Overview

Video & Image Indexing and Retrieval in the Large Scale

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Consortium

- Instrument: Integrated Project
- Start-End Date: 1 January 2007 - 31 December 2009
- Project co-ordinator: ERCIM
- Scientific coordinator: INRIA
- European Commission funding: 4 690 000 €
- Consortium: 12 partners from 7 countries
  ERCIM (FR), EADS (FR), CWI (NL), Fraunhofer (GE), INRIA (FR), ROBOTIKER (ES), Univ. of Sunderland (UK), CERTH-ITI (GR), Codeworks (UK), INA (FR), Belga (BE), IRT* (GE)

*in the process of joining Vitalas
Introduction

- VITALAS is a *use-case driven* project that aims at providing a *pre-industrial prototype* system dedicated to intelligent access services to multimedia professional archives that would provide the consumer with new technological functionalities.

- VITALAS will provide advanced solution for indexing, searching and accessing *large scale* of *non previously (or partly) annotated content*.

- Expected use-cases addressing professional consumers:
  - Political/societal news content;
  - Fashion and entertainment news.
Work packages list

- WP1: Use-cases specification, user requirements, test and validation
- WP2: Enabling technologies: Content description and scalability issues
- WP3: Cross-media indexing
- WP4: Cross-media retrieval
- WP5: Personalization, access rights & profiling
- WP6: System design
- WP7: User interface and visualisation
- WP8: Dissemination
- WP9: Training
- WP10: Market investigation and Exploitation
- WP11: Management
Major Innovative Challenges (1)

Cross-media indexing and retrieval methods (WP3&4):

- Cross-media vocabulary and semi-automatic content annotation methods using several media inputs.
- Retrieval model and probability estimation, implemented as XQuery extensions
- Advanced hybrid relevance feedback model will be investigated to provide better user target retrieval (early and late fusion).

=> This implies the development of **efficient** and advanced **informative** content (audio & video) description methods, robust machine learning approaches (WP2)
Major Innovative Challenges (2)

Pluri-modal Search scalability issue (WP2)

- Technologies enabling search in very large and heterogeneous databases will be one of the main target challenges of VITALAS.

- The system validation will be performed on professional collections, up to 10,000 hours of video (television archives – INA/IRT) and 1,500,000 still images (Belga).

- SOA: Feasibility of content search method is done on limited size of multimedia collections

  => ~o(100) hours of video hour, ~o(10,000/100,000) images
User-centric critical issues (1)

Interactivity and Context adapting (WP5&7):

- Adapting the search space to the user profile and providing interactive functionalities to control the results
- Interactive cartographies and video synthetic views based on graph merging, filtering and layout should enhance users feedback
- Off-line user profiles and on-line personalisation (WP4) will be used also to provide more user satisfaction by expressing his subjective preference
User-centric critical issues (2)

**Specification and validation based on professional use-cases (WP1)**

- The functionalities of VITALAS system will be specified and validated by professional multimedia content owners: INA, BELGA, IRT

- The evaluation issues will be carefully addressed by the definition and selection of test corpora, success criteria statement and external user trials.

- Internal training on VITALAS system is planned starting with content owners archivist as well as vocational (external testers).
Technical Roadmap

Vitalas System Releases:

- The version V0 will be early produced internally: **generic framework** for developing VITALAS components, a communication and a data access layer.

- The first version V1 (M13) provide **non-simulated** VITALAS component mainly on the **existing know-how of partners**.

- The second version V2 (T25):
  - provide **beyond state-of-the-art components**
  - come with a **security and personalisation layer**, a monitoring framework, and **intelligent visualization tools**.

- The last version V3 (T32) will enhance V2 with a **distributed processing framework** (scalability of indexing and searching)

=> **V2 and V3 will be used for the user-trials (WP1), training (WP9) and dissemination (WP8)**
Epilogue

What we will not address…

- The mobility issue: content distribution, QoS…
- The devices adaptive technological issues including scalable coding, scalable interfaces…

Vitalas expected achievement:

The VITALAS functionalities will provide the core system and technologies facing the semantic gap and search scalability that represent strong bottleneck nowadays for intuitive content search engine services.