# 2009



# ACM International Conference on Multimedia

# Workshops

Beijing Hotel, Beijing China October 23, 2009



http://www.acmmm09.org/

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#### **Workshops Overview**

	Friday, 23 October								
	Opal Room @ Raffles	Sapphire Room @ Raffles	Amethyst Room @ Raffles	Meeting Room 8024 @Beijing Hotel	Meeting Room 8026 @Beijing Hotel	Meeting Room 6024 @Beijing Hotel	Meeting Room 6026 @Beijing Hotel	Meeting Room 1024 @Beijing Hotel	Meeting Room 1026 @Beijing Hotel
8:00 -17:00	Registration (Level 2 of Beijing Hotel)								
9:00-10:00	AMC Keynote 1	MTDL Keynote	IMCE Keynote 1	EiMM Keynote	MSIADU Keynote	LS-MMRM/ WSMC Keynote		WSM Keynote	MiFor Keynote
10:00-10:30		Coffee Break							
10:30-12:30	AMC S1, S2	MTDL S1, S2	IMCE S1, S2	EiMM S1, S2	MSIADU S1	LS-MMRM/ WSMC S1, S2		WSM S1	MiFor S1, S2
12:30-14:00	Lunch (on your own)								
14:00-15:30	AMC Keynote 2	MTDL S2, S3	IMCE Keynote 2 S2	EiMM S2, S3, S4	SSCS Keynote S1	LS-MMRM/ WSMC S3	CEA S1	WSM S2, S3	MiFor S2, S3
15:30-16:00		Coffee Break							
16:00-18:00	AMC S3, S4	MTDL S3, S4	IMCE S3	EiMM S4	SSCS S1, S2	LS-MMRM/ WSMC S4, S5	CEA S2	WSM S3, S4	MiFor S3, S4

<sup>\*</sup> Please note that LS-MMRM and WSMC have a joint program in room 6024

# THE FIRST SIGMM WORKSHOP ON SOCIAL MEDIA (WSM 2009)

#### **Foreword**

It is our great pleasure to welcome you to the 1<sup>st</sup> *ACM SIGMM International Workshop on Social Media – WSM 2009.* This workshop aims to be the premier forum for presentation of research results and experience reports on leading edge issues of social media research, including models, systems, applications, and theory. The mission of the workshop is to share novel ideas, methods and techniques that address the emerging challenges of social media research and identify new directions for future research and development. WSM 2009 gives researchers and practitioners a unique opportunity to share their perspectives with others interested in the various aspects of social media.

The call for papers attracted 20 submissions from Asia, Europe, and the United States. The program committee accepted 12 papers that cover a variety of topics, including social media analysis on social networks, social media tagging, event detection and summarization from social media, and emerging applications with social media. In addition, the program includes a keynote speech by Ramesh Jain on "Influence of Multimedia in Emerging Social Web Systems", and a panel discussion on "Roles of Multimedia Research to Social Networks". We hope that these proceedings will serve as a valuable reference for social media researchers and developers.

Putting together WSM 2009 was a team effort. First of all, we would like to thank the authors and panelists for providing the content of the program. We would like to express our gratitude to the program committee and external reviewers, who worked very hard in reviewing papers and providing suggestions for their improvements. We would also like to thank Ed Chang and Kiyoharu Aizawa, this year's ACM Multimedia Workshop Co-Chairs. Special thanks go to Pengcheng Wu who has created and been maintaining the WSM 2009 web site. Finally, we would like to thank our sponsors, CeWe Color for supporting the best paper award, and ACM SIGMM for their support of this successful meeting in conjunction with ACM Multimedia conference.

We hope that you will find this program interesting and thought-provoking and that the workshop will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

#### Susanne Boll

University of Oldenburg,

Germany

Steven C.H. Hoi

Nanyang Technological University, Singapore

Jiebo Luo

Kodak Research Labs, USA

WSM 2009 General Co-Chairs

#### **Rong Jin**

Michigan State University, USA

#### Irwin Kina

The Chinese University of Hong Kong, China

#### Dong Xu

Nanyang Technological University, Singapore

WSM 2009 Program Chairs

October 23, 2009

#### WSM 2009 ORGANIZATION COMMITTEE

**General** Susanne Boll (University of Oldenburg, Germany)

**Co-Chairs** Steven C.H. Hoi (Nanyang Technological University, Singapore)

Jiebo Luo (Kodak Research Labs, USA)

Program Rong Jin (Michigan State University, USA)

**Co-Chairs** Irwin King (The Chinese University of Hong Kong, China)

Dong Xu (Nanyang Technological University, Singapore)

Program Committee

Yannis Avrithis (National Technical University of Athens, Greece) Liang Tien Chia (Nanyang Technological University, Singapore) Tat-Seng Chua (National University of Singapore, Singapore)

Daniel Gatica-Perez (Idiap Research Institute, Switzerland)

Lynda Hardman (CWI, The Netherlands)

Winston Hsu (National Taiwan University, China)

Mohan S. Kankanhalli (National University of Singapore, Singapore)

Lyndon Kennedy (Yahoo! Research, USA)

Ee-Peng Lim (Singapore Management University, Singapore)

Henry Rowley (Google Research, USA)

Cees Snoek (University of Amsterdam, The Netherlands) Aixin Sun (Nanyang Technological University, Singapore)

Jie Tang (Tsinghua University, China)

Jinhui Tang (National University of Singapore, Singapore)

Svetha Venkatesh (Curtin University of Technology - Perth, Australia)

Xin-Jing Wang (Microsoft Research Asia, China)

Xiao Wu (City University of Hong Kong, Hong Kong SAR) Lexing Xie (IBM TJ Watson Research Center, USA)

Jie Yu (Kodak Research Labs, USA) Jianke Zhu (ETH, Switzerland)

Additional Joan-Isaac Biel

Reviewers Haojie Li

















#### **WSM 2009** SESSION OVERVIEW (Meeting Room 1024 @ Beijing Hotel)

Keynote 9:00 - 10:00	Session Chair: Susanne Boll (University of Oldenburg, Germany)
	Influence of Multimedia in Emerging Social Web Systems, R. Jain (University of California, Irvine, USA)
Session 1	Social Media Annotation and Analysis
10:30 - 12:30	Session Chair: Jiebo Luo (Kodak Research Labs, USA)
Oral session	Tweet the Debates: Understanding Community Annotation of Uncollected Sources, D.A. Shamma, L.S. Kennedy, E.F. Churchill
	Motivating Contributors in Social Media Networks, V.K. Singh, R. Jain, M. Kankanhalli
	Image Tag Clarity: In Search of Visual-Representative Tags for Social Images, A. Sun, S. Bhowmick
	From Usage to Annotation: Analysis of Personal Photo Albums for Semantic Photo Understanding, P. Sandhaus, S. Boll
Session 2	Event-driven Applications on Social Media
14:00 - 15:00	Session Chair: Dong Xu (Nanyang Technological University, Singapore)
Oral session	Effective Semantic Classification of Consumer Events for Automatic Content Management, W. Jiang, A.C. Loui
	<b>Event Driven Summarization for Web Videos</b> , R. Hong, J. Tang, HK. Tan, S. Yan, CW. Ngo, TS. Chua
Session 3	
15:00 - 16:30	Session Chair: Irwin King (The Chinese University of Hong Kong, China)
	Session Chair: Irwin King (The Chinese University of Hong Kong, China)  Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang
15:00 - 16:30	
15:00 - 16:30  Posters  Continuing after	Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang  Multimodal Video Copy Detection Applied to Social Media, X. Anguera, P.
15:00 - 16:30  Posters  Continuing after	Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang  Multimodal Video Copy Detection Applied to Social Media, X. Anguera, P. Obrador, N. Oliver  The Role of Tags and Image Aesthetics in Social Image Search, P. Obrador, S.
15:00 - 16:30  Posters  Continuing after	Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang  Multimodal Video Copy Detection Applied to Social Media, X. Anguera, P. Obrador, N. Oliver  The Role of Tags and Image Aesthetics in Social Image Search, P. Obrador, S. Anguerra, R. de Oliveira, N. Oliver  Social Reader: Following Social Networks in the Wilds of the Blogosphere, B.
15:00 - 16:30  Posters  Continuing after	Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang  Multimodal Video Copy Detection Applied to Social Media, X. Anguera, P. Obrador, N. Oliver  The Role of Tags and Image Aesthetics in Social Image Search, P. Obrador, S. Anguerra, R. de Oliveira, N. Oliver  Social Reader: Following Social Networks in the Wilds of the Blogosphere, B. Adams, D. Phung, S. Venkatesh  Implicit Emotional Tagging of Multimedia Using EEG Signals and Brain
15:00 - 16:30  Posters  Continuing after	Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang  Multimodal Video Copy Detection Applied to Social Media, X. Anguera, P. Obrador, N. Oliver  The Role of Tags and Image Aesthetics in Social Image Search, P. Obrador, S. Anguerra, R. de Oliveira, N. Oliver  Social Reader: Following Social Networks in the Wilds of the Blogosphere, B. Adams, D. Phung, S. Venkatesh  Implicit Emotional Tagging of Multimedia Using EEG Signals and Brain Computer Interface, A. Yazdani, JS. Lee, T. Ebrahimi  VisuaPedia: A Social Media Based Visual Encyclopedia, N. Tripathi, S. H. Soon,
Posters Continuing after coffee break  Session 4	Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang  Multimodal Video Copy Detection Applied to Social Media, X. Anguera, P. Obrador, N. Oliver  The Role of Tags and Image Aesthetics in Social Image Search, P. Obrador, S. Anguerra, R. de Oliveira, N. Oliver  Social Reader: Following Social Networks in the Wilds of the Blogosphere, B. Adams, D. Phung, S. Venkatesh  Implicit Emotional Tagging of Multimedia Using EEG Signals and Brain Computer Interface, A. Yazdani, JS. Lee, T. Ebrahimi  VisuaPedia: A Social Media Based Visual Encyclopedia, N. Tripathi, S. H. Soon, S.J. Zuiker, M. Tan, H. Kvill, T.H.Y. Ka, C.K. Xin, L. Yixiang, L. Yuefeng  Moderators: Jiebo Luo (Kodak Research Labs, USA), Steven C.H. Hoi (Nanyang Technological University, Singapore)
Posters  Continuing after coffee break  Session 4	Accelerating YouTube with Video Correlation, X. Cheng, J. Liu, H. Wang  Multimodal Video Copy Detection Applied to Social Media, X. Anguera, P. Obrador, N. Oliver  The Role of Tags and Image Aesthetics in Social Image Search, P. Obrador, S. Anguerra, R. de Oliveira, N. Oliver  Social Reader: Following Social Networks in the Wilds of the Blogosphere, B. Adams, D. Phung, S. Venkatesh  Implicit Emotional Tagging of Multimedia Using EEG Signals and Brair Computer Interface, A. Yazdani, JS. Lee, T. Ebrahimi  VisuaPedia: A Social Media Based Visual Encyclopedia, N. Tripathi, S. H. Soon S.J. Zuiker, M. Tan, H. Kvill, T.H.Y. Ka, C.K. Xin, L. Yixiang, L. Yuefeng  Moderators: Jiebo Luo (Kodak Research Labs, USA), Steven C.H. Hoi (Nanyang

# THE 1ST INTERNATIONAL WORKSHOP ON EVENTS IN MULTIMEDIA (EIMM 2009)

#### **Foreword**

It is our great pleasure to welcome you to the 1<sup>st</sup> ACM International Workshop on Events in Multimedia – EiMM 2009. Goal of the workshop is to bring together researchers from the different areas of the multimedia research community that are interested in understanding the concept of events on domain level. It presents work in the areas of domain event modeling, detection of events from multimedia data, processing and composition of events, organization of multimedia data using events as unifying mechanism, and applications of these techniques. In addition, the workshop presents applications that make use of domain-level events in the context of multimedia data. The overall goal and vision of the workshop is to unify the research that deals with the understanding of events and to converge it into a generalized model that serves as a common understanding of events.

The call for papers attracted 20 submissions from Europe, Middle East, Africa, United States, Asia/Pacific, Canada, and Latin America. The program committee accepted 10 papers that cover a variety of topics, including detection of events from multimedia data, event-based applications, and event models. In addition, the program includes a keynote speech by Artur Lugmayr on Connecting the Real World and the Ubiquitous Overlay. We hope that these proceedings will serve as a valuable reference for researchers and developers interested in the understanding of events on domain level.

Putting together EiMM 2009 was a team effort. First of all, we would like to thank the authors and keynote speaker for providing the content of the program. We would like to express our gratitude to the program committee, who worked very hard in reviewing papers and providing suggestions for their improvements.

We hope that you will find this program interesting and thought-provoking and that the workshop will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

Ansgar Scherp General Chair University of Koblenz, Germany Ramesh Jain General Chair University of California at Irvine, CA, USA Mohan Kankanhalli General Chair National University of Singapore, Singapore

#### EIMM 2009 ORGANIZATION COMMITTEE

**General** Ansgar Scherp (University of Koblenz, Germany)

**Co-Chairs** Ramesh Jain (University of California at Irvine, CA, USA)

Mohan Kankanhalli (National University of Singapore, Singapore)

Program Pradeep Atrey (University of Winnipeg, Canada)

**Committee** Yannis Avrithis (National Technical University, Athens, Greece)

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Pablo Cesar (CWI, Amsterdam, The Netherlands)

Krishna Chandramouli (Queen Mary, University of London, UK)
Ivan Damnjanovic, (Queen Mary, University of London, UK)
Thomas Franz (University of Koblenz-Landau, Germany)
Daniel Gatica-Perez (IDIAP Research Institute, Martigny)
Andreas Girgensohn (FX Palo Alto Laboratory, CA, USA)
Marcin Grzegorzek (University of Koblenz-Landau, Germany)

Lynda Hardman (CWI, Amsterdam, The Netherlands)

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Aisling Kelliher (ASU - Tempe, USA)

Vita Lanfranchi (University of Sheffield, UK)

Artur Lugmayer (Tampere University of Technology, Finland)

Phivos Mylonas (National Technical University, Athens, Greece)

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Klara Nahrstedt (University at Illinois at Urbana-Champaign, IL, USA)

Carsten Saathoff (University of Koblenz-Landau, Germany)

Philipp Sandhaus (OFFIS Research Institute, Oldenburg, Germany)

Svetha Venkatesh (Curtin Univ. of Tech., Perth, Australia)

Utz Westermann (mercatis, Ulm, Germany)

Weiqi Yan (Queen's University Belfast, UK)

Toni Zgaljic (Queen Mary, University of London, UK)

Qianni Zhang (Queen Mary, University of London, UK)

#### **Sponsors**





The workshop is supported by the EU in the FP7 Integrated Project WeKnowlt - Emerging, Collective Intelligence for Personal, Organizational and Social Use (215453). <a href="http://www.weknowit.eu/">http://www.weknowit.eu/</a>



#### EIMM 2009 SESSION OVERVIEW (Meeting Room 8024 @ Beijing Hotel)

0.00 0.45	On an in a manual.
9:00 – 9:15	Opening remark
Keynote 9:15 – 10:15	Session Chair: Ansgar Scherp (University of Koblenz, Germany)
	Connecting the Real World and the Ubiquitous Overlay in Ambient Media, A. Lugmayr (Tampere University of Technology, Finland)
Session 1 10:30 – 11:50	Event Detection from Multimedia Content Session Chair: Mohan Kankanhalli (National University of Singapore)
Oral session	Speeding up Spatio-Temporal Sliding-Window Search for Efficient Event Detection in Crowded Videos, J. Yuan, Z. Liu, Y. Wu, Z. Zhang
	Query-based Video Event Definition Using Rough Set Theory, K. Shirahama, C. Sugihara, Y. Matsuoka, K. Uehara
	Event Detection in Sports Video based on Generative-Discriminative Models, Y. Ding, G. Fan
	Ice Hockey Shot Event Modeling with Mixture Hidden Markov Model, X. Wang, XP. Zhang
Session 2 11:50 – 14:20	Event-based Applications Session Chair: Ramesh Jain (University of California, Irvine, USA)
Oral session	Unifying and Targeting Cultural Activities via Events Modeling and Profiling, E. Mannens, S. Coppens, T. De Pessemier, K. Geebelen, H. Dacquin, R. Van de Walle
	An Approach Based on Events for Treating the Late Tuning Problem in Interactive Live TV Shows, M.C.M. Neto C. A.S. Santos
Continuing after lunch break	An Investigation into Event Decay from Large Personal Media Archives, A.R. Doherty, C. Gurrin, A.F. Smeaton
Session 3 14:20 – 15:20	Event Models Session Chairs: Ansgar Scherp (University of Koblenz, Germany), Ramesh Jain (University of California, Irvine, USA), Mohan Kankanhalli (National University of Singapore)
Oral session	A Hierarchical Model for Representation of Events in Multimedia Observation Systems, <i>P.K. Atrey</i>
	Event Composition Operators: ECO, S. Rafatirad, A. Gupta, R. Jain
	Combining Ship Trajectories and Semantics with the Simple Event Model (SEM), W.R. van Hage, V. Malaise, G. de Vries, G. Schreiber, M. van Someren
Session 4 15:20 – 17:30	Open discussion

# MULTIMEDIA IN FORENSICS (MIFOR 2009)

#### **Foreword**

It is our great pleasure to welcome you to the 1st ACM Workshop on Multimedia in Forensics – MiFor 2009.

With the proliferation of multimedia data on the web, surveillance cameras in cities, and mobile phones in everyday life we see an enormous growth in multimedia data that needs to be analyzed by forensic investigators. The sheer volume of such datasets makes manual inspection of all data impossible. Tools are needed to support the investigator in their quest for relevant clues and evidence and in their strive towards preventing crime.

The multimedia community has developed new solutions for management of large collections of video footage, images, audio and other multimedia content, knowledge extraction and categorization, pattern recognition, indexing and retrieval, searching, browsing and visualization, and modeling and simulation in various domains. Due to the inherent uncertainty and complexity of forensic data, applying those techniques to forensic data is not straightforward. The time is ripe to tailor these results for forensics. Multimedia in forensics is the workshop, the target of which is to join the research topics and the applications.

The workshop aims at addressing the multimedia toolbox supporting the forensic process from the prevention of crime, capturing and annotation of the crime scene, the investigation of the data in the lab, up to the presentation of the results in court. It is a first attempt in bringing multimedia tools in to this exciting application field. The target audience consists of researchers working on innovative technology, representatives from companies developing tools, and forensic investigators in various disciplines.

Despite the ambitious objective for the workshop and it being the first edition, it attracted a good number of quality submissions fairly distributed among different countries and among the different topics of the workshop. The MiFor 2009 Technical Program Committee includes the most experienced researches in the related research fields, and thanks to their indispensable effort we were able to select 11 papers for oral presentation.

The workshop schedules four oral sessions, named "Detection and Mining", "Multimedia forensics prototypes", "Forgery and Splicing Detection" and "Tracking". In addition, the program includes a keynote address by Professor Mohan Kankanhalli, a distinguished lecturer in the field.

We hope that these proceedings will serve as a valuable reference for researchers and developers. Putting together MiFor 2009 was a team effort.

We would also like to express our gratitude to the technical program committee and external reviewers, who worked very hard in reviewing papers and providing suggestions for their improvements. Finally, thanks to the authors and the keynote speaker for providing the content of the program, and to Ed Chang and Kiyoharu Aizawa (ACM Multimedia Workshop chairs) for helping us in realizing this event.

Rita Cucchiara

MiFor 2009 General Chair University of Modena and Reggio Emilia, Italy **Marcel Worring** 

MiFor 2009 General Chair University of Amsterdam, The Netherlands

#### MIFOR 2009 ORGANIZATION COMMITTEE

General Rita Cucchiara (University of Modena and Reggio Emilia, Italy)
Co-Chairs Marcel Worring (University of Amsterdam, The Netherlands)

Program Jake Aggarwal (University of Texas, USA)

**Committee** Nozha Boujemaa (INRIA Paris - Rocquencourt, France)

Jurrien Bijhold (Netherlands Forensic Institute)

François Brémond (INRIA Sophia Antipolis - Méditerranée Research Centre, France)

Shih-Fu Chang (Columbia University USA)

Isaac Cohen (Honeywell Advanced Technology Laboratory, USA)

Jean-Luc Dugelay (Institut Eurecom, France)

Katrin Franke (Norwegian Information Security Institute)
Mohan Kankanhalli (National University of Singapore)

Wessel Kraaij (TNO Information and Communication Technology Netherlands)

Krystian Mikolajczyk (Faculty of Electronics & Physical Sciences University of Surrey UK)

Andrea Prati (University of Modena and Reggio Emilia, Italy)
Mubarak Shah (University of Central Florida –UCF, USA)

Sargur Srihari (Cedar Buffalo, USA) Isabel Trancoso (INESC-ID, Portugal)

Cor Veenman (University of Amsterdam / Netherlands Forensic Institute. The Netherlands)

Sergio Velastin (Kingston University, UK)

**Additional** Paul Koppen reviewers Roberto Vezzani





#### MIFOR 2009 SESSION OVERVIEW (Meeting Room 1026 @ Beijing Hotel)

	·
Keynote 9:00 – 10:00	Session Chair: Rita Cucchiara (University of Modena and Reggio Emilia, Italy), Marcel Worring (University of Amsterdam, The Netherlands)
	Adversary Modeling in Multimedia Surveillance, Mohan Kankanhalli (National University of Singapore)
Session 1	Detection and Mining
10:30 – 12:00	Session Chair: Marcel Worring (University of Amsterdam, The Netherlands)
Oral session	Graffiti-ID: Identifying Gang Graffiti Images, A. Jain, JE. Lee, R. Jin
	<b>Temporal Normalization of Videos Using Visual Speech</b> , <i>U. Saeed, JL. Dugelay</i>
	Video Surveillance and Multimedia Forensics: An Application to Trajectory Analysis, S. Calderara, A. Prati, R. Cucchiara
Session 2	Multimedia Forensics Prototypes
12:00 – 15:00	Session Chair: Rita Cucchiara (University of Modena and Reggio Emilia, Italy)
Oral session	VidentifierTM Forensic: A New Law Enforcement Service for Automatic Identification of Illegal Video Material, H. Lejsek, Á. Þ. Jóhannsson, F. H. Ásmundsson, B. Þ Jónsson, K. Daðason, L. Amsaleg
Continuing after lunch break	Image Spam Clustering – An Unsupervised Approach, WB. Chen, C. Zhang
	Design and Deployment of a Digital Forensics Service Platform for Online Videos, W. Hui, H. Yin, C. Lin
Session 3	Forgery and Splicing Detection
15:00 – 17:00	Session Chair: Marcel Worring (University of Amsterdam, The Netherlands)
Oral session	Digital Forgery Estimation into DCT Domain - A Critical Analysis, S. Battiato, G. Messina
Continuing after coffee break	A New Approach for JPEG Resize and Image Splicing Detection, Q. Liu, A.H. Sung
	Exposing Digital Video Forgery by Ghost Shadow Artifact, J. Zhang, Y. Su, M. Zhang
Session 4	Tracking
17:00 – 18:00	Session Chair: Rita Cucchiara (University of Modena and Reggio Emilia, Italy)
Oral session	Single View Geometry and Active Camera Networks Made Easy, A. Del Bimbo, F. Pernici
	Multi-target Tracking in Time-lapse Video Forensics, P. Koppen, M. Worring

# LARGE-SCALE MULTIMEDIA RETRIEVAL AND MINING (LS-MMRM 2009)

#### **Foreword**

We are delighted to welcome you to the First ACM Workshop on Large-Scale Multimedia Retrieval and Mining (LS-MMRM 2009). Recent years have witnessed an explosive growth of multimedia content driven by the wide availability of massive storage devices, high-resolution video cameras and fast networks. Stimulated by recent progress in scalable machine learning, feature indexing and multi-modal analysis techniques, researchers are becoming increasingly interested in exploring challenges and new opportunities for developing much larger scale approaches for multimedia retrieval and mining. Many of these computationally-intensive ideas are now becoming practical because of the broader availability of high-speed clusters and the advent of cloud computing. This workshop aims to bring together researchers and industrial practitioners interested in large-scale multimedia retrieval and mining. The workshop will provide a venue for the participants to explore a variety of aspects and applications on how advanced multimedia analysis techniques can be leveraged to address the challenges in large-scale data collections.

In total we have received 31 submissions, each of which was reviewed by three members from the program committee. From these, we selected 7 papers for oral presentation and 10 posters, resulting in a full-day workshop. The program was supplemented with a keynote presentation on topics of particular interest, and a panel session on large-scale multimedia mining. We would like to thank the program committee and the additional reviewers for their hard work on reviewing submissions under such tight deadlines.

This year, we are excited to share all of our technical sessions with the Workshop on Web-Scale Multimedia Corpus (WSMC 2009), another workshop also collocated with ACM Multimedia. We hope that the shared sessions will present attendees from both workshops the opportunity to interact on aspects of multimedia retrieval and mining that apply to specifically web-scale corpora.

Rong Yan

ACM LS-MMRM'09 Chair IBM TJ Watson Research, USA Qi Tian

ACM LS-MMRM'09 Chair Microsoft Research Asia and University of Texas at San Antonio, USA

John R. Smith

ACM LS-MMRM'09 Chair

IBM TJ Watson Research, USA

Rahul Sukthankar

ACM LS-MMRM'09 Chair

Intel Research and Carnegie Mellon, USA

#### LS-MMRM ORGANIZATION COMMITTEE

General Rong Yan (IBM TJ Watson Research Center, USA)

Co-Chairs Qi Tian (Microsoft Research Asia and University of Texas, San Antonio, USA)

John R. Smith (IBM TJ Watson Research Center, USA)

Rahul Sukthankar (Intel Research and Carnegie Mellon, USA),

Program Shih-Fu Chang (Columbia University)

Committee Mei Chen (Intel Research)

Tsuhan Chen (Cornell University)

Tat-Seng Chua (National University of Singapore)

Ritendra Datta (Google)

Lei Ding (Ohio State University)

Quanfu Fan (IBM Research)

Jianping Fan (Univ. of North Carolina, Charlotte)

Alexander Hauptmann (CMU)

Winston Hsu (National Taiwan University)

Gang Hua (Microsoft Live Lab) Rong Jin (Michigan State Univ.) Qifa Ke (Microsoft Research)

Sanjiv Kumar (Google) Fei-Fei Li (Princeton Univ.)

Shipeng Li (Microsoft Research Asia)

Rainer Lienhart (University of Augsberg, Germany)

Jian Lu (Vobile Inc.)

Stephane Marchand-Maillet (University of Geneva, Switzerland)

Apostol Natsev (IBM Research)

Chong-Wah Ngo (City University of Hong Kong)

Malcolm Slaney (Yahoo Research)
Alan Smeaton (Dublin City University)
Cees Snoek (University of Amsterdam)

Lexing Xie (IBM Research)
Changsheng Xu (NLPR, China)
Androw Zisserman (Oxford University)

Andrew Zisserman (Oxford University)

Additional Efstratios Gavves (University of reviewers Amsterdam)

Amsterdam)
Thomas Greif (University of Augsburg)

Matthew Hill (IBM Research)
Jen-Hao Hsiao (IBM Research)
Wei Jiang (Columbia Univ.)

Yijuan Lu (Texas State University)

Hung-Khoon Tan (City University of Hong

Kong)

Shuhui Wang (Chinese Academy of Science) Guangyu Zhu (Harbin Institute of Technology)





# THE 1ST WORKSHOP ON WEB-SCALE MULTIMEDIA CORPUS (WSMC 2009)

#### **Foreword**

Welcome to the 1<sup>st</sup> International Workshop on Web-Scale Multimedia Corpus (WSMC 2009). The purpose of the workshop is to bring together researchers interested in the construction and analysis of Web Scale multimedia datasets and resources. The Workshop will provide a forum to consolidate key factors related to research on very large scale multimedia dataset such as the construction of dataset, creation of ground truth, sharing and extension of such resources in terms of ground truth, features, algorithms and tools etc. The Workshop will discuss and formulate action plan towards these goals. Contributions are collected from renowned multimedia researchers on the following topics:

- 1. Construction, Unification and Evolution of Corpus
- 2. Framework for sharing of dataset, ground truth, features, algorithms and tools
- 3. Web-scale Corpus analysis techniques
  - 3.1 Knowledge mining from web-scale multimedia corpus.
  - 3.2 Optimization techniques on web-scale multimedia data for efficiency.
  - 3.3 Techniques for web-scale content-based multimedia retrieval.
  - 3.4 Other related techniques.
- 4. Performance evaluation methodologies and standards

ACM multimedia 2009 hosts the "Multimedia Grand Challenge" for the 1st time. Web-Scale multimedia applications are among the potential competitors for the Grand Challenge. The availability of a Web-Scale Corpus would effectively boost research in this direction and foster many new applications to the grand challenge for the years to come.

The call for papers attracted 13 submissions from Asia, North-America, Europe and Africa. The program committee accepted 6 high quality papers. In addition, the program includes a panel on the topics addressed by the workshop and a keynote speech. We hope that these proceedings will serve as a valuable reference for multimedia researchers and developers as well as foster new research direction and results.

Putting together WSMC 2009 was a team effort. We are also heavily indebted to many individuals for their significant contribution. First of all, we would like to thank the authors, the keynote speaker and panelists for providing the content of the program. We thank the ACM Multimedia General Chairs (Wen Gao, Peking Univesity, China; Yong Rui, Microsoft, China; Alan Hanjalic, Delft University of Technology, The Netherlands) and Workshop Chairs (Ed Chang, Google Corp., USA; Kiyoharu Aizawa, University of Tokyo, Japan) for giving us the opportunity to organize this workshop. We would like to express our gratitude to the program committee and external reviewers, who worked very hard in reviewing papers and providing suggestions for their improvements. We would also like to thank of Workshop Liaison (Tat-Seng CHUA, National University of Singapore) for providing valuable input and guidance on crucial decisions.

We hope that you will enjoy this program,

Benoit HUET	Jinhui TANG	Alex HAUPTMANN
WSMC 2009 Co-Chair	WSMC 2009 Co-Chair	WSMC 2009 Co-Chair
EURECOM	National University of	Carnegie Mellon University,
France	Singapore	USA

#### **WSMC 2009 Workshop Organization**

General Benoit HUET, (EURECOM, France)

**Co-Chairs** Jinhui TANG, (National University of Singapore, Singapore)

Alex HAUPTMANN, (Carnegie Mellon University, USA)

**Workshop** Tat-Seng CHUA (National University of Singapore, Singapore)

Liaison

Program Alberto Del Bimbo, (*University of Florence, Italy*)
Committee Shih-Fu Chang, (*Columbia University, USA*)

Liang-Tien Chia, (Nanyang Technological University, Singapore)

Ajay Divakaran (Sarnoff Corporation, USA)

Xian-Sheng Hua, (Microsoft Research Asia, China)

Ramesh Jain, (*UC Irvine, USA*) Lyndon Kennedy, (*Yahoo!, Spain*)

Rainer Lienhart, (*Univ of Augsburg, Germany*) Jiebo Luo, (*Eastman Kodak Company, USA*)

Chong-Wah Ngo, (City University of Hong Kong, Hong Kong)

Guo-Jun Qi, University of Science and Technology of China, China)

Shin'ichi Satoh, (National Institute of Informatics, Japan)

Alan Smeaton, (Dublin City University, Ireland)
Cees Snoek, (University of Amsterdam, Netherland)

Meng Wang (Microsoft Research Asia, China)
Lexing Xie, (IBM Watson Research Center, USA)
Lei Zhang (Microsoft Research Asia, China)

**Additional** Xirong Li

reviewers Stefan Romberg





#### JOINT PROGRAM OF LS-MMRM'09 AND WSMC'09

#### (Meeting Room 6024 @ Beijing Hotel)

9:00 – 9:05	Opening Remark
Keynote 9:05 – 10:00	Session Chair: Benoit Huet (EURECOM)
	Rethinking Multimedia Search in the "Clients + Cloud" Era, WY. Ma (Microsoft Research Asia, China)
Session 1 10:30 – 11:30	Large-Scale Image Annotation and Retrieval Session Chair: Rong Yan (IBM Research, USA)
Oral Session	Canonical Contextual Distance for Large-Scale Image Annotation and Retrieval, H. Nakayama, T. Harada, Y. Kuniyoshi
	Image Categorization Combining Neighborhood Methods and Boosting, M. Cooper
	Semantics-Preserving Bag-of-Words Models for Efficient Image Annotation, <i>L. Wu, S.C.H. Hoi, N. Yu</i>
Session 2 11:40 – 12:40	Web-Scale Multimedia Corpus Session Chair: Alexander Hauptmann (Carnegie Mellon University, USA)
Oral Session	Visual Tag Dictionary: Interpreting Tags with Visual Words, M. Wang, K. Yang, XS. Hua, HJ. Zhang
	Understanding Tag-Cloud and Visual Features for Better Annotation of Concepts in NUS-WIDE Dataset, S. Gao, LT. Chia, X. Cheng
	Reliable Tags Using Image Similarity, L. Kennedy, M. Slaney, K. Weinberger
Session 3 14:00 – 15:20	Large-Scale Media Learning and Copy Detection Session Chair: Qi Tian (University of Texas, San Antonio, USA)
Oral Session	Leveraging Large-Scale Weakly-Tagged Images to Train Inter-Related Classifiers for Multi-Label Annotation , J. Fan, C. Yang, Y. Shen, N. Babaguchi, H. Luo
	Large-Scale Multimedia Semantic Concept Modeling using Robust Subspace Bagging and MapReduce, R. Yan, MO. Fleury, M. Merler, A. Natsev, J.R. Smith
	Indexing Local Configurations of Features for Scalable Content-Based Video Copy Detection, S. Poullot, M. Crucianu, S. Satoh
	From Text Question-Answering to Multimedia QA on Web-Scale Media Resources, TS. Chua, R. Hong, G. Li, J. Tang
Session 4 16:00 – 17:00	Session Chair: Jinhui Tang (National University of Singapore)
Posters	Creating a web-scale video collection for research, P. Over, G. Awad, A.F. Smeaton, C. Foley, J. Lanagan
	Large Scale Incremental Web Video Categorization, X. Zhang, YC. Song, J. Cao, YD. Zhang, JT. Li
·	

	MovieBase: A Movie Database for Event Detection and Behavioral Analysis,
	TS. Chua, S. Tang, R. Trichet, H. K. Tan, Y. Song
	On Improving Robustness of Video Fingerprints based on Projections of Features, R. Radhakrishnan, C. Bauer
	Image Copy Detection Using a Robust Gabor Texture Descriptor, Z. Li, G. Liu, H. Jiang, X. Qian
	Near-Duplicate Detection for Images and Videos, X. Yang, Q. Zhu, KT. Cheng
	Unsupervised Image Ranking, E. Hörster, M. Slaney, M. Ranzato, K. Weinberger
	An Efficient Key Point Quantization Algorithm for Large Scale Image Retrieval, F. Li, W. Tong, R. Jin, A. Jain, JE. Lee
	Large Scale Content Analysis Engine, D. Gibbon, Z. Liu
	Tagging and Retrieving Images with Co-Occurrence Models: from Corel to Flickr, N. Garg, D. Gatica-Perez
	<b>Topology Selection for Stream Mining Systems</b> , R. Ducasse, D. S. Turaga, M. van der Schaar
	Visual ContextRank for Web Image Re-ranking, S. Wang, Q. Huang, S. Jiang, L. Qin, Q. Tian
	Large-Scale News Topic Tracking and Key-scene Ranking with Video Near-Duplicate Constraints, X. Wu, I. Ide, S. Satoh
Session 5 17:00 – 18:00	Moderator: John R. Smith (IBM Research, USA)
Panel	Large-Scale Multimedia Corpus, Mining and Retrieval Panelists: Malcolm Slaney (Yahoo! Research), Alex Hauptmann (CMU), Yihong Gong (NEC Research), Michelle X Zhou (IBM Research)

#### THE THIRD WORKSHOP ON SEARCHING SPONTANEOUS **CONVERSATIONAL SPEECH (SSCS 2009)**

#### **Foreword**

Multimedia content often contains spoken audio as a key component. Although speech is generally acknowledged as the quintessential carrier of semantic information, speech tracks are often ignored or not fully exploited by multimedia retrieval systems. In particular, the potential of speech technology to improve information access has not yet been successfully extended beyond multimedia content containing planned speech, such as broadcast news. The Searching Spontaneous Conversational Speech (SSCS) workshop series is dedicated to providing a forum for speech retrieval research as it expands into spoken content domains involving spontaneouslyproduced, non-scripted, less-highly conventionalized, conversational speech characterized by wide variability of speaking styles and recording conditions. SSCS workshops aim to foster the development of robust, scalable, affordable approaches for accessing multimedia collections with a spoken component and to encourage sustained collaboration of researchers in the areas of speech recognition, audio processing, multimedia analysis and information retrieval.

The papers and demonstrations presented at SSCS 2009 report on research being carried out on techniques for information access in the domains of broadcast, meetings, interviews, telephone conversations, podcasts and speech tagging. A wide range of approaches are investigated, including using subword units, exploiting dialogue structure, fusing retrieval models, modeling topics and integrating visual features.

We would like to express our appreciation to the Program Committee for their work reviewing submissions for the workshop. We would also like to extend thanks to the research groups that submitted papers this year. Finally, a special word of thanks goes to the SSCS 2009 sponsors and supporters: The ACM SIGMM, the AMI Consortium, the Netherlands Institute for Sound and Vision and the PetaMedia Network of Excellence.

Martha Larcon

	wartha Larson	Roeiana Oraeiman
	Delft University of Technology,	Sound & Vision and
	The Netherlands	University of Twente,
		The Netherlands
Franciska de Jong	Joachim Kohler	Wessel Kraaij
University of Twente,	Fraunhofer IAIS	TNO and Radboud University
The Netherlands	Germany	The Netherlands

Pooland Ordolman

#### SSCS 2009 ORGANIZATION COMMITTEE

General Martha Larson (Delft University of Technology, Netherlands)Co-Chairs Franciska de Jong (University of Twente, Netherlands)

Joachim Kohler (Fraunhofer Institute for Intelligent Analysis and Information Systems,

Germany)

Roeland Ordelman (Netherlands Institute for Sound & Vision and University of Twente,

Netherlands)

Wessel Kraaij (TNO and Radboud University, Netherlands)

Program Committee

Herve Bourlard (*Idiap, Switzerland*) Berlin Chen (*NTNU, Taiwan, China*)

Tony Davis (*StreamSage, USA*) Masataka Goto (*AIST, Japan*) Vishwa Gupta (*CRIM, Canada*)

Thomas Hain (University of Sheffield, UK)

Alex Hauptmann (CMU, USA)

Diana Inkpen (University of Ottawa, Canada)

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Helen Meng (Chinese University of Hong Kong, China)

Christian Muller (DFKI, Germany)

Douglas Oard (*University of Maryland, USA*) Steve Renals (*University of Edinburgh, UK*)

Elizabeth Shriberg (SRI, USA)

Alessandro Vinciarelli (Idiap, Switzerland)

Additional reviewers

Scott Olsson Khe Sim











#### SSCS 2009 SESSION OVERVIEW (Meeting Room 8026 @ Beijing Hotel)

14:00 – 14-10	Opening remark
Keynote 14:10 – 14:40	Session Chair: R. Ordelman (Netherlands Institute for Sound & Vision and University of Twente, The Netherlands)
	Multimedia Retrieval through Indexing Speech, F. Seide (Microsoft Research Asia, China) Co-Authors: K. Thambiratnam, L. Lu, R.P. Yu
Session 1	System demonstrations and presentations
14:40 – 16:15	Session Chair: M. Larson (Delft University of Technology, The Netherlands)
Interactive session	PodCastle: A Spoken Document Retrieval System for Podcasts and its Performance Improvement by Anonymous User Contributions, J. Ogata, M. Goto
	A Latent Semantic Retrieval and Clustering System for Personal Photos with Sparse Speech Annotation, YS. Fu, W.H. Hsu, LS. Lee
	Ad Hoc demos and open discussion
Session 2 16:15 – 18:00	Research presentations Session Chair: R. Ordelman (Netherlands Institute for Sound & Vision and University of Twente, The Netherlands)
Oral session	Topic Modeling for Spoken Document Retrieval using Word- and Syllable-level Information, SH. Lin, B. Chen
	Exploring Fusion in a Spontaneous Speech Retrieval Task, M. Alzghool, D. Inkpen
	Locating Case Discussion Segments in Recorded Medical Team Meetings, S.
	The Effect of Language Models on Phonetic Decoding for Spoken Term Detection, R. Wallace, B. Baker, R. Vogt, S. Sridharan

# ACM Workshop on Ambient Media Computing (AMC 2009)

#### **Foreword**

It is our great pleasure to welcome you to ACM 2009 Workshop on Ambient Media Computing (AMC 2009). This workshop is collocated with ACM Multimedia 2009 and consists of two parts: Part I on Sensory Media Systems and Applications, and Part II on Media Data Integration. In response to the call for papers, the workshop received 18 submissions throughout the world. After rigorous and careful review processes, the program committee accepted a total of 10 papers, with 5 papers for Part I, and 5 papers for Part II. In addition, the program features a keynote by Balakrishnan Prabhakaran (University of Texas at Dallas) on "Enriching User Experience with Intuitive Interactions and Immersive Environments" and an invited talk by Zhengyou Zhang (Microsoft Research) on "Audio-Visual Analysis for Event Understanding". We hope that these proceedings will serve as a valuable reference for researchers and developers who are interested in ambient media computing.

Putting together AMC 2009 was a team effort. First of all, we would like to thank the authors and invited speaker for providing the content of the program. We would like to express our gratitude to the program committee and external reviewers, who all have done a wonderful job in reviewing papers and providing suggestions for their improvements within a very tight schedule. We would also like to thank Workshop Co-chairs, Edward Chang (Google) and Kiyoharu Aizawa (University of Tokyo), and to Proceedings Chairs, Yuanchun Shi and Timothy Shih, for approving and supporting this workshop. Special thanks go to Yong Rui (Microsoft, China), the General Co-Chair of ACM MM 2009 who has encouraged us at early stage to organize this workshop. Finally, we would like to thank Qi Tian (Microsoft Research Asia), the program coordinator of ACM MM 2009 who has patiently answered and sometimes handed on to resolve the various problems in managing the review system's accounts.

We hope that you will find this program interesting and thought-provoking and that the workshop will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

A. El-Sadik Qing Li

U Ottawa, Canada City U, Hong Kong

K.S. Candan Rynson W.H. Lau
Arizona State U, USA City U, Hong Kong

I. Cheng Benjamin Wah
U Alberta, Canada UIUC, USA

A. Basu Howard Leung
U Alberta, Canada City U, Hong Kong

Cha Zhang MSR, USA

AMC'09 Part I Co-Chairs AMC'09 Part II Co-Chairs

#### AMC 2009 ORGANIZATION COMMITTEE

Part I: Sensory Media Systems and Part II: Media Data Integration **Applications** General A. El Saddik (*U. Ottawa, Canada*) Qing Li (City U. Hong Kong, China) Co-Chairs K. S. Candan (Arizona State U., USA) Rynson W.H. Lau (City U. Hong Kong, I. Cheng (U. Alberta, Canada) China) A. Basu (*U. Alberta, Canada*) Benjamin Wah (UIUC, USA) **Program** Howard Leung (City U. Hong Kong, **Co-Chairs** China) Cha Zhang (MSR, USA) Web Support Feng Chen (*U.Alberta, Canada*) **Program** A. Argyros (ICS, Forth, Greece) Shih-Fu Chang (Columbia U, USA) Committee Y. Aloimonos (*U. Maryland, USA*) Lei Chen (HKUST, China) P. Atrey (*U. Winnipeg, Canada*) Tsuhan Chen (Cornell U, USA) P. Boulanger (*U. Alberta, Canada*) Ricky Kwok (Colorado State U, USA) C. M. Brown (U. Rochester, USA) Helen Huang (U Queensland, Australia) P. Cesar (CWI, The Netherland) Yiu-Wing Leung (HKBU, HK, China) G. M. Cortelazzo (*U. Padova, Italy*) Ling Feng (Tsinghua U, China) Y. Cui (Vanderbilt U., USA) Nadia Magnenat-Thalmann (*U Geneva*, L. S. Davis (*U. Maryland. USA*) Switzerland) R. Goebel (*U. Alberta, Canada*) Dennis McLeod (USC, USA) R. Iglesias (Ikerlan, Spain) Klara Nahrstedt (UIUC, USA) J. Song (KAIST, Korea) Timothy K. Shih (Asia University, China) W. Kropatsch (TU Vienna, Austria) Marc Spaniol (MPI, Germany) L. Peng (Brendais U., USA) Deepak Turaga (IBM Research, USA) G. Potamianos (ICS, Forth, Greese) Daniel Thalmann (EPFL, Switzerland) M. L. Sapino (*U. Torino*, *Italy*) Ji-Rong Wen (MSRA, China) N. Sebe (*U. Trento, Italy*) Andy Wilson (MSR, USA) C. Silva (*U. Utah, USA*) Xiaofang Zhou (U Queensland, Australia) A. Shokoufandeh (*Drexel U., USA*) Yueting Zhuang (Zhejiang U, China) H. Sundaram (Arizona State U., USA)













#### **AMC 2009** SESSION OVERVIEW (Opal Room @ Raffles)

	Part I: Sensory Media Systems and Applications
Keynote 1 9:00 – 10:00	Keynote Address Session Chair: K. Selcuk Candan (Arizona State University, USA)
	Enriching User Experience with Intuitive Interactions and Immersive Environments, B. Prabhakaran (University of Texas, Dallas, USA)
Session 1 10:30 – 11:10	Collaborative Applications using Ambient Sensory Media Session Chair: Abdulmotaleb El Saddik (University of Ottawa, Canada)
Oral session	A HIMI Model for Collaborative Multi-Touch Multimedia Education, I. Cheng, D. Michel, A. Argyros, A. Basu
	Doodle Space: Painting on A Public Display by Cam-phone, Y. Zhong, X. Li, M. Fan, Y. Shi
Session 2 11:10 – 12:30	Ambient Media for Surveillance and Monitoring Session Chair: K. Selcuk Candan (Arizona State University, USA)
Oral session	A Prototype of Landmark-Based Car Navigation Using a Full-Windshield Heal- Up Display System, W. Wu, F. Blaicher, J. Yang, T. Seder, D. Cui
	A User-Friendly Mobile Device Interface to Assist Security Officers in Physical Monitoring at Public Places, B. Barake, P. K Atrey, J. Zhao, A. El Saddik
	A Method for Analyzing Work Tasks and Status By Video-PC-Monitoring System, M. Toba, Y. Mori, M. Egi, T. Sakurai, K. Naono
	Part II: Media Data Integration
Keynote 2 14:00 – 15:30	Keynote Address Session Chair: Qing Li (City University of Hong Kong, China)
	Audio-Visual Analysis for Event Understanding Z. Zhang (Microsoft Research, USA)
Session 3 16:00 – 16:40	Media Data Integration for Event and Content Understanding Session Chair: Qing Li (City University of Hong Kong, China)
Oral session	Vision-based Human Pose Estimation for Pervasive Computing, Y. Li, Z. Sun
	Content Integration in Digital Libraries, W. Zhu, B. Wei, Y. Zhuang, S. Shi, Y. Yang
Session 4 17:00 – 18:00	Ambient Media Technology for Learning and Social Network Session Chair: Howard Leung (City University of Hong Kong, China)
Oral session	Design of Affectively Evocative Smart Ambient Media for Learning, R. CW. Kwok, S. H. Cheng, H. HS. Ip, J. SL. Kong
	To Construct the Outdoor Experience Game-Based Learning System by Integrating Ubiquitous Technologies, MJ. Yang, JH. Chen, TH. Wang, L. R. Chao, T. K. Shih
	Automatic Annotation of Weakly-Tagged Social Images on Flickr Using Latent Topic Discovery of Multiple Groups, Y. Chen, J. Shao, K. Zhu

# THE FIRST ACM INTERNATIONAL WORKSHOP ON MULTIMEDIA TECHNOLOGIES FOR DISTANCE LEARNING (MTDL 2009)

#### **Foreword**

Welcome to the *First ACM International Workshop on Multimedia Technologies for Distance Learning (MTDL 2009)*, as one of the workshops held in conjunction with the *ACM Multimedia 2009 Conference*. Multimedia technologies and networking infrastructure have changed human social behavior. One typical example is education. The impact of distance learning to traditional universities in particular allows educational professionals to rethink about how to efficiently and effectively using multimedia technologies to improve instruction, as well as to encourage students to learn. Although multimedia technologies have already been widely used in e-learning, various considerations should be carefully addressed from both pedagogical and technological perspectives, to ensure the successful incorporation of these technologies in e-learning. This ACM workshop aims to discuss problems, current studies, and solutions in how to use multimedia and communication technologies to improve e-learning. Especially, presentations address the difference between using and without using multimedia technologies in education. Practical solutions are included, although pedagogical theories may be used to support the solutions.

The workshop received 24 full paper submissions from Australia, Canada, Germany, France, Italy, Spain, China, Hong Kong, Taiwan, Greece, and United Kingdom. Each paper was reviewed by at least three reviewers. To ensure quality of this workshop, the Program Co-Chairs decided to accept only 11 papers. Some of the accepted papers will be further recommended for resubmission to the Special Issue of *IEEE Transactions on Learning Technologies* on Game-Based Learning.

The Workshop program is divided into four sessions: Learning Technology Infrastructure (3 papers), Technology-Assisted Learning (3 papers), Game-Based Learning (3 papers), and Learning Methodologies (2 papers). All presentations are scheduled on October 23, 2009.

We would like to thank the ACM MM 2009 Workshop Co-Chairs, Edward Chang and Kiyoharu Aizawa, for approving our workshop proposal. We would also like to thank all authors who submitted their manuscripts to the Workshop for consideration and all the program committee members to help review the submissions. We hope that all the participants will enjoy the fruitful discussions.

Timothy K. Shih

Asia University, Taiwan, China MTDL 2009 Workshop Co-Chair

Rynson W.H. Lau

City University of Hong Kong, HK, China MTDL 2009 Technical Program Co-Chair

#### MTDL 2009 ORGANIZATION COMMITTEE

Timothy Shih (Asia University, Taiwan, China) **General Chairs** 

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Yueh-Min Huang (National Cheng Kung University, Taiwan, China)

**Publication Chair** Frederick Li (Durham University, United Kingdom)

**Website Chair** Hui-Huang Hsu (Tamkang University, Taiwan, China)

**Publicity Co-**

Bin Hu (University of Central England, United Kingdom)

Chairs Ricky Kwok (Colorado State University, U.S.A.)

Qing Li (City University of Hong Kong, Hong Kong)

Marc Spaniol (Max Planck Institut, Germany)

**Program** Committee Stephane Bressan (National University of Singapore, Singapore)

Baltasar Fernández-Manjón (U Complutense de Madrid, Spain)

Hongbo Fu (CityUniversity of Hong Kong, Hong Kong) Jenq-Neng Hwang (University of Washington, U.S.A.)

Qun Jin (Waseda Univeristy, Japan)

Ralf Klamma (RWTH Aachen University, Germany) Ricky Kwok (Colorado State University, U.S.A.)

Yiu-Wing Leung (Hong Kong Baptist University, Hong Kong)

Frederick Li (Durham University, United Kingdom) Qing Li (City University of Hong Kong, Hong Kong)

Nicoletta Sala (University of Italian Switzerland, Switzerland)

Yuanchun Shi (Tsinghua University, China) Marc Spaniol (Max Planck Institut, Germany)

Qi Tian (Microsoft Research Asia, China)





#### **MTDL 2009 SESSION OVERVIEW** (Sapphire Room @ Raffles)

Keynote 9:00 – 10:00	Session Chair: Timothy K. Shih (Asia University, Taiwan, China)
	Multimedia in e-Learning: the Good, the Bad, and the Rules, Q. Li (City University of Hong Kong)
Session 1 10:30 – 12:00	Learning Technology Infrastructure Session Chair: Rynson Lau (City University, Hong Kong, China)
Oral session	Personal Media Data Organization and Retrieval in e-Learning: A Collaborative Tagging Based Approach, $L.\ Yu,\ Q.\ Li$
	Synote: Enhancing Multimedia e-Learning with Synchronised Annotation, Y. Li, M. Wald, S. Khoja, G. Wills, D. Millard, J. Kajaba, P. Singh, L. Gilbert
	Toward Environment–to–Environment (E2E) Affective Sensitive Communication Systems, M.L.C. Paleari, V. Singh, B. Huet, R. Jain
Session 2 12:00 – 15:00	Technology-Assisted Learning Session Chair: Timothy K. Shih (Asia University, Taiwan, China)
Oral session	Design an Empathic Virtual Human to Encourage and Persuade Learners in e- Learning Systems, CY. Wang, GD. Chen, CC. Liu, BJ. Liu
Continuing after lunch break	Towards Affective Learning with an EEG Feedback Approach, X. Li, B. Hu, T. Zhu, J. Yan, F. Zheng
	Developing the Immersive Learning Environment by Integrating the Interactive Video and Ubiquitous Technologies, JH. Chen, HB. Chang, CY. Shen, TH. Wang, WC. Chang
Session 3 15:00 – 17:00	Game-Based Learning Session Chair: Rynson Lau (City University, Hong Kong, China)
Oral session	Constraint-directed Business Simulation for Supporting Game-based Problem-based Learning, C. C. Tseng, C. H. Lan, K. R. Lai
Continuing after coffee break	Implementing Accessibility in Educational Videogames with <e-adventure>, J. Torrente, Á. del Blanco, P. Moreno-Ger, I. Martínez-Ortiz, B. Fernández-Manjón</e-adventure>
	Game-based Learning Model Using Fuzzy Cognitive Map, X. Luo, X. Wei, J. Zhang
Session 4 17:00 – 18:00	Learning Methodologies Session Chair: Timothy K. Shih (Asia University, Taiwan, China)
Oral session	Knowledge Multimedia Processes in Technology Enhanced Learning, R. Klamma, M. Spaniol, M. Jarke
	A Mash-up Authoring Tool for e-Learning based on Pedagogical Templates, N. Capuano, A. Pierri, F. Colace, M. Gaeta, G. R. Mangione

# International Workshop on Interactive Multimedia for Consumer Electronics (IMCE 2009)

#### **Foreword**

It is our great pleasure to welcome you to the 1st ACM International Workshop on Interactive Multimedia for Consumer Electronics – IMCE 2009. This year's workshop brings together researchers from both academia and industry in domains including computer vision, machine learning, audio and speech processing, communications, artificial intelligence and media technology to share and discuss recent advances in interactive user interfaces and multimedia applications.

The call for papers attracted 22 submissions from Asia, Europe, and North America. A number of leading consumer electronics companies, such as Philips, Nokia, NXP and HP, contributed their recent research results. The program committee accepted 14 papers that cover a variety of topics, including Human Action/Activity Recognition, Video Shot Retrieval, Face Recognition, and Image Labeling, etc. Among the accepted papers, 7 are presented orally and the remaining 7 are in poster. In addition, the program includes two invited talks from leading researchers who are active in the area of interactive multimedia. We hope that these proceedings will serve as a valuable reference for multimedia researchers and developers.

Putting together *IMCE 2009* was a team effort. First of all, we would like to thank the authors for providing the content of the program. We would like to express our gratitude to the program committee and external reviewers, who worked very hard in reviewing papers and providing suggestions for their improvements. Finally, we would like to thank the organizers of ACM Multimedia'09, for their continued support and assistance.

We hope that you will find this program interesting and thought-provoking and that the workshop will provide you with a valuable opportunity to share ideas with other researchers and practitioners from companies and institutions around the world.

IMCE'09 Chairs	Ling Shao	Caifeng Shan
	The University of Sheffield, UK	Philips Research Laboratories,
		The Netherlands
	Jiebo Luo	Minoru Etoh
	Kodak Research Laboratories,	NTT DOCOMO Service &
	Kodak Research Laboratories, USA	NTT DOCOMO Service & Solution Development

#### IMCE 2009 ORGANIZATION COMMITTEE

General Ling Shao (The University of Sheffield, UK)

**Co-Chairs** Caifeng Shan (*Philips Research Laboratories, The Netherlands*)

Jiebo Luo (Kodak Research Laboratories, USA)

Minoru Etoh (NTT DOCOMO Service & Solution Development Department, Japan)

Program Alberto Del Bimbo (University of Firenze, Italy)
Committee Xavier Binefa (University of Barcelona, Spain)

Wei-Chao Chen (Nokia Research Center, USA)

Berna Erol (Ricoh Innovations, USA)

Yun (Raymond) Fu (BBN Technologies, USA) Ling Guan (Ryerson University, Canada)

Jungong Han (Eindhoven University of Technology, The Netherlands)

Aki Harma (Philips Research, The Netherlands)
Mark Huiskes (Leiden University, The Netherlands)
Winston Hsu (National Taiwan University, Taiwan, China)

Alejandro Jaimes (*Telefonica I+D, Spain*) Tae-Kyun Kim (*Cambridge University, UK*)

Rainer Lienhart (University of Augsberg, Germany)

Xuelong Li (University of London, UK)

Qian Lin (HP Labs, USA)

Alexander C. Loui (Kodak Research Labs, USA)

Xiaoming Liu (GE Global Research, USA) Tao Mei (Microsoft Research Asia, China)

Paul Miller (Queen's University Belfast, UK)

Anton Nijholt (University of Twente, The Netherlands)

Ryuzo Okada (Toshiba Corporate Research and Development Center, Japan)

Yoichi Sato (University of Tokyo, Japan)

Caifeng Shan (Philips Research Laboratories, The Netherlands) Ling Shao (Philips Research Laboratories, The Netherlands) Dacheng Tao (Nanyang Technological University, Singapore)

Qi Tian (Microsoft Research Asia, China)

Ning Xu (Samsung, USA)

AdditionalStefano BerrettiStefan RombergreviewersMarco BertiniKentaro Yokoi

Masanori Hattori Zheng-Jun Zha
Teng Li Shiliang Zhang
Suk Hwan Lim Wengang Zhou





#### **IMCE 2009** SESSION OVERVIEW (Amethyst Room @ Raffles)

Keynote 1 9:00 – 10:00	Session Chair: Jiebo Luo (Kodak Research Laboratories, USA)
	Multimedia Experience on a Web-Connected CE Device, Qian Lin (HP Labs, USA)
Session 1 10:30 – 11:45	Activity and Gesture Session Chair: Ling Shao (The University of Sheffield, UK)
Oral session	Toward Physical Activity Diary: Motion Recognition Using Simple Acceleration Features with Mobile Phones, <i>J. Yang</i>
	Finger Gesture Recognition through Sweep Sensor, P. Yuen, W.W. Zou, S.B. Zhang, K.K.F. Wong, H.H.S. Lam
	Utilising Contextual Memory Retrieval Cues and the Ubiquity of the Cell Phone to Review Lifelogged Physiological Activities, A.R. Doherty, K.M. Tolle, A.F. Smeaton
Session 2 11:45 – 15:30	Session Chair: Ling Shao (The University of Sheffield, UK)
Posters	Key Frame Vector and Its Application to Shot Retrieval, Y. Gao, J. Tang, X. Xie
Continuing after Keynote 2	A Framework for Robust Feature Selection for Real-Time Fashion Style Recommendation, X. Chao, M. Huiskes, T. Gritti, C. Ciuhu
	Spatio-Temporal Shape Contexts for Human Action Retrieval, L. Shao, Y. Du
	A New Gaussian Mixture Conditional Random Field Model for Indoor Image Labeling, X. Wang, XP. Zhang, I. Clarke, Y. Yakubovich
	Scene Classification using pLSA with Visterm Spatial Location, S. Kim, D. Kim
	Structured Layout for Resizable Background Art, H. Chao, X. Zhang, D. Tretter
	Video Shots Retrieval Using Local Invariant Features, Y. Du, L. Shao
Keynote 2 14:00 – 15:00	Session Chair: Minoru Etoh (NTT DOCOMO Service & Solution Development Department, Japan)
	Natural Interactivity, Alberto Del Bimbo (University of Florence, Italy)
Session 3 16:00 – 17:30	Multimedia Content Analysis Session Chair: Ling Shao (The University of Sheffield, UK)
Oral session	Toward Fully Automated Face Pose Estimation, T. Gritti
	Efficient Object Localization with Gaussianized Vector Representation, X. Zhuang, X. Zhou, M.A. Hasegawa-Johnson, T. Huang
	Evolving Virtual Contents with Interactions in Videos, CH. Chang, MC. Chiang, JL. Wu
	Upscaling Faces for Recognition Systems Using Trained Filters, J. Rong, T. Gritti, C. Shan

# MULTIMEDIA FOR COOKING AND EATING ACTIVITIES (CEA 2009)

#### **Foreword**

It is our pleasure to welcome you to the ACM Multimedia 2009 Workshop on Multimedia for Cooking and Eating Activities – CEA'09 in Beijing, China. Cooking is one of the most fundamental activities of humankind, which concerns a wide-range of issues and social impact. Many people who cook at home require supports for cooking because it requires experience and knowledge. They may also need support for food-logging and menu planning for the health of their family. Needless to say, support for a good and enjoyable dinner would improve the quality of life. On the other hand, systematic cooking and eating support for some elderly or physically challenged people are significantly important.

The call for paper attracted ten submissions from Asia and the United States. Each paper was reviewed by three reviewers, and the program committee decided to accept seven papers based on the reports. Participants of the workshop will learn the current state of the usage and its effects of multimedia sensors, and the handling of knowledge databases with experimental results toward human behavior understanding in the context of cooking and eating applications. They will also see novel applications for supporting cooking and eating activities through contents construction support for cooking and human-to-human communication support at a dining table.

We would like to express our gratitude to the authors who contributed by submitting interesting reports on their works, together with the program committee members and external reviewers who completed the reviews in a relatively short period. We would also like to thank Dr. Yoko Yamakata, the Organizing chair for planning the workshop, Dr. Kenzaburo Miyawaki, the Publication chair for assembling the papers, both in very short periods, and Dr. Takuya Funatomi, the Publicity chair and Dr. Kazuaki Kondo for keeping the workshop web page always up-to-date. Special thanks goes to Mr. Akio Okumura and Ms. Reiko Nakamura who designed a nice logo for us.

We hope that this workshop should become an opportunity for research groups who share the common interest to discover each other, introduce their trials, and discuss common issues and future directions. In addition, since China is renowned for its long history and tradition in food, we hope you also enjoy the actual cooking and eating activities that you may experience here, in Beijing.

**Mutsuo Sano** CEA'09 General Chair Osaka Institute of Technology, Japan Ichiro Ide CEA'09 Program Chair Nagoya University, Japan

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#### CEA'09 SESSION OVERVIEW (Meeting Room 6026 @ Beijing Hotel)

14:00 – 14:10	Opening remarks
Session 1	Recipes and Cooking Sctivities
14:10 – 15:10	Session Chair: Yuichi Nakamura (Kyoto University, Japan)
Oral session	A Study of Object Naming According to the Manufacturing Processes in a Cooking Activity, Y. Yamakata, T. Funatomi, K. Kakusho, M. Minoh
	Finding Replaceable Materials in Cooking Recipe Texts Considering Characteristic Cooking Actions, Y. Shidochi, T. Takahashi, I. Ide, H. Murase
	Assisting the Validity Assessment of Items based on Composition Similarity, H. Miyamori
Session 2	Eating activities / Cooking support systems
15:40 – 17:05	Session Chair: Takuya Funatomi (Kyoto University, Japan)
Oral session	FoodLog: Capture, Analysis and Retrieval of Personal Food Images via Web, K. Kitamura, T. Yamasaki, K. Aizawa
	Drinking Activity Analysis from Fast Food Eating Video Using Generative Models, Q. Wang, J. Yang
	Smart Cooking Support System based on Interaction Reproducing Model, H. Aoyama, M. Ozeki, Y. Nakamura
	A Cooking Support System for People with Higher Brain Dysfunction, K. Miyawaki, M. Sano, S. Yonemura, M. Matsuoka
	Closing remarks

# Workshop on Media Studies and Implementations that Help Improving Access to Disabled Users (MSIADU 2009)

#### **Foreword**

It is our great pleasure to welcome you to the 1st ACM SIGMM International Workshop on Media Studies and Implementations that help Improving Access to Disabled Users (MSIADU09). This year's event seeks original and highly innovative research documents in the area of Multimedia (studies and implementations) in order to improve accessibility to real and virtual scenarios that might be applied to all kinds of users with disabilities or difficulties when implementing concrete actions (navigation or interaction with a particular medium).

As a major topic, this invited proposal seeks to discuss about Multimedia (in general) and Usability (in particular), helping to increase the current levels of Accessibility regarding virtual and real interactive environments where the disabled community can participate. Participants will be able to observe many different works of accessibility and projects from a multicultural perspective. All those materials will relate to multimedia technologies. The selected proposals will aim to be developed cooperatively from a multidisciplinary and multicultural view, to search for possible global solutions to the problems related to creating adaptable and accessible interfaces.

The call for papers attracted 14 submissions and the program committee accepted 11 of them, covering a variety of topics, including the design of accessible web pages, virtual reality technologies applied to rapid development, ambient assisted environments, face gesture detection, music communication, learning support platforms, wearable cameras, and digital agendas for the elderly, among others.

We hope that these proceedings will serve as a valuable reference for Multimedia professionals and researchers.

We would like to thank everyone that helped putting together MSIADU 2009: authors, program committee and external reviewers, all of them working very hard to finish everything on time.

We hope that you will find this program interesting and thought-provoking and that the symposium will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

**David Fonseca** 

MSIADU 2009 General Chair Enginyeria Arquitectura La Salle. Universitat Ramon Llull, Barcelona, Spain Oscar García

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AdditionalJaume DuranAntonio MadeirareviewersDavid FonsecaEva Villegas

Oscar Garcia







#### MSIADU'09 SESSION OVERVIEW (Meeting Room 8026 @ Beijing Hotel)

Keynote 9:00 – 10:00	Session Chair: David Fonseca (Ramon Llull University, Spain)
	Improving the Design of Accessible Web Pages through a Study of User Experience in order to define requirements, M. Pifarré (UserLab la Salle, Spain) Co-Authors: E. Villegas, X. Sorribas, D. Fonseca
Session 1 10:30 – 12:30	Session Chair: David Fonseca (Ramon Llull University, Spain)
Interactive session	Application of Virtual Reality Technologies in Rapid Development and Assessment of Ambient Assisted Living Environments, V Jimenez-Mixco, J.L.V. Gonzalez, A. Arca, M.F. Cabrera-Umpierrez, M.T. Arredondo, M. García-Robledo
	Disabled Personages in the Full-length Films of Pixar Animation Studios (1995-2006), J. Duran, D. Fonseca
	Examining the feasibility of face gesture detection using a wheelchair mounted camera, G. Fine, J.K. Tsotsos
	Formal Specification of an Adaptable Personal Learning Environment Using Prolog, S.J. Green, E.J. Pearson, S. Gkatzidou
	Is Visual Information Useful for Music Communication?, R. Hiraga, N. Kato
	MAS: Learning Support Software Platform for People with Disabilities, F. P. Martin, R.C. Palacios, A. García-Crespo
	Person Localization using a Wearable Camera towards Enhancing Social Interactions for Individuals with Visual Impairment, L. Gade, S. Krishna, S. Panchanathan
	The Elderly Interacting with a Digital Agenda through an RFID pen and a Touch Screen, R. Iglesias, N. Gomez de Segura, M. Iturburu
	UbiMeds: A mobile application to improve accessibility and support medication adherence, J.M. Silva, A. Mouttham, A. El Saddik
	User Capability in an Adaptive World, R. Dodd, S. Green, E. Pearson