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Special feature



Cultural heritage: preserving the past for the digital future

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INTERVIEW

It's culture but not as we know it: research*eu results supplement talks with the people at Cinespace

Cinespace, an EU-funded project, developed a novel device that will help preserve one of Europe's greatest and most fragile assets — our culture. Only recently was it discovered that most of Europe's silent films were lost; withered away in industry, humid archives and backrooms. Film, old and new, provides insight into the vast diversity of languages and customs Europe has to offer. To keep the past and present alive, we must look forward to a digital future where cultural artefacts, like film, are preserved.

This is why *research*eu results supplement* decided to talk to Cinespace. We found out about their unique multi-media platform which promises not only to help keep Europe's cultural heritage from being lost to posterity, but also promote it. Both Dr Maria Teresa Linaza (ML) and Mr Gorka Diez (GD) from Cinespace were kind enough to share their thoughts and insights into their innovative project.

Ms Linaza, who is the Cinespace project technical coordinator, has a PhD in industrial engineering from the University of Navarra. She was also a member of the R & D team in the electronic and communications department of the CEIT research centre in San Sebastian, Spain. She taught and participated in training activities at the University of Navarra and was associate professor at the University of the Basque Country. She is also the author of several publications and has given a series of lectures on arts and new technologies in the field of cultural heritage. She currently works at Vicomtech.

Mr Diez, Cinespace project coordinator, obtained his law degree from the University of the Basque Country in 1997. He graduated in European and international law from the Université Catholique de Louvain, Belgium in 1998. From 1999 to 2007, he worked as European projects manager in Fundación ONCE mainly in the management, control and monitoring of the activities carried out within the 'Action programme to combat discrimination' (2001-06), and also as an assistant for European affairs and external

relations in the General Secretariat for Foreign Affairs of the Basque government. He joined the European projects department of Fomento de San Sebastián in 2007 and has been in charge of the coordination of the Cinespace project as well as developing and coordinating other European programmes.

• Films are a rich facet of Europe's cultural heritage. And yet only recently it was discovered that most of Europe's early silent films have been lost. How does your project contribute to preserving this heritage, past and present, for future generations?

[GD] The Cinespace consortium believes that films are unquestionably part of our cultural heritage. As stated by UNESCO, the documentary heritage in libraries and their archives constitute a major part of the collective memory. It basically reflects the diversity of people, languages and cultures. And we can't lose that.

We detected a number of problems with systems that are used to access cultural heritage resources which deal with film. Some of those included distributed sources which store huge amounts of information and different content formats. Finally, and what we find even more crucial for the content providers is the complete lack of systems needed to support user needs. This includes enriched content, interaction with the information, usability, and exchange of experiences with other users.

[ML] We took these gaps into account when designing the device. Our goal was to design and implement a mobile rich media collaborative information exchange platform. This platform had to be scalable and accessible through a wide variety of networks and therefore, interoperable and location-based for the promotion of film heritage. Cities with a strong connection to the film sector, like Venice, Glasgow and San Sebastián were instrumental to the project.

• Your research involves some state-of-the-art technology. Can you take our readers

through some of the innovations you're proposing in Cinespace.

[ML] Cinespace enables people to interact with location-based multimedia content while strolling through a city. Audio-visual information is delivered through small low-cost wireless binoculars. These binoculars have a high definition screen located near the eye and a set of audio phones. The binoculars also have a small camera that can record or send what you are 'seeing.' You can then upload it to a database through a WLAN hot spot or a 3G connection. That's how we create collaborative experiences with other people.

This is why the device can be used as a way to access cultural heritage media content. At the same time, it also allows visitors to create their own multimedia content which they can share with friends or relatives. Anyone really.

Your 'binoculars' fuse reality with virtual reality — an 'augmented reality' (AR) of sorts. Can you explain briefly how this works and how it benefits users, cultural tourists, cultural heritage?

[GD] You first need to log into a system at a tourist office or some other collection point. You also have your own icon. You can then start moving through the city while the Cinespace sensor fusion module calculates your coordinates in real time. Your position is refreshed every 5 seconds while your current situation is displayed on a map. Also, you are placed at the centre of the map so that, while you wander around the city, the map will adapt so that you always remain in its centre. The system also displays the existing points of interest (PoIs) on the map.

[GD] One of the most outstanding features of the whole Cinespace approach is to place users in the setting where a famous movie scene may have taken place. When you want to navigate to a location, you simply click on the PoI on the map and then choose the navigation icon. You'll then be guided to the location. As you get closer, the system tells you where to turn.

[ML] And once there, the system will alert you. The PoI is identified by its coordinates and a radius around it. You can then retrieve multimedia content related to your profile, both from the city's providers and from other users.

Essentially, what happens is that rich media servers are sending you relevant content to match your immediate surroundings. You can then click on it and browse with ease any number of items that appear on the touch-screen.

If you see something interesting, you just select the content. As there are several types of content, the system analyses the format of the content and decides whether it should be rendered on the PDA or on the binoculars.

[ML] You can also look through the binoculars. When you pick them up and look through the eyepiece, the system will remind you to change modes from PDA to binocular. It then corrects your position and orientation. The system matches up the first frame of the selected clip with the real scene using marker-less tracking techniques. Once the process is finished, the clip is rendered. You can then pause the clip and restart it again.

• *A stroll along the canals in Venice, a walk through George Square in Glasgow. What would one expect to see in these two places while looking through the 'binoculars'? Is this what you refer to as film tourism?*

[ML] Basically, we call this a film-induced tourism concept. The relationship between tourism and feature films is a relatively new field of academic study. Film-induced tourism has been defined as 'tourist visits to a destination or attraction as a result of the destination being feature on television, video or the cinema screen.' Films with great commercial impact provide spectators with a concrete vision of the environment. This vision can influence spectators in such a way that they travel to the shooting locations.

Take for example Peter Jackson. When he shot the Lord of the Rings, he could not have imagined the impact on tourism in New Zealand. Nowadays, all of New Zealand's destination management organisations and tour operators use the film alongside special deals and on their websites.

[GD] Another example is Venice. Some would say the city is a perfect place for romantic scenarios. It's not surprising that a lot of films about love are shot there. Another cinematographic genre with a lot of examples is represented by historic



films. Venice can be seen as a metaphor for many themes and genres represented by different characters and famous actors. The travels of Marco Polo, Casanova's love story, or the mad adventures of Indiana Jones and James Bond. Mystery, getaways, secrets, decline and death like Death in Venice have all been shot on location in the famous Italian city.

• *We read somewhere that you could also, for instance, place yourself in the same spot where Audrey Hepburn stood at St Marks Square in Venice. Does this mean you can actually re-enact scenes from films in real time?*

[GD] The idea behind this is for people to get to experience events that were recorded in a real place. Many film lovers seek out these spots where well-known films were shot. I imagine this kind of makes them feel like the stars themselves! The audience tends to identify itself with the main character and like to visit the locations where their film star once stood. This is already happening in Australia's Kakadu National Park. A lot of people go there to recreate the adventures of Crocodile Dundee.

• *Famed science fiction writer William Gibson was once credited as having imagined a world where 'data dances with the human mind.' Immersing an individual into an environment that is both real and virtual seems potentially disorienting. What kind of reaction have you had from people who have tested the device?*

[GD] Well, our first user test was with a preliminary version of the prototype.

It took place in January 2008 and in different settings like St Marks square in Venice or La Concha beach and the Town Hall in San Sebastián. Overall, these tests were successful and provided us with valuable feedback. People were satisfied with the project concept and the potential of the prototype. They also gave us a range of suggestions that we used to enhance the on-going development process.

The final Cinespace system was tested in San Sebastián and Venice in July of last year. People who tried the device had positive reactions. They rated highly the overall concept of the system and the quality of the AR content. Most in both cities were satisfied or quite satisfied with the area selected for the trial. With respect to content and services, most were satisfied with the content quantity and quality, although film lovers are obviously severe judges when it comes to quality. Finally, almost everyone found the experience useful. In fact, they wanted to keep using it to discover other areas of the city. Everyone said they would use the device again. I think this demonstrates the great potential of such technologies for film-induced tourism experiences.

For tourists and local citizens, such AR and location-aware systems offer a new way to discover a city or even to rediscover your home town. During the San Sebastián tests we also used it to help film professionals scout film locations, and to show locals more about their own city. The reaction of many was: 'Wow, I didn't know that



film was shot here! Or I didn't know this area used to look like that!

• **Social network services, the internet, mobile devices have redefined how people communicate. It seems to me that your device has a similar potential because it is able to create visual information while 'on the move' that can then be uploaded and shared in a collaborative environment. Is this a new type of interactive communication platform? And what would this collaborative environment look like?**

[ML] First of all, it must be mentioned that the project began several years ago, before the boom of mobile AR applications based on Layar or Wikitude, so many of the concepts about collaborative environments have already been overtaken. Cinespace targets two main concepts related to collaborative environments: creation and sharing of contents; and peer-to-peer interaction.

People can create, annotate and store several types of content on-the-move, including images, audio and video when using this device. While walking through the city, they may watch something interesting and want to record it. You can choose the type of multimedia content to be recorded, some keywords about it and a personal message. If the system detects that the generated content is a video or audio, it will enable you to select a language item on the list or create a new one. Moreover, the system locates your position and orientation to help you understand some concepts behind the annotation process.

You are represented on the map using your own personal icon. This way you can chat with a list of friends when you

hook up to a WLAN hot spot. You can also take a picture and just send it in real time, without annotating or storing it.

• **People are familiar with the dusty work of archaeologists meticulously recording artefacts as they dig them up. But explain how ICT research projects like this help to preserve the past digitally. Do old and new-school archivists always agree on the methods?**

[GD] We kind of touched on this at the beginning of this interview. Essentially, the documentary heritage in libraries and their archives constitutes a major part of the collective memory because it reflects the diversity of people, languages and cultures. Collective memory is recorded in hundreds of hours of films stored in many audiovisual archives. Unfortunately, these archives are underused. Europe's cities have a wealth of audiovisual content, from historical images and documentary footage to film scenes and photographs that they can use to enhance the experiences of visitors, local residents or even film professionals.

• **We are perhaps only seeing the beginning of what is possible in this field. If you had a crystal ball, where do you think we'll be in 10, 20 or 30 year's time? Does Europe have an advantage in the field of cultural heritage [i.e. it has so much to preserve and so much to offer]?**

[ML] Although it is difficult to predict the status of the technology in such a long period of time, it is clear that Europe should take advantage of ICT research initiatives like ours to preserve and enhance its rich and valuable cultural heritage. In our opinion, two main challenges remain; the interoperability of digital contents based

on standards, and enriched interaction with those contents. One of the main current bottlenecks for the dissemination of cultural knowledge is its fragmentation and lack of standardisation. Despite the big effort done by Europeana — the portal of European digital artefacts — it is still very difficult for cultural organisations to join this trend. Also, experiences provided by cultural institutions are far from interactive and exciting when compared to other ICT applications, such as games or mobile services. Therefore, new efforts should be conducted in both directions.

• **Are we converting this into a technological leadership or advantage?**

[ML] Europe has a large cultural and creative industry, which can make profit out of these experiences. However, this industry has not been recognised as such and it is still considered as a grant-based industry. The main challenge is to convert this technological leadership. It's not just a financial problem. In fact, it's more of a social issue.

• **The Cinespace project ended June 2009. What kind of interest has it generated in the tourist industry and/or business community?**

[GD] Results of the project have been disseminated through the industry. Although the business plan is confidential, we can affirm that our device has been successfully presented to several industrial representatives in the cultural sector. It may be possible to see innovative applications based on the device in the future. Eventually, implemented semantic content retrieval systems will be used in cities to provide advanced services over other mobile platforms. There-in lies the future.

Giving shape to public opinion at museums and galleries

The power of video for assessing the human response to new forms of artistic expression was successfully demonstrated during the 'Situating hybrid assemblies in public environments' (SHAPE) project.

Museums and galleries are experimenting with cutting edge exhibitions that blur the line between the real world and the virtual world. They are populated with hybrid artefacts that possess both physical and digital attributes. It is essential to gauge the public's reaction

to these so-called 'living exhibitions.'

Rather than rely upon traditional methods of eliciting public opinion, such as questionnaires or interviews, scientists at



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King's College London came up with a new approach. Their pioneering research was supported by the Information Society