



Information Society  
Technologies

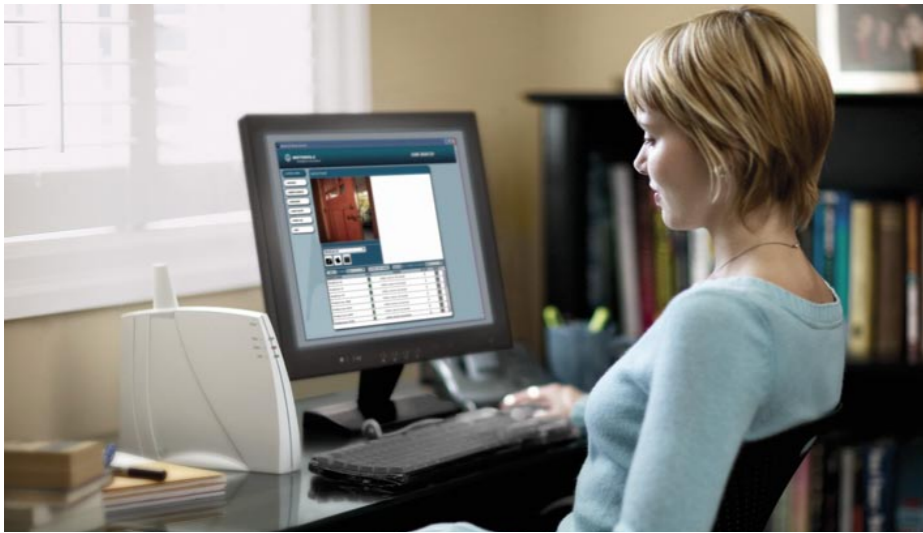


## The aceMedia project

Creating intelligent multimedia content



# The aceMedia project



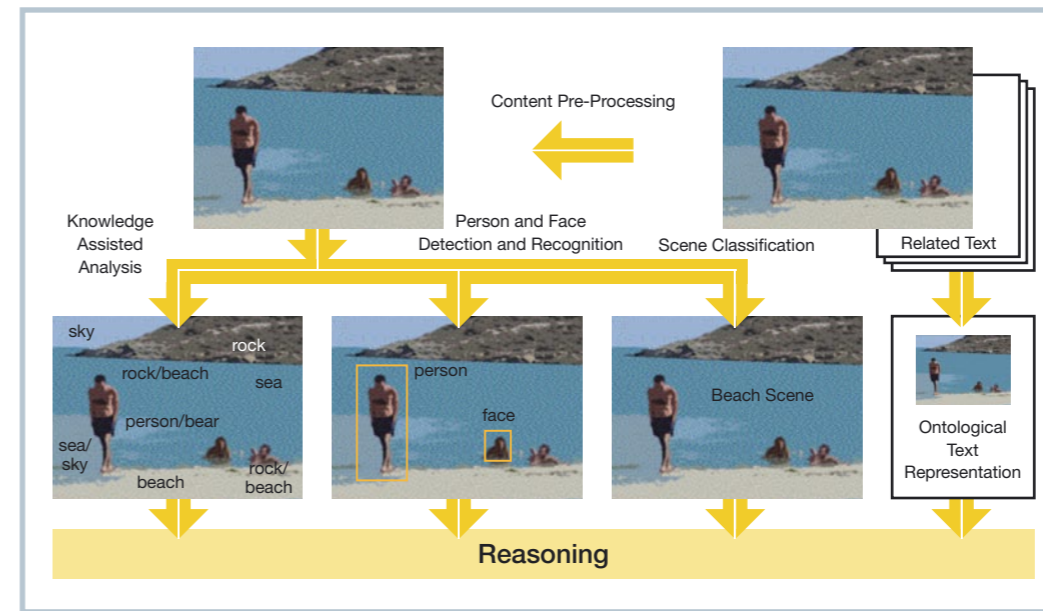
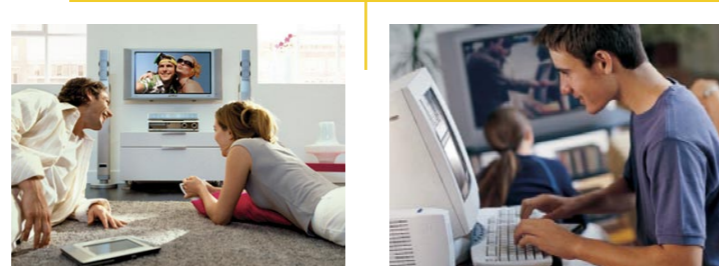
## Introduction

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.

## aceMedia users

Users in the future will access multimedia content using a variety of devices such as mobile phones and set-top-boxes, as well as via broadband cable or wireless to their PC.

aceMedia technologies will be supported by innovative user interfaces enabling advanced functionality such as intelligent search and retrieval, self-organising content, and self-adapting content to be enjoyed by both professional content providers and end consumers.



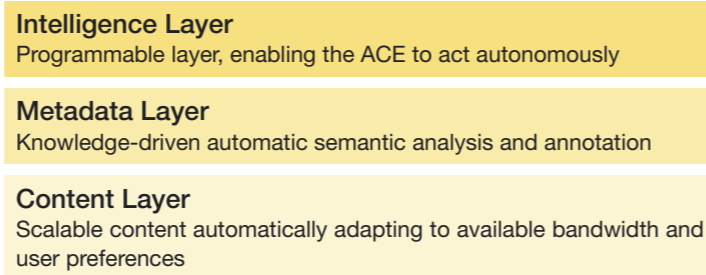
## Semantic multimedia analysis

Using novel knowledge structures for multimedia resources and tools for extending 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 various analysis technologies such as content classification, person/face detection and recognition, as well as multilingual, ontological text analysis.

## 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 (ACE), which has three layers: the content itself, its associated metadata, and an "intelligence" layer enabling the ACE to act autonomously.

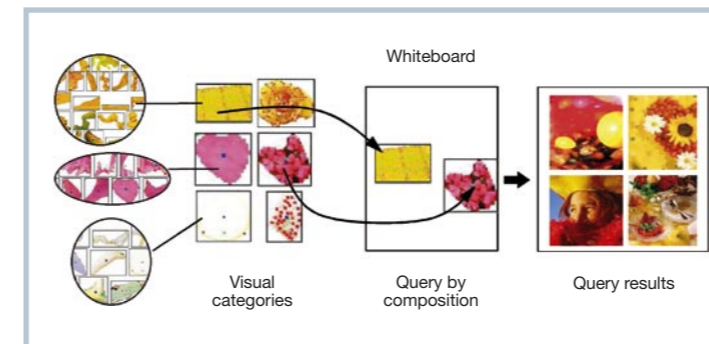


Autonomous Content Entity (ACE) structure

## Using aceMedia - multimedia content search

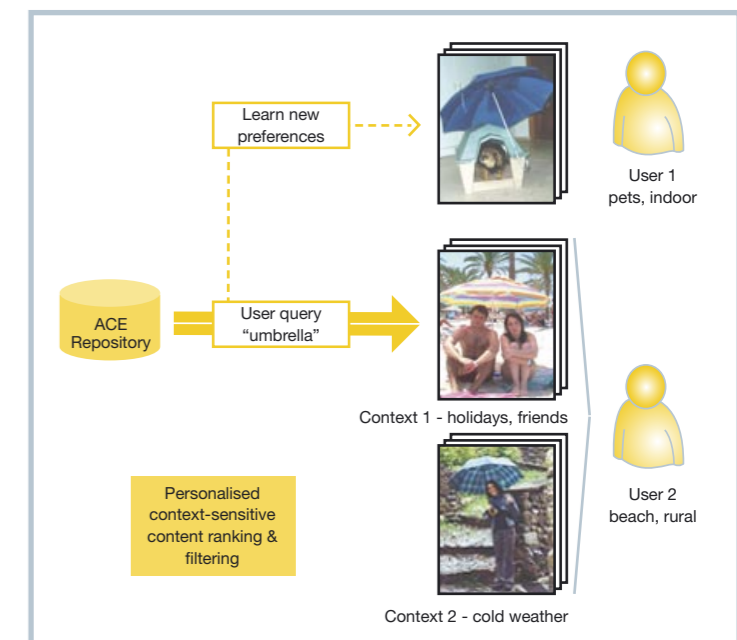
aceMedia supports enhanced search capabilities such as query by visual example, which enables the user to select an image or image region and ask the system to return the images that are the most similar to the query. In addition, aceMedia supports query by visual thesaurus, in which regions of stored images are clustered according to local region descriptors. The set of prototypes (visual "patches") of these categories can be viewed as a "visual summary" of the image database by the user. This visual summary lets the user create a query, corresponding to their "mental image", by compositing these categories.

Searches can be refined using relevance feedback. For each returned image, the user provides feedback as either "relevant" or "irrelevant". From this feedback, the aceMedia search engine learns the features associated with the desired content, and successively refines the results.



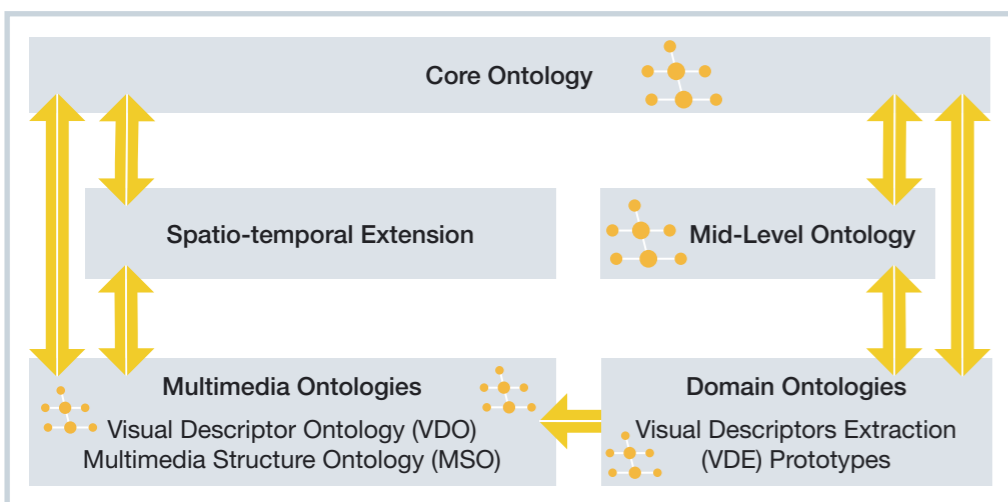
## Using aceMedia - personalised content

The aceMedia system enables ACEs to adapt their behaviour to user preferences and profiles. A personalisation module creates a model of user preferences and profiles enabling personalised search and presentation of content. The user model is dynamically updated by learning on user behaviour as they interact with their content.



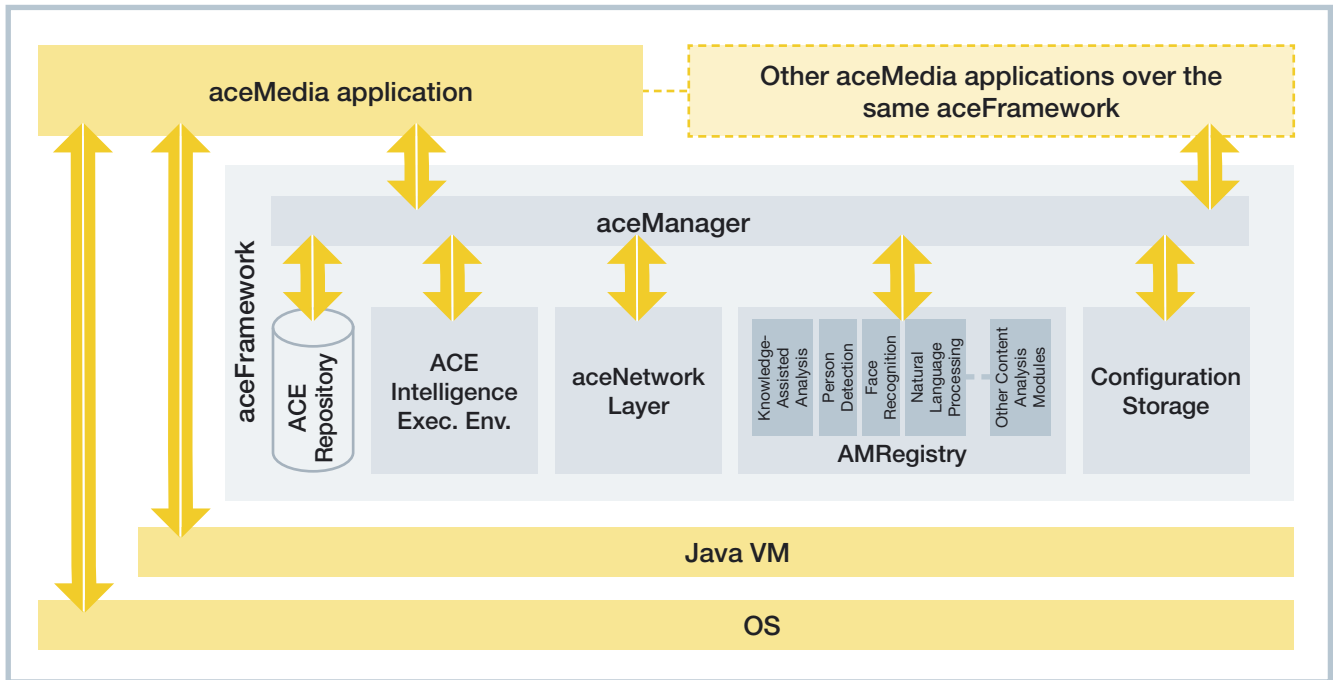
## Ontology infrastructure

aceMedia is developing innovative technologies to provide automatically generated semantic metadata, and to support semantic indexing and search functionalities through natural language queries. Within aceMedia, ontologies are being extended and enriched to include low-level audiovisual features, descriptors and behavioural models. Additionally, a tool that allows for linking low-level MPEG-7 visual descriptions to conventional Semantic Web ontologies and annotations has been developed and is publicly available.



## aceMedia architecture

The aceMedia architecture has been designed to be flexible and extensible, supporting ACE management and Application Module (AM) execution in a range of environments (home PC, TV Set-top box, mobile handset, network server, etc). This enables applications to be run wherever the most appropriate resources (processor power, memory etc) are available.



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

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

or contact

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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