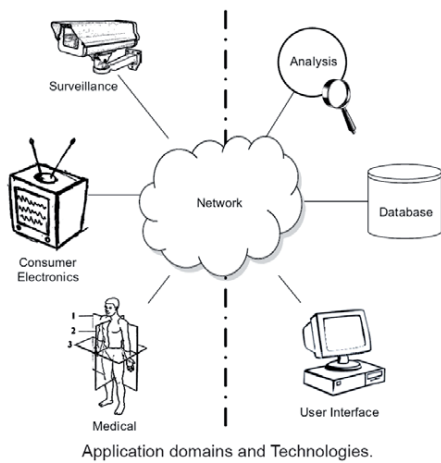




PROJECT RESULTS

Making multimedia systems content aware

Robust algorithms and common platform for content analysis and presentation



analysis-based applications are about to follow. As a result, the quality and reliability of content-analysis features will become an important discriminating factor.

Many of these applications involve transferring and interpreting huge amounts of data. In surveillance, multi-camera security installations function 24 hours a day, 7 days a week. In healthcare, an increasing amount of imaging information is being used for diagnoses. And in the home, consumers have access to virtually unlimited multimedia content, particularly over the Internet.

The CANTATA project set out to make multimedia processing systems content-aware. Use of advanced digital technologies and greater system power have made it possible to develop robust analytical algorithms for content interpretation, a scalable platform facilitating content analysis across a wide range of applications, content presentation that adapts to the device, user and content, and a common understanding of quality levels in content analysis. Systems were demonstrated in surveillance, medical and domestic applications.

Digital video is being adopted widely in a variety of business domains as well as by home users. Massive expansion of video applications over Internet and corporate networks is becoming a reality and additional content-

However, state-of-the-art multimedia systems have no notion about the content; manual interpretation is required to use or enjoy it selectively. So, there is a growing need for systems that are aware of the content and can use this knowledge to establish an action or control the environment autonomously.

Bridging the gap between theory and economics

CANTATA set out to bridge the gap between academic research into such content analysis and economic feasibility. Developments included: algorithms for content analysis in different domains; an analytical and presentation platform suitable for all areas; visualisation and user interaction, focusing mainly on home consumers; and methodology for validation of content-aware products.

CANTATA (ITEA 05010)

Partners

- Acic
- Barco
- CodaSystem
- GoodMood
- CRP Henri Tudor
- I&IMS
- IBBT
- INRIA
- Logica
- Multitel
- Ortikon Interactive
- Philips
- Prodrive
- Solid
- Telefonica
- Traficon
- University of Eindhoven (TU/e)
- University of Kingston
- University of (Queen Mary College)
- University of Paul Verlaine
- University of Pompeu Fabra
- VDG
- VICOMTech
- VTT – Technical Research Centre of Finland

Countries involved

- Belgium
- Finland
- France
- Luxembourg
- The Netherlands
- Spain
- United Kingdom

Start of the project

October 2006

End of the project

September 2009



PROJECT RESULTS

Key innovations were demonstrated in:

1. **Surveillance**

Security officers in video-control rooms face an ever-increasing number of screens that are just not possible to control without some form of help. Embedded content-awareness technology can offer this assistance. CANTATA developed an intelligent surveillance camera providing advanced video analysis combined with state-of-the-art video compression for streaming over Internet. And the project resulted in software able to recognise automatically the posture of human beings, allowing detection of abnormal behaviour. The results were demonstrated in a bank-robbery scenario.

2. **Healthcare**

Pulmonary embolisms pose serious health problems, affecting some 2.5 million people in the EU and the USA each year with fatal results in a third of cases. It is particularly difficult to detect – timely diagnosis and appropriate therapy can reduce mortality to under 10%. Multi-detector computed tomography (MDCT) has radically improved diagnosis but requires the radiologist to check hundreds of images. CANTATA developed computer assistance that makes quantification an acceptable part of the diagnostic routine. Clinical evaluation of computer-aided diagnosis has been carried out

in Dutch hospitals, with the first products already entering the market.

3. **Home multimedia**

The volume of multimedia content is growing every day. However, customers want a service that gives them personalised viewing of what they want, when they want it, and paying for what they watch, combined with easy navigation. CANTATA developed a content-aware interactive TV with a host of new features deploying awareness of what the multimedia content is actually about. For example, the TV automatically summarises broadcast news and sports items, showing only highlight such as goals. Moreover, the TV recommends content, depending on the user's mood and preferences as well as on multimedia content played before.

Validating and benchmarking products

Various steps were taken to enable the validation and benchmarking of content-aware products for quality and robustness. CANTATA initiated the development and sharing of a common methodology with the community of content-aware system developers. Common data sets have been made available on the Internet. And the content-aware technology developed in CANTATA has also been validated according to this methodology.

Major project outcomes

Dissemination

- 77 papers (including conference presentations)

Exploitation

- Philips Healthcare lung emboli detection product
- VDG security intelligent surveillance camera
- Ortikon advanced IPTV set-top box

Patents

- 14 filed patents, more patents applications are being prepared

Spin-offs / start-ups

- BMAT
- Vilau
- ViNotion

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