



aceMedia: Integrating Knowledge, Semantics and Content for User-Centred Intelligent Media Services

Date: 27-Feb-04
Author(s): I Kompatsiaris (1), Y Avrithis (1), P Hobson (2)
Author (1) Informatics and Telematics Institute, 1st Km
Organisation(s): Thermi-Panorama Rd, Thessaloniki 57001, Greece
(2) Centre for Applications Content and Services,
Motorola Labs, Jays Close, Basingstoke, RG22
4PD, UK

Poster submission to ESWS 2004 - aceMedia project description

Introduction to aceMedia

Long term market viability of multimedia services requires significant improvements to the tools, functionality, and systems to support target users. aceMedia seeks to overcome the barriers to market success which include user difficulties in finding desired content, limitations in the tools available to manage personal and purchased content, and high costs to commercial content owners for multimedia content processing and distribution, by creation of means to generate semantic-based, context and user aware content, able to adapt itself to users' preferences and environments. aceMedia will build a system to extract and exploit meaning inherent to the content in order to automate annotation and to add functionality that makes it easier for all users to create, communicate, find, consume and re-use content.

aceMedia targets knowledge discovery and embedded self-adaptability to enable content to be self organising, self annotating, self associating; more readily searched (faster, more relevant results); and adaptable to user requirements (self reformatting). aceMedia introduces the novel concept of the Autonomous Content Entity (ACE), which has three layers: content, its associated metadata, and an intelligence layer consisting of distributed functions that enable the content to instantiate itself according to its context (e.g. network, user terminal, user preferences). The ACE may be created by a commercial content provider, to enable personalised self-announcement and automatic content collections, or may be created in a personal content system in order to make summaries of personal content, or automatically create personal albums of linked content.

The ACE concept will be verified by two user focused application prototypes, enabled for both home network and mobile communication environments. This enables the aceMedia partners to evaluate the technical feasibility and user acceptance of the ACE concept, with a view to market exploitation after the end of the project.

aceMedia example use scenario



- Content provider produces sports content (e.g. football, Formula 1, etc)
- Mobile company provides service with sports highlights video clips
- aceMedia technology enables interesting objects and events to be extracted from the sports content using knowledge-assisted automatic semantic analysis
- An ACE is created encapsulating the chosen content and metadata, scalably encoded for mobile and wireline distribution, with the additional intelligence layer containing adaptation and rights instructions
- Mobile company transmits the ACE to mobile users using adaptive streaming techniques, which benefit from the scalable encoding
- Content provider distributes the ACE in its high quality video format

aceMedia workplan and research areas

- aceMedia follows a user-oriented development process, involving both end consumers and professional content managers, ensuring development of user-satisfying solutions for crucial issues such as usability, adaptivity, mobile context of use, and trustworthiness.
- aceMedia integrates 15 partners over a 4 year project period, during which two complete iterations of the user centred design cycle will take place.
- aceMedia will develop a user validated system which extracts and applies knowledge to multimedia content for the benefit of end users in a range of application domains.
- in particular, aceMedia will focus on research into
 - Knowledge and context-assisted content analysis techniques based on a multimedia ontology infrastructure to support semantic entity detection and tracking of ACE content.
 - High-level semantic reasoning tools for automatic annotation and generation of the ACE metadata layer.
 - Query analysis tools and intelligent ACE search, retrieval, ranking and relevance feedback mechanisms.
 - Intelligent mechanisms to manage ACE adaptive and scalable communication, and methods to produce aesthetically appealing content and enhanced visualisation for navigation and rendering.

Acknowledgements

This work was supported by the European IST project FP6-001765 aceMedia (URL: <http://www.acemedia.org>).

aceMedia partners are : Motorola Ltd (co-ordinator), Philips Research, Thomson, Queen Mary University of London, Fraunhofer FIT, Universidad Autónoma de Madrid, Fratelli Alinari, Telefónica I+D, Dublin City University, Informatics and Telematics Institute, INRIA, France Telecom, Belgavox, Universitat Karlsruhe, Motorola SSAS