

## **Preface for the special issue of MTAP following CBMI 2011**

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Since the late 90s the Content-Based Multimedia Indexing (CBMI) has become one of the more active research topics, joining efforts in the computer science (e.g., data mining, information retrieval) and signal processing (e.g., digital image and audio analysis) communities.

Since the very beginning, the CBMI community has seen the evolution of research both from a methodological point of view and also from an application point of view. The proliferation of machine-learning approaches in supervised and unsupervised frameworks have witnessed to deal with the phenomenon of large scale in multimedia indexing and retrieval tasks. Content description methods have to make a progress in view of new application areas such as medical images and social media retrieval.

Information fusion for efficient mining of multimedia content and also the classical task of information abstraction have tremendous opportunities when applied on multimedia data. The evaluation metrics also will have to progress in the nearest future exploiting the insights gained from the user studies in the field.

The International Workshop on Content-based Multimedia Indexing has been established as one of the most important forums for the presentation of the newest ideas and original research results in the field.

Following the eight successful previous events of CBMI (Toulouse 1999, Brescia 2001, Rennes 2003, Riga 2005, Bordeaux 2007, London 2008, Chania 2009 and Grenoble 2010), the Video Processing and Understanding Lab (VPULab) and the Information Retrieval Group (IRG) at Universidad Autónoma de Madrid organized the CBMI'2011 event in Madrid from 13<sup>th</sup> to 15<sup>th</sup> June 2011.

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CBMI 2011 brought together the various communities involved studying in the different aspects of the content-based multimedia indexing, retrieval, browsing and presentation issues. The scientific program of CBMI 2011 included invited keynote talks and regular and special sessions with contributed research papers.

CBMI 2011 received 77 submissions (71 papers and 6 demo proposals) from which the program committee selected 26 for oral presentations, 14 for poster presentations and 3 for demo presentations.

This special issue of the MTAP journal was created to publish both proposing new extended versions of CBMI 2011 submitted papers and also completely new contributions.. In response to the open call, 16 papers were submitted and after rigorous reviewing according to the journal rules, 5 of them were finally accepted for publishing.

The first two papers deal with audio indexing: “Evolutionary Discriminative Confidence Estimation for Spoken Term Detection” by Javier Tejedor, Alejandro Echeverría, Dong Wang and Ravichander Vippera, tackles a new approach for spoken term detection in the framework of evolutionary discriminative analysis, which, as the experimental validation shows, outperforms multi-layer perceptrons and support vector machines for this task; whilst “Automatic Detection of Known Advertisements in Radio Broadcast with Data-driven ALISP Transcriptions” by Houssemeddine Khemiri, Gérard Chollet and Dijana Petrovska-Delacrétaz, presents an audio-based system that automatically indexes and searches for known commercials making use of ALISP transcriptions modeled by Hidden Markov Models.

The two following papers deal with visual indexing: “Classifying Cinematographic Shot Types” by Luca Canini, Sergio Benini and Riccardo Leonardi, studies the classification of video shots into Long Shots, Medium and Close-ups using a combination of Decision Trees and Support Vector Machines, applied to geometric, colour, motion and spectral descriptors; afterwards “Competitive Content-Based Video Copy Detection using Global Descriptors” by Juan Manuel Barrios and Benjamin Bustos proposes an approach for video copy detection based on a combination of global descriptors, an automatic weighting algorithm, a pivot-based index structure, an approximate similarity search and a voting algorithm for copy localization.

Finally, multimedia information indexing, browsing and presentation is covered in “Interactive Multi-user Video Retrieval Systems” by Marco Bertini, Alberto Del Bimbo, Andrea Ferracani, Lea Landucci and Daniele Pezzatini, where the authors present two ontology-based systems for video annotation, search and browsing, exploiting current search technologies in a multi-user scenario and for collaborative search.

We warmly thank all those who have helped to accomplish the task of successfully organizing this special issue of MTAP and CBMI 2011. We want to thank specially the technical chairs of the conference (Jesús Bescós, Guillaume Gravier, Joemon Jose and Paulo Villegas) and the reviewers of both the conference and this special issue. Their contribution was the basis for selecting the high quality of the works presented here. We also thank all the authors of the papers submitted to the workshop and to this special issue; they constitute the true force behind the success of the workshop and are the first accountable for the quality and the interest of this issue.

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*MTAP CBMI 2011 SI Guest Editors*



**José M. Martínez** received the Ingeniero de Telecomunicación degree (six years engineering program) in 1991 and the Doctor Ingeniero de Telecomunicación degree (PhD in Communications) in 1998, both from the E.T.S. Ingenieros de Telecomunicación of the Universidad Politécnica de Madrid. He is Associate Professor at the Escuela Politécnica Superior of the Universidad Autónoma de Madrid. His professional interests cover different aspects of advanced video surveillance systems and multimedia information systems. Besides his participation in several Spanish national projects (both with public and private funding), he has been actively involved in European projects dealing with multimedia information systems applied to the cultural heritage (e.g., RACE 1078 EMN, European Museum Network; RACE 2043 RAMA, Remote Access to Museums Archives; ICT-PSP-FP7-250527 ASSETS, Advanced Search Services and Enhanced Technological Solutions for the Europeana Digital Library), education (e.g., ET 1024 TRENDS, Training Educators Through Networks and

Distributed Systems), multimedia archives (e.g., ACTS 361 HYPERMEDIA, Continuous Audiovisual Digital Market in Europe) and semantic multimedia networked systems (e.g., IST FP6-001765 acemedia, IST FP6-027685 Mesh). He is author and co-author of more than 100 papers in international journals and conferences, and co-author of the first book about the MPEG-7 Standard published 2002. He has acted as auditor and reviewer for the EC for projects of the frameworks program for research in Information Society and Technology (IST). He has acted as reviewer for journals and conferences, and has been Technical Co-chair of the International Workshop VLBV'03, Special Sessions Chair of the International Conference SAMT 2006, Special Sessions Chair of the 9<sup>th</sup> International Workshop on Image Analysis for Multimedia Interactive Services WIAMIS 2008, Program co-chair of the 7<sup>th</sup> International Workshop on Content-based Multimedia Indexing CBMI 2009 and General chair of the 9<sup>th</sup> International Workshop on Content-based Multimedia Indexing CBMI 2011.



**Bernard Merialdo** is professor in the Multimedia Department of EURECOM, France and current head of the department. A former student of the Ecole Normale Supérieure, Paris, he received a PhD from Paris 6 University and an “Habilitation à Diriger des Recherches” from Paris 7 University. For more than 10 years, he was a research staff, then project manager at the IBM France Scientific Center, working on probabilistic techniques for Large Vocabulary Speech Recognition. He later joined EURECOM to set up the Multimedia Department. His research interests are the analysis, processing, indexing and filtering of Multimedia information to solve user-related tasks. His research covers a whole range of problems, from content extraction based on recognition techniques, content understanding based on parsing, multimedia content description languages (MPEG7), similarity computation for applications such as information retrieval, and user personalization and user interaction for the construction of applications. He participates in numerous conference program committees. He is part

of the organizing committee for the CBMI workshop. He was editor for the IEEE Transactions on Multimedia and chairman of the ACM Multimedia conference in 2002. He often acts as an expert and reviewer for French and European research programs. He is a Senior Member of IEEE and member of ACM.



**Jenny Benois-Pineau** is a full professor of Computer science at the University Bordeaux 1 and chair of Video Analysis and Indexing research group in Image and Sound Department of LABRI UMR 58000 UniversitéBordeaux1/Bordeaux2/CNRS/ENSEIRB. She is also a deputy scientific director of theme B of French national research unity GDR CNRS ISIS, and director of department of the faculty of Mathematics and Computer science at the University Bordeaux 1. She obtained her PhD degree in Signals and Systems in Moscou and her Habilitation à Diriger la Recherche in Computer Science and Image Processing from University of Nantes France. Her topics of interest include image and video analysis and indexing, motion analysis and content description for content-based multimedia retrieval. She is the author and co-author of more than 110 papers in international journals, conference proceedings, book chapters. She has tutored and co-tutored 18 PhD students and 19 research masters. She is associated editor of EURASIP Signal Processing:Image Communication, Elsevier, Multi-

media Tools and applications, Springer, TS Hermes-Lavoisier journals. She has served in numerous program committees in international conferences and workshops: ACM MM, CIVR, CBMI, AMR, IPTA, SAMT, ECMCS... She has served as expert for European Commission since FP4 and is a member of Technical Advisory group for Media programme EACEA DG Culture, CE. She is a member of Multimedia Commission of French Ministry of National Education and member of scientific board of International Center for Mathematical Modelling at the University of Växjö, Sweden. She has been coordinator or leading researcher in international research projects Platon, Balaton, IP XMedia, French representative in COST292 European action, national research projects ANR and numerous projects with French industrial companies. She gave invited lectures at the universities of Sussex (GB), UPC (Spain), UNAM (Mexico), University of North Carolina at Chapel Hill (USA), Brooklynn Polytechnic (USA), Firenze (Italy)...



**Joemon Jose** is a Professor (Professor of Information Retrieval) at the School of Computing Science, University of Glasgow. He has obtained MSc in Statistics, MS in Software Engineering and a PhD in Computing Science. He is a Fellow of the BCS and IET professional bodies and a chartered Information Technology Professional. He is a member of the IEEE and ACM and also a member of the ACM SIGIR and BCS IRSG specialist groups. He is a member of the editorial board of the International Journal of Multimedia Retrieval from Springer. He had hosted many IR conferences in Glasgow and recently was one of the co-chairs of the ECDL 2010 conference. He is very active in Information Retrieval since the 90s and has authored over 150 research articles. He is a co-recipient of many best paper awards and/or best student paper awards including that from the SIGIR. He is interested in all aspects of information retrieval in the textual and multimedia domain.