

Proceedings

Second International Conference on Automated Production of Cross Media Content for Multi-Channel Distribution

AXMEDIS 2006

Leeds, UK

13 – 15 December 2006

Edited by:

Kia Ng, Atta Badii, Pierfrancesco Bellini

Sponsored by:

Dipartimento di Sistemi e Informatica, Università degli Studi di Firenze, DISIT Lab.;
Dipartimento di Italianistica, Università degli Studi di Firenze; Associazione dei Fonografici Italiani;
Fondazione Accademia Nazionale di Santa Cecilia; Ecole Polytechnique Federale de Lausanne;
Eutelsat S.A.; Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V.;
Giunti Interactive Labs S.r.l.; Hewlett Packard Italiana S.r.l.; Tiscali S.p.A.; Xim Ltd.;
Universitat Politècnica de Catalunya; Societa Consortile a Responsabilita Limitata Centro di Ricerca,
Sviluppo e Studi Superiori in Sardegna; Acit - Advance Concepts for Interactive Technology GmbH;
Sejer representing Boards and Nathan; University of Reading; Strategica S.r.l.; Exitech S.r.l.;
ICSRiM - University of Leeds; BBC; Brook Lapping; IT Innovation Centre; Kauno Technologijos Universitetas;
Peking University; Sociedad Digital de Autores y Editores; TEO; VRS Grupe;
IST FP6, European Commission

Patron by:

International Association of Interactive Multimedia MUSICNETWORK



Los Alamitos, California

Washington • Tokyo

Copyright © 2006 by The Institute of Electrical and Electronics Engineers, Inc.
All rights reserved.

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries may photocopy beyond the limits of US copyright law, for private use of patrons, those articles in this volume that carry a code at the bottom of the first page, provided that the per-copy fee indicated in the code is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

Other copying, reprint, or republication requests should be addressed to: IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, P.O. Box 133, Piscataway, NJ 08855-1331.

The papers in this book comprise the proceedings of the meeting mentioned on the cover and title page. They reflect the authors' opinions and, in the interests of timely dissemination, are published as presented and without change. Their inclusion in this publication does not necessarily constitute endorsement by the editors, the IEEE Computer Society, or the Institute of Electrical and Electronics Engineers, Inc.

IEEE Computer Society Order Number P2625
ISBN-13: 978-0-7695-2625-6
ISBN-10: 0-7695-2625-X
Library of Congress Number 2006925975

Additional copies may be ordered from:

IEEE Computer Society
Customer Service Center
10662 Los Vaqueros Circle
P.O. Box 3014
Los Alamitos, CA 90720-1314
Tel: + 1 800 272 6657
Fax: + 1 714 821 4641
<http://computer.org/cspress>
csbooks@computer.org

IEEE Service Center
445 Hoes Lane
P.O. Box 1331
Piscataway, NJ 08855-1331
Tel: + 1 732 981 0060
Fax: + 1 732 981 9667
[http://shop.ieee.org/store/
customer-service@ieee.org](http://shop.ieee.org/store/customer-service@ieee.org)

IEEE Computer Society
Asia/Pacific Office
Watanabe Bldg., 1-4-2
Minami-Aoyama
Minato-ku, Tokyo 107-0062
JAPAN
Tel: + 81 3 3408 3118
Fax: + 81 3 3408 3553
tokyo.ofc@computer.org

Individual paper REPRINTS may be ordered at: reprints@computer.org

Editorial production by Lisa O'Conner

Cover art production by Joe Daigle/Studio Productions

Printed in the United States of America by Documation



IEEE Computer Society
Conference Publishing Services

<http://www.computer.org/proceedings/>



Table of Contents

Message from the Chairs.....	x
Conference Organising Committee.....	xii
International Program Committee.....	xiii
Sponsors.....	xiv

Keynote Addresses

Standards Based Digital Rights Management — Potentially Viable or Just a Pipe Dream?	3
<i>Huw Williams</i>	
Digital Entertainment: Media Technologies for the Future	4
<i>Karlheinz Brandenburg</i>	
The Present and Future of Digital Rights Management.....	6
<i>Stefan Bechtold</i>	

Session: Content

Distributed Architectures for High Performance and Privacy-Aware Content Generation and Delivery.....	11
<i>Claudia Canali, Michele Colajanni, and Ricardo Lancellotti</i>	
Content Based Description of Audio in the Context of AXMEDIS	19
<i>Nicolas Scaringella, Martin Schmucker, and Michael Arnold</i>	
A Management System for Distributed Knowledge and Content Objects.....	27
<i>Wernher Behrendt, Nitin Arora, Tobias Bürger, and Rupert Westenthaler</i>	
Profiling Management for Personalised Multimedia Delivery On-Demand within the AXMEDIS Framework	35
<i>A. Badii, M. Sailor, and R.R. Nair</i>	

Session: DRM

Towards the Interoperability between MPEG-21 REL and Creative Commons Licenses	45
<i>Eva Rodríguez and Jaime Delgado</i>	
Accounting Solutions in the AXMEDIS Project	53
<i>S. Chellini, T. Martini, and P. Nesi</i>	

Translation between XML-Based Rights Expressions Using UML and Relational Models	61
<i>Silvia Llorente, Jaime Delgado, Rubén Barrio, and Xavier Maroñas</i>	

Session: MPEG

The Role of MPEG-7 in Semantic Annotation and the Cross-Media Publishing Process	71
<i>Tobias Bürger, Georg Güntner, and Erich Gams</i>	
SMIL to MPEG-4 BIFS Conversion	77
<i>Beilu Shao, Laureano Moro Velázquez, Nicolas Scaringella, Neha Singh, and Marco Mattavelli</i>	
Enhancing Interoperability via Generic Multimedia Syntax Translation	85
<i>Joseph Thomas-Kerr, Ian Burnett, and Christian Ritz</i>	

Session: P2P

A Mobile Peer-To-Peer Application for Distributed Recommendation and Re-Sale of Music	93
<i>Jürgen Nützel and Mario Kubek</i>	
P2P Sharing Within the Semantic Hifi European Project	99
<i>Jens Hasselbach</i>	
Facilitating Universal Multimedia Adaptation (UMA) in a Heterogeneous Peer-To-Peer Network	105
<i>Letian Rong and Ian Burnett</i>	
AXMEDIS Programme and Publication Tools Integration with Workflow-Enabled Communication and Process Control	110
<i>K. Ng, A. Badii, M. Sailor, B. Ong, R. Neagle, and G. Qusted</i>	

Session: Protection

3D Fingerprinting and Encryption Principle for Collaboration	121
<i>Misung Cho, Seokryul Kim, Maenghee Sung, and Giwon On</i>	
Protection of MP3 Music Files Using Digital Rights Management and Symmetric Ciphering	128
<i>Carlos Serrão, António Serra, Miguel Dias, and Jaime Delgado</i>	
Definition of Mechanisms that Enable the Exploitation of Governed Content	136
<i>Jaime Delgado, Tommaso Martini, Paolo Nesi, Eva Rodríguez, Davide Rogai, and Andrea Vallotti</i>	
Semi-Fragile Watermarking for Image Authentication with High Tampering Localization Capability	143
<i>Huajian Liu and Martin Steinebach</i>	

Session: Representations

Using XML for Publishing on Demand in Different Output Formats	153
<i>Reinhard Ruemer and Klaus Miesenberger</i>	
Design and Implementation of a Cross-Media Indexing System for the Reveal-This System.....	157
<i>Murat Yakici and Fabio Crestani</i>	

Session: Text and Documents

An Algebra for Multidimensional Documents as Abstraction Mechanism for Cross Media Publishing	165
<i>Ulrike Lucke</i>	
Multi-Term Keywords for Indexing Multilingual Textual Repositories: Developing Language Resources and Algorithms	173
<i>Alessandro Panunzi, Marco Fabbri, Massimo Moneglia, and Manuel Zini</i>	
Plagiarism Detection Through Multilevel Text Comparison.....	181
<i>Manuel Zini, Marco Fabbri, Massimo Moneglia, and Alessandro Panunzi</i>	
Document Retrieval in Pen-Based Media Data	186
<i>Sascha Schimke and Claus Vielhauer</i>	

Session: TV

Creating Rich Metadata in the TV Broadcast Archives Environment: The PrestoSpace Project.....	193
<i>A. Messina, L. Boch, G. Dimino, W. Bailer, P. Schallauer, W. Allasia, M. Groppo, M. Vigilante, and R. Basili</i>	
Collaborative Personalised TV Programming	201
<i>Jacob Sparre Andersen and Tofta Teld</i>	
A Multimedia Content Interchange Framework for TV Producers	206
<i>Jaime Delgado, Silvia Llorente, Enric Peig, and Anna Carreras</i>	
A Distributed System for Automatic Collection and Distribution of Satellite Images and Weather Information over DTT	214
<i>Daniel Peretto, Marco Frattallone, Simone Piazza, Claudio Ferrero, Giovanni Ballocca, and Ferdinando Ricchiuti</i>	

Session: Video

Video Multiplexing for the MPEG-2 VBR Encoder Using a Deterministic Method	221
<i>Jasman Kammin and Kazuo Ohzeki</i>	

DVTS Video Frame Rate Adjustment Based on Motion Detection	229
<i>Nawat Kamnoonwatana, Andrey Kuprianov, Poompat Saengudomlert,</i> <i>Teerpat Sanguankotchakorn, and Kanchana Kanchanasut</i>	
Histogram-Based Perceptual Hashing for Minimally Changing Video Sequences	236
<i>Kevin Hamon, Martin Schmucker, and Xuebing Zhou</i>	
3D Navigable Interface for Interactive Movie <i>Gormenghast Explore</i>	242
<i>Julia Sussner, Ludvig Lohse, Maureen Thomas, Gustavo García, Isabel Alonso,</i> <i>and Alberto Muñoz</i>	

Session: Multimedia Music

Music Mood Wheel: Improving Browsing Experience on Digital Content Through an Audio Interface	251
<i>Andreja Andric, Pierre-Louis Xech, and Andrea Fantasia</i>	
The Use of Incentive Mechanisms in Multi-Channel Mobile Music Distribution	258
<i>Marco Furini and Manuela Montangero</i>	
Method and Environment for the Retrieval of Structural Music Information	266
<i>Alberto Pinto and Goffredo Haus</i>	
SEAM: A Sound-Embedded Advertisement Model for Online Digital Music Distribution	273
<i>Dimitrios Margounakis, Dionysios Politis, and Christina Boutsouki</i>	

Session: Applications

A Cross Media Platform for Personalized Leisure & Entertainment: The POLYMNIA Approach	283
<i>Vasilios Anagnostopoulos, Sotiris Chatzis, Constantinos Lalos, Anastasios Doulamis,</i> <i>Dimitrios Kosmopoulos, Theodora Varvarigou, Helmut Neuschmied, Georg Thallinger,</i> <i>Stuart E. Middleton, Matthew Addis, Eduardo Bustos, and Fabrizio Giorgini</i>	
Automated Paper-Based Watermark Extraction and Processing	291
<i>Hazem Hiary and Kia Ng</i>	
MX Navigator: An Application for Advanced Music Fruition.....	299
<i>Andriano Baratè, Goffredo Haus, and Luca A. Ludovico</i>	
Accessing and Distributing Streaming Events on DHT-Based Systems	306
<i>M. Milanesio, G. Ruffo, F. Ricchiuti, and D. Albertin</i>	

Session: Poster

A Feature-Augmented Grammar for Automated Media Production	315
<i>Freddy Choi, Richard Beales, Jonathan Hearn, Stuart E. Middleton, Matthew Addis,</i> <i>and Christos Mangos</i>	

Media Company: An Empirical Analysis about the Mobile Channel.....	319
<i>Christina Catanzaro, Andrea Rangone, Filippo Maria Renga, and Marta Valsecchi</i>	
Future Live iTV Production: Challenges and Opportunities	325
<i>Richard Wages, Stefan M. Grünvogel, Janez Zaletelj, Carmen Mac Williams, and Georg Trogemann</i>	
Apriori Rate Allocation in Wavelet-Based Image Compression	337
<i>Sven Grottke, Thomas Richter, and Ruedi Seiler</i>	
Concept for Audio Quality and Security Assurance in Mobile Phones as Multimodal User Guides.....	337
<i>Andrea Oermann, Sandra Gebbensleben, Claus Vielhauer, and Jana Dittmann</i>	
Modeling and Analysis of Peer-to-Peer Multicast Streaming.....	341
<i>Dominik Zalewski</i>	
Author Index	347