Presentation at Chorus Final Conference

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Pieter van der Linden,
Program Manager
Thomson

Brief status

- Following the European approval, the core developments started in May 2008.
  - Research and development program stretching over five years
  - A budget of about €200 million
  - Assisted by the French State through the public agency oséo
  - Involving 24 partners
- First year achievements
  - More than 100 scientific publications
  - Exalead and LTU face detection in images service
  - Orange 2424actu.fr Beta service
  - And several other technology demonstrators available
    - Voxalead, Face recognition, Translation, Image search, Celebrity search

Partners

- Private enterprises
  - Bertin, Exalead, France Télécom, Jouve, LTU Technologies, Synapse Développement, Thomson, Vecsys

- Public research laboratories
  - CNRS-LIMSI, CNRS-IMMI, CNRS-INIST, INRIA, IRCAM, IRIT, Institut Telecom, LIPN, MIG-INRA, Université Joseph Fourier, University of Karlsruhe, RWTH university, Aachen,

- Public institutions
  - BnF, DGA, Ina, LNE

Coordinated by Thomson

Why Quaero

- An observation about the market and underlying trends:
  - The volume of universally available digital information has exploded
  - New consumer media (PC, TV, handheld devices, etc.) have proliferated and multiplied
  - Internet becomes the privileged information space.
  - Search tools are the standard for accessing and using content.
    - Video search is a reality today

The Program

- A collaborative research and development program
  - Focused on automatic extraction, analysis, classification and use of multimedia, multilingual content
  - To facilitate access to content
- Five application projects
  - Multimedia search on the internet
  - Enrichment of access services to audiovisual content on portals
  - Personalised video selection and broadcasting
  - Professional audiovisual asset management
  - Digitisation and content enrichment for libraries, audiovisual heritage and scientific publishing
- A shared research structure
  - A broad research scope
  - Systematic evaluation of scientific and technical progress
  - Extensive resources for annotating large collections of multimedia data

Five projects with application targets

From content providers to consumers

Sharing resources and know-how

From content providers… **…to consumers**

1- Digitisation and content enrichment

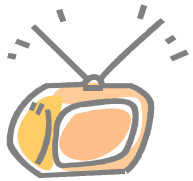
Who steers: **Jouve**

Expected results: Software and services for editors, patent offices and libraries

2- Digital media asset management

Who steers: **Thomson / INA**

Expected results: Software for broadcasters, media companies, audiovisual archives



3- Personalised video

Who steers: **Thomson**

Expected results: Software for telecom operators, retailers and enterprise video

4- Search engines

Who steers: **Exalead**

Expected results: Multimedia search engine

5- PC, Mobile portals

Who steers: **France Télécom**

Expected results: New generation of access services to audiovisual content

Shared research structure

Coordinated by CNRS and RWTH

Technologies for analysing audio, music, image, video content.
Technologies for natural language analysis and translation
Content protection technologies

Close interaction between research and industry

- Industrials and research organizations cooperate actively and effectively to develop demonstrators aiming at identified business targets and increase the state of the art in concerned technology domains

- Strong investment in production of large corporas
  - Data representative of the target applications sectors
  - Manual and computer assisted annotation

- Objective measurement of results through systematic benchmarking
  - Establishment of a objective assessment on the gap between industrial demand of and capacities of technology supply.

Technology transfer organization

Advanced research

Generic technologies

Statistical models

Automatic learning

Integration

Corpus

Audio, images, music, text, video, speech, multimedia, multilingualism

JOUVE (digitisation)

Thomson / INA (media management)

Thomson (video on demand)

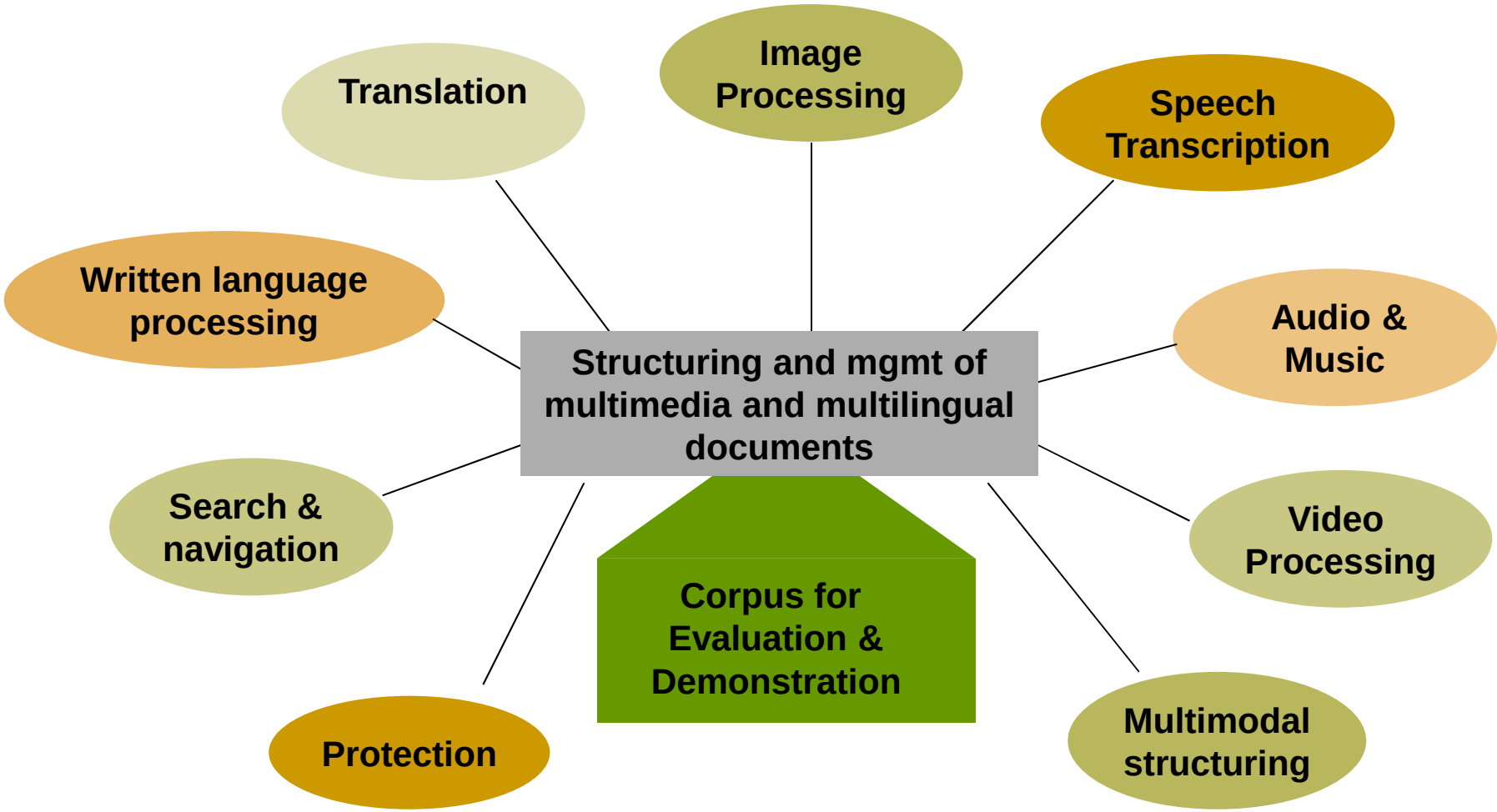
Exalead (multimedia search)

France Telecom (portals)

Application projects

Technology Domains

Technologies for a wide range of applications.



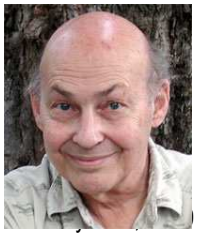
Video search technology

What's up?

- **Current deployments mainly rely on keyword search using textual context for web and editorial metadata for media applications**
  - Some pioneering applications using audio transcription search from Blinkx, Exalead, Google….
- **Over the next years significant progress is expected on base technologies**
  - A result of the combination of algorithmic improvement, enhanced methodologies and international cooperation, researcher genius and increasing computer power.
  - Nevertheless technologies are expected to remain far beyond human brain.
  - Some examples :

Sample technology	Status	5 year likely improvement
Object recognition	90% success on rigid objects/random results on non rigid objects.	Non rigid objects to catch up with rigid object.
Scene segmentation	<60% success best case.	20-25% improvement.
Speech transcription	50-60% success on conversational speech	Improvement by 20-25%
Translation	30-35% score BLEU	10% increase.

Source : Quaero



Most of these technologies have been investigated for a long time*. A technological disruption is fairly unlikely. We should expect a continuous series of improvements of technological capabilities.

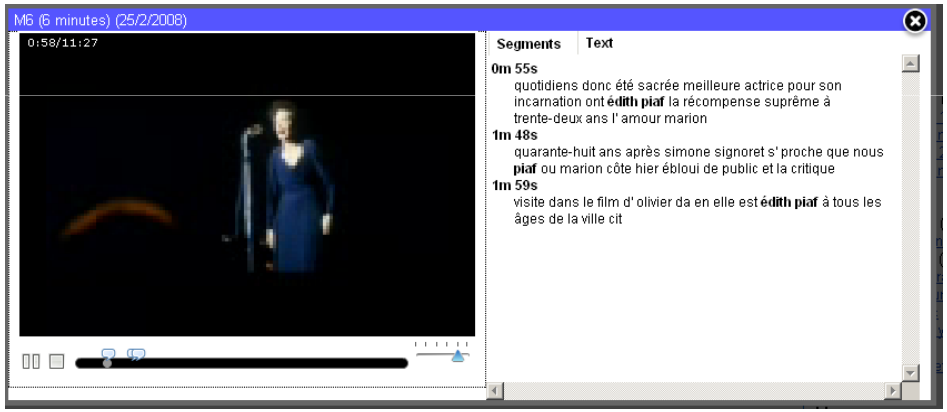
*) In 67 Marvin Minsky assigned a student to solving the computer vision problem over the summer.

Video Search

First examples of results

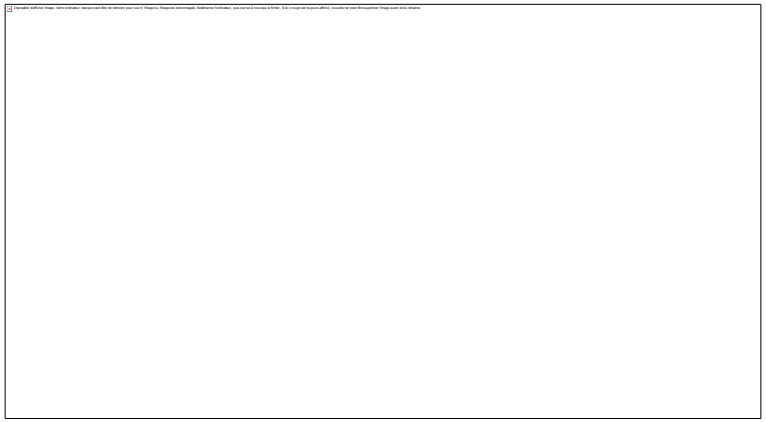
Face tracking and recognition technology by University of Karlsruhe

Hazim Kemal Ekenel



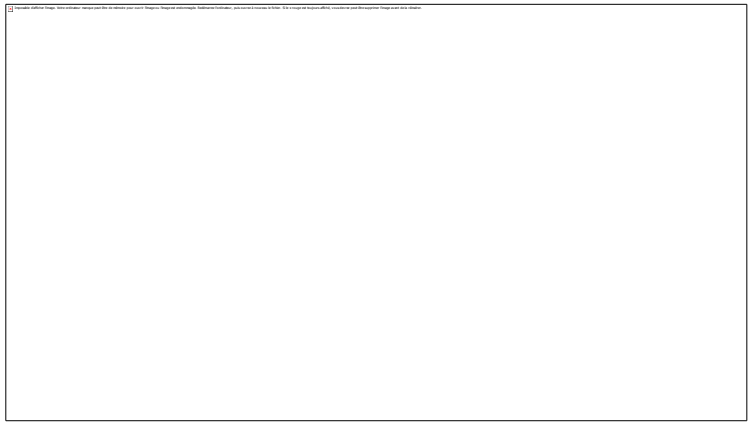
Voxalead, Audio track transcription and search demo by Exalead.

2424actu.fr, News portal beta by Orange Labs.



Video Classification & Search

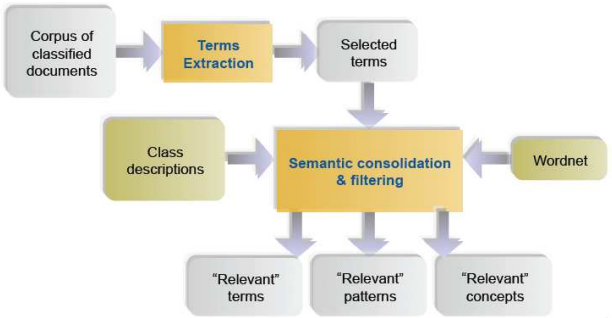
A peek into Future TV services.



Video recommendation and targetted advertising

Using Audience Characterization

- How many
- Who, Gender/Age
- Mood…..



And model based classification

Many Thanks

More information on

http://www.quaero.eu

(http://www.quaero.org)