ACM International Conference on Multimedia Retrieval (ICMR 2014)

The 4th ACM International Conference on Multimedia Retrieval took place in Glasgow, Scotland, from 1–4 April 2014. ACM ICMR is the premier scientific conference for multimedia retrieval held worldwide, with the stated mission “to illuminate the state of the art in multimedia retrieval by bringing together researchers and practitioners in the field of multimedia retrieval.” The conference aims to promote intellectual exchanges and interactions among scientists, engineers, students, and multimedia researchers in academia as well as industry through various events, including a keynote talk, oral, special and poster sessions focused on research challenges and solutions, technical and industrial demonstrations of prototypes, tutorials, research, and an industrial panel.

ICMR was initially started as a workshop on challenges in image retrieval (in Newcastle in 1998) and later transformed into the Conference on Image and Video Retrieval (CIVR) series. Four years ago, the CIVR and the ACM Workshop on Multimedia Information Retrieval were combined into a single conference that now forms the ICMR series. Today, according to the Chinese Computing Federation Conference Ranking (2013), ACM ICMR is the number one multimedia retrieval conference in the world and the number four conference in the category of multimedia and graphics.

Although ICMR is about multimedia retrieval, in a wider sense, it is about automated multimedia understanding. Much of the work in that area involves the analysis of media on a pixel, voxel, and wavelet level, but it also involves innovative retrieval, visualization, and interaction paradigms utilizing the nature of the multimedia in question—be it video, images, speech, or more abstract (sensor) data.

**Workshops and Tutorials**
The workshop and tutorial day opened the conference with two half-day tutorials and three workshops, which was a record number for ACM ICMR. The tutorial “Visual Recognition in Large Collections” by Hervé Jégou (INRIA, France) covered the state-of-the-art methods and systems for visual recognition in large collections of images, considering different trade-offs with respect to efficiency and search quality. The tutorial “Music Information Retrieval: Theory and Applications” by George Tzanetakis (University of Victoria, Canada) provided a thorough theoretical overview of the state of the art in music information retrieval, followed by a practical hands-on demonstration of several existing tools and resources that can be used for research in this area.

The three workshops on environmental multimedia retrieval (EMR), social events in Web multimedia, and social multimedia and storytelling were a huge success in terms of the attendance and participation. Overall, more than 100 participants attended the first day.

**Main Conference Sessions**
On the second day, the main conference sessions started with a keynote on user experience and multimedia content by Susanne Boll, a professor of media informatics and multimedia systems in the Department of Computing Science at the University of Oldenburg. The papers of the main track covered the core topics of the field. Automated multimedia understanding has made immense progress in the last 15 years. In the early days, TRECVID was a track of the TREC Conference. That picture quickly changed with methods dedicated to index and retrieve videos without necessarily involving text transcripts as a surrogate for the original video document. ICMR 2014 today is evidence that multimedia retrieval research has become a mature and distinct field in its own right. For example, ICMR 2014 papers on automated image annotation made use of innovative cross-media models, tackled large classes of

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images, and utilized social activities, all while reporting better image annotation performance than ever before.

Events in videos have also become a focus of attention, and related research explores detecting events in unconstrained videos and using detected events to support semantic concept discovery. The complexity of these tasks calls for complex mathematical modeling. ICMR 2014 included papers focusing on dedicated methods from machine learning and statistics via graph theory to data mining. ICMR has become the premier place to present, or discover, new models that make progress for automated multimedia analysis with a view to improve multimedia search engines.

At the other end of the spectrum from theory and practice is work that exploits the user and capitalizes on intuitive interfaces that allow the exploration of multimedia collections—whether they contain videos, celebrities, 3D models, citizen science data, or social media TV snippets. Much of this work was shown in demos at ICMR 2014.

This year, ICMR also had one special session with research papers on the theme of user-centric video search and hyperlinking. Of course, multimedia retrieval holds a large number of other challenges in-line with the number of different media types and their potential combination, also considering the body of social activities around new media, which in itself is a rich field of study. To reflect this growing research trend, ICMR 2014 gave social media a particular platform in the form of a special session on harvesting and analyzing live social media data. The only other special session was dedicated to user-centric video search and hyperlinking. The technical demonstrations systems showcased key research contributions.

**Industry Day and Paper Awards**

On Friday, 4 April, an industry day opened with a panel discussing the past, present, and future of multimedia retrieval. Industry representatives also gave talks on recent advancement in product, tools, and services. Chordify’s Bas de Haas showed how music analysis and retrieval can help to play the chords of your favorite music song. Rogerio Feris of IBM talked about the latest results in multimedia surveillance applications; Alexandr Krainov of Yandex, Russia, talked about Yandex video retrieval techniques; Matthew Cooper of FXPAL discussed the over emphasis of quantitative evaluation and interesting augmented reality; and Pieter van der Linden of Technicolor, the Netherlands, talked about the latest advances made through the Quaero program.

The best paper prize was awarded to Subhabrata Bhattacharya, Felix Yu, and Shih-Fu Chang of the University of Columbia for their paper entitled “Minimally Needed Evidence for Complex Event Recognition in Unconstrained Videos.” The best student paper prize, sponsored by Springer, was awarded to Sean Moran and Victor Lavrenko of the University of Edinburgh for their paper entitled “Sparse Kernel Learning for Image Annotation.”

**International Collaboration**

ACM ICMR 2014 was truly an international event and was attended by more than 170 participants from over 25 countries (see Figure 1). The social program invited all participants to get together during a welcome reception at Glasgow City Chambers, the conference dinner at Glasgow Science Centre, and the two receptions for poster presentations. Overall it was a wonderful opportunity to discuss and exchange ideas in the state of the art in multimedia retrieval. A Flickr photostream is available at www.flickr.com/photos/122120613@N04/.


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