Technology, Austria

ImageCLEF 2006

Why cross language image retrieval?

Retrieval from an image collection offers distinct characteristics from one in which the document to be retrieved is natural language text. For example, the way in which a query is formulated, the methods used for retrieval (e.g. based on low-level features derived from an image, or based on associated textual information such as a caption), the types of query, how relevance is assessed, the involvement of the user during the search process, and fundamental cognitive differences between the interpretation of visual versus textual media. Within CLEF, the problem is further complicated by user queries being expressed in a language different to that of the document collection or by multilingual collections. This requires crossing the language barrier by translating the collection, the queries, or both into the same language. As multimedia collections grow and more organisations become responsible for managing large image repositories, this cross-language image retrieval track of ImageCLEF aims to address some of these problems.

Our aims

We envisage that ImageCLEF will appeal to both commercial and academic research communities including: CLIR, image retrieval, machine learning, and user interaction. The main aims of the ImageCLEF campaign are:

(1) to promote and initiate international research for cross language image retrieval,

(2) to further our understanding of the relationships between multilingual texts and images for IR,

(3) to explore various ways of using machine learning techniques to optimize visual and multilingual retrieval,

(4) to create useful resources for CLIR to scientific communities in the whole.

Achievements so far

ImageCLEF began as a pilot experiment in 2003 with only the bilingual ad hoc task. We built a test collection using a collection of historic photographs from St Andrews University Library (http://www-library.st-andrews.ac.uk/) and 50 example queries. Four participants entered ImageCLEF exhibiting a range of text-based retrieval and query enhancement methods including thesaurus-based query expansion and transliteration.
In 2004, medical and interactive retrieval tasks were added to ImageCLEF. A strong participation of 18 research and commercial groups in total demonstrated the need for such an evaluation event.
In 2005, a medical annotation task was added and participation (especially registration to get access to the data) rose strongly. In all, 36 groups registered and 24 submitted results for evaluation. A large variety of techniques from query expansion, manual relevance feedback, language detection and combinations of visual and textual attributes for retrieval were used. Results show that in visual as well as textual retrieval tasks, the best performances were obtained when combining visual and textual cues for the retrieval.

ImageCLEF 2006

At ImageCLEF 2006 we will be running ad hoc bilingual retrieval as an entry level task for newcomers to CLIR and CLEF, a medical retrieval task, an interactive CL image retrieval task, an automatic image annotation task for medical images, and a new annotation task for non-medical images. Participants can enter as many tasks as they want and are free to use any methods they want, although we would like to encourage interest from participants combining both cross-language and image-based techniques as well as machine learning. Please note that **image analysis is not required for all tasks** and that a default visual image retrieval system will be made available for participants as well as results from a basic text retrieval system.

Registration

You can register for ImageCLEF 2006 by contacting **Carol Peters** (carol.peters@isti.cnr.it), the main coordinator for CLEF. For more specific information about any aspect of ImageCLEF or the tasks, please contact **Paul Clough** (p.d.clough@sheffield.ac.uk) or **Henning Müller** (henning.mueller@sim.hcuge.ch).

The ImageCLEF website (http://ir.shef.ac.uk/imageclef/) will be the main source of information about the tasks and through which the data, guidelines, resources and further information will be published. We also have an ImageCLEF mailing list (imageclef@sheffield.ac.uk) through which we update participants with track information. Contact Paul Clough to be added to this list. More information about CLEF can be found at: http://www.clef-campaign.org/

Schedule for CLEF 2006

Registration opens	15 January 2006
Data release	from February 2006
Topics release	from 15 March 2006
Submission of runs deadline	15 May 2006
Release of results	from 15 July 2006
Workshop papers deadline	15 August 2006
Workshop, Alicante, Spain	21-23 September 2006