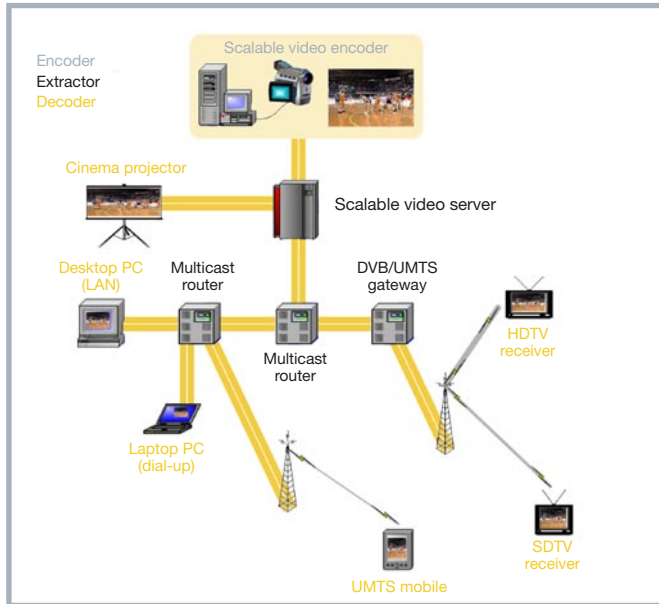


## Content adaptation in aceMedia

Content adaptation is a key element of the aceMedia framework. Content must be constantly and transparently adapted to user preferences, terminal characteristics and network capabilities. This is achieved via selecting the appropriate media parameters and modality, based on information about the context. For example, Nutan's video clips will intelligently mutate from the original video to a thumbnails slide show with the representative events, or to a small size video just showing the relevant part of the scene.



## Scalable video coding

Adaptation will rely on content analysis, in order to achieve a semantically meaningful result, and on scalable coding in order to achieve secure low cost real-time operation.

aceMedia is researching advanced scalable video coding (SVC) techniques which provide adaptation from very low to very high data rates. When such codecs are combined with context sensitive adaptation algorithms, the user will receive the desired content in the most appropriate format and mode.

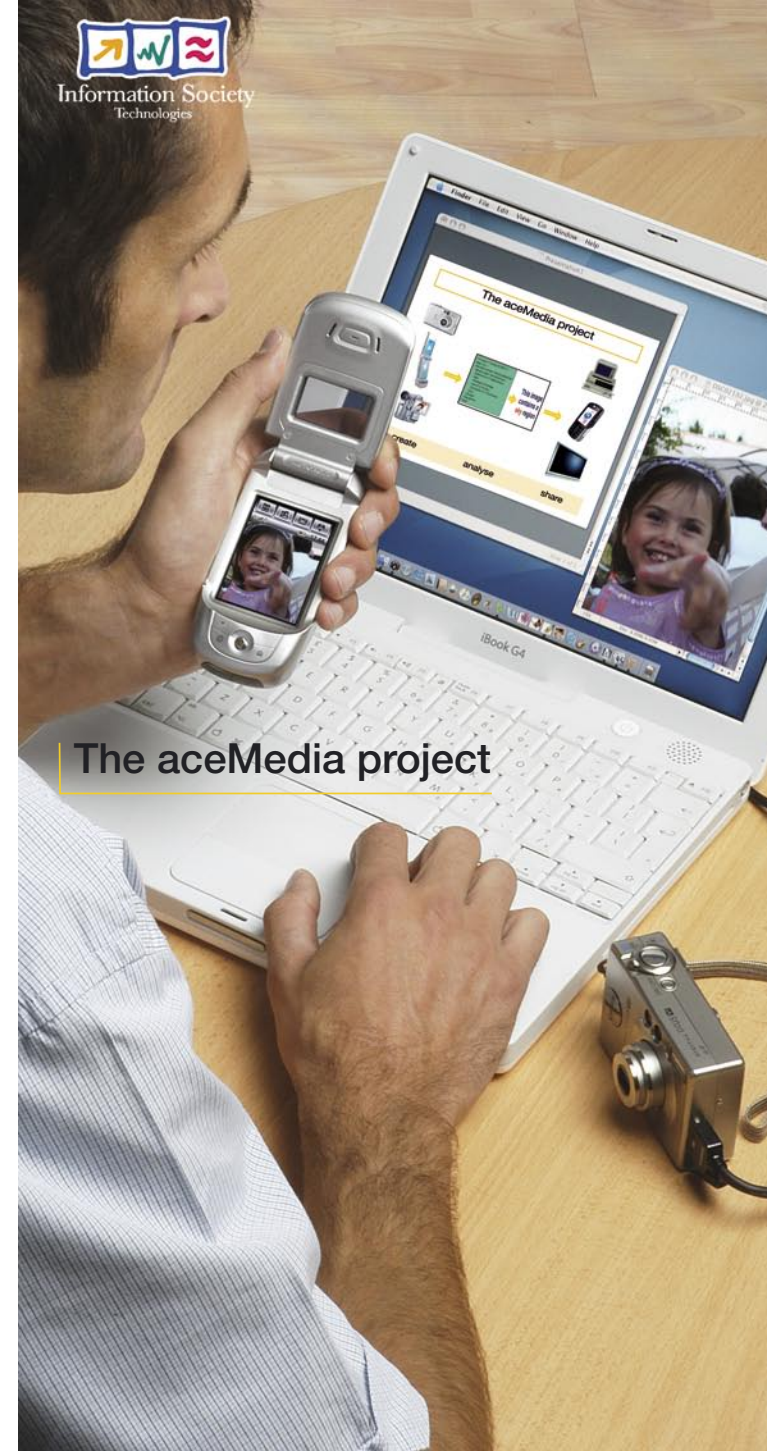
Further details about the aceMedia project are available at the aceMedia website

[www.acemedia.org](http://www.acemedia.org)

or contact

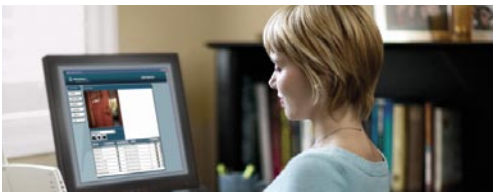
[coordinator@acemedia.org](mailto:coordinator@acemedia.org)

aceMedia is supported by the European Commission under contract FP6-001765. aceMedia partners are Fratelli Alinari, Belgavox, Dublin City University, France Télécom R&D, Fraunhofer FIT, INRIA, University of Koblenz, CERTH-ITI, Motorola, Philips Electronics Nederland, Queen Mary University of London, Telefónica I+D and Universidad Autónoma de Madrid



The aceMedia project

# The aceMedia project



## Introduction

The aceMedia project aims to create a framework, combining advances in knowledge, semantics and multimedia processing technologies, to support self-analysing, self-annotating, and self-adapting content.

aceMedia is a 4 year IST 6th framework Integrated Project which started in January 2004. 13 partners from industrial and academic domains collaborate in aceMedia, which is co-ordinated by Motorola.



## Technical approach

aceMedia research outcomes will assist users interacting with their multimedia content through innovative search technologies, automated indexing and cataloguing methods, and content adaptation to best match the user's available device and environment.

Central to the aceMedia approach is the Autonomous Content Entity, which has three layers: the content itself, its associated metadata, and an "intelligence" layer enabling the ACE to act autonomously.

### Intelligence Layer

Programmable layer, enabling the ACE to act autonomously

### Metadata Layer

Knowledge-driven automatic semantic analysis and annotation

### Content Layer

Scalable content automatically adapting to available bandwidth and user preferences

Autonomous Content Entity (ACE) structure

## aceMedia user scenario

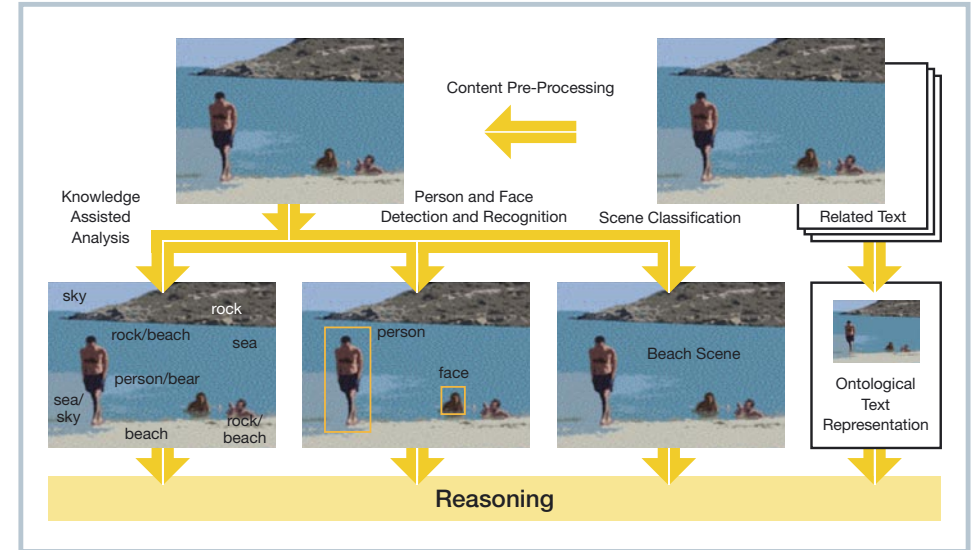
Nutan is travelling on business. She has taken a lot of images and video clips on her mobile device and wants to upload them to her home PC so that her family and friends can share the experience.



Nutan doesn't have time to annotate all the content, so she uses the aceMedia client on her mobile phone to access the aceMedia content analysis service, which will automatically annotate the content, and sort it into appropriately themed collections before uploading it onto her home PC.

The aceMedia system automatically adds information to the metadata layer of the ACE which will enable its intelligent retrieval later, and can create an intelligence layer that, for example, determines who can view the images and their associated metadata.

At home, Nutan's daughter wants to see what her mother has been doing. She starts to browse the content via her TV set-top-box but there is too much content. She is only interested in video clips which show her mother in outdoor settings on the current trip. Her aceMedia profile already has these preferences stored, and can find the appropriate clips.



## Semantic multimedia analysis

aceMedia is developing innovative technologies to provide automatically generated semantic metadata, and to support semantic indexing and search functionalities through textual queries. Using novel knowledge structures for multimedia resources and tools for extending, enriching and linking ontologies with multimedia information, including low-level MPEG-7 audiovisual descriptors, aceMedia provides knowledge-assisted multimedia content analysis, context modelling and high-level reasoning to support semantic concept detection and tracking. aceMedia integrates a number of analysis technologies such as content classification, person/face detection and recognition, as well as multilingual, ontological text analysis.

## Intelligent search and retrieval

Semantic multimedia annotation in aceMedia is exploited in user centred applications such as intelligent search and retrieval, and automated content collections. aceMedia tools under development include user query interpretation hybrid visual-semantic search and retrieval, and improved relevance feedback.