

Preface

This book contains a collection of texts centred on the evaluation of image retrieval systems. Evaluation, whether it be system-oriented or user-oriented, is an important part of developing effective retrieval systems that meet the actual needs of their end users. To enable reproducible evaluation requires creating standardised benchmarks and evaluation methodologies. This book highlights some of the issues and challenges in evaluating image retrieval systems and describes various initiatives that have sought to provide researchers with the necessary evaluation resources.

In particular the book summarises activities within ImageCLEF, an initiative to evaluate cross-language image retrieval systems that has been running as part of the Cross Language Evaluation Forum (CLEF) since 2003. ImageCLEF has provided resources, such as benchmarks, for evaluating image retrieval systems and complements a number of initiatives within the image retrieval research community, such as TRECvid for video retrieval, PASCAL for object recognition and detection and the many other smaller benchmarks, databases and tools available to researchers.

In addition to providing evaluation resources, ImageCLEF has also run within an annual evaluation cycle culminating in a workshop where participants have been able to present and discuss their ideas and techniques, forming a community with common interests and goals. Over the years ImageCLEF has seen participation from researchers within academic and commercial research groups worldwide, including those from Cross-Language Information Retrieval (CLIR), medical informatics, Content-Based Image Retrieval (CBIR), computer vision and user interaction.

This book comprises contributions from a range of people: those involved directly with ImageCLEF, such as the organisers of specific image retrieval or annotation tasks; participants who have developed techniques to tackle the challenges set forth by the organisers; and people from industry and academia involved with image retrieval and evaluation in general and beyond ImageCLEF. The book is structured into four parts:

- **Part I.** This section describes the context of ImageCLEF and the issues involved with developing evaluation resources, such as test collections and selecting evaluation measures. A focal point throughout ImageCLEF and across many of the

tasks has been to investigate how best to combine textual and visualisation information to improve information retrieval. Within the first section we summarise approaches explored within ImageCLEF over the years for this critical step in the retrieval process.

- **Part II.** This section includes seven chapters summarising the activities of each of the main tasks that have run within within ImageCLEF over the years. The track reports are written by those involved in co-ordinating ImageCLEF tasks and provide summaries of individual tasks, describe the participants and their approaches, and discuss some of the findings.
- **Part III.** This section is a selection of chapters by groups participating in various tasks within ImageCLEF 2009. Summaries of the techniques used for various domains such as retrieving diverse sets of photos from a collection of news photographs, multi-modal retrieval from online resources, such as Wikipedia, and retrieval and automatic annotation of medical images are presented. The chapters in this section show the variety and novelty of state-of-the-art techniques used to tackle various ImageCLEF tasks.
- **Part IV.** The final section provides an external perspective on the activities of ImageCLEF. These help to offer insights into the current and emerging needs for image retrieval and evaluation from both a commercial and research perspective. The final chapter helps to put ImageCLEF into the context of existing activities on evaluating multimedia retrieval techniques, providing thoughts on the future directions for evaluation over the coming years.

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