Interactive Art and the Interpretation of Cultural Heritage at CEDRIC

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The CEDRIC Laboratory regroups 120 researchers conducting multidisciplinary research. The reporting working group, MIM (Mobile and Interactive Media) specializes in the development of interactive, multimodal, mobile, distributed and ubiquitous systems and boasts a long record of collaborations with artists and Cultural Heritage professionals in domains ranging from Digital Libraries, museum interpretation media, sound spatialisation, interactive art, serious, urban and massively multiplayer games and edutainment. CEDRIC is a member of three French national networks on science, technology and interactive art and maintains collaborations with industry and academia. Its members teach academic courses and publish regularly in academic conferences and journals.

Interactive Art and New Media for the Interpretation of Cultural Heritage

With regards to CEDRIC's contribution in the PLEIAS network, two main research axes can be distinguished: A. Collaboration with museums and CH professionals: The lab has been extensively working on Augmented and Mixed Reality (AR) systems used within the context of a cultural visit as well as on mobile media and edutainment applications. Examples of collaborations include the AR guide for the Fine Arts Museum in Rennes (Damala et al., 2008) and the PLUG French national research project, targeting the creation of a mobile game for the French National Museum of Techniques, the Musée des Arts et Métiers-MAM, (Damala et al., 2010; Astic et al., 2011). Audio, soundscapes and sound spatialisation within a CH context represents another research challenge (Kaghat 2010; Le Prado & Natkin 2007). B. Collaborations with artists. A prototype for augmenting contemporary painting with RFID was proposed in collaboration with the French contemporary painter Olivier Haberman (Haberman et al. 2010, http://www.levenementiste.com/). The lab has also been a residence for the Japanese duo of artists EXONEMO in 2010. They proposed the creation of an interactive, participatory, collaborative installation then presented in the MAM (http://exonemo.com/).

An example: The European ARtSENSE project (www.artsense.eu)

A unique case-study on which several CEDRIC members are collaborating, which has the particularity of combining both of our above mentioned competencies is the European ARtSENSE project (February 2011-January 2014). The consortium regroups three museums and seven technical partners. The goal of ARtSENSE is to establish a new adaptive AR museum experience based on an adaptive, personalized assistance for the comprehension and interpretation of museum objects and works of art. The project introduces new wearable technologies for sensing the user's context (lightweight see-through displays, eye-tracking, audio sensors, physiological sensors). Digital information is overlaid on selected museum objects and artefacts with which museum visitors can interact.

Based on the input obtained by all sensors and using Participatory Design methodologies informed by museum and visitor studies, the exhibits respond to visitors' attention, emotions and attention providing more information about them and leading to a new generation of AR based CH and museum visit assistance. We refer to this novel concept using the term Adaptive Augmented Reality (A2R).

Within the project consortium, CEDRIC is working closely with all CH professionals, assures the liaison with technical partners, and contributes to the definition of the use-cases, the system requirements analysis, the content creation process as well as with evaluating the visitor experience. The three CH institutions are the Musée des Arts et Métiers (MAM), in Paris, France, the National Museum of Decorative Arts in Madrid (MNAD), Spain and the Foundation for Art and Creative Technology in Liverpool (FACT), UK. The museum artefacts that have been respectively selected as use-cases for demonstrating the A2R approach are the Lavoisier Laboratory (Fig.1A), an 18th century Valencian kitchen (Fig.1A, 1D) and an architectural element of the FACT building, the VIP signature pillar (Fig.1C).

Fig.1: ARtSENSE use-cases and prototype

A fourth case study will be also implemented for FACT. A contemporary artist will be commissioned to join forces with the consortium so as to use the technology that will be developed to create an interactive, responsive, A2R interactive work of art, providing thus an additional insight in the way A2R can be used not only for CH interpretation but also as a tool for contemporary artistic creation using New Media, biosensors and Mixed and AR technologies.

Contributions to the PLEIAS network

Within the aforementioned context CEDRIC will provide a liaison in between PLEIAS and other interested ARtSENSE consortium members so as to encourage future collaborations among PLEIAS and ARtSENSE consortium members. Partners of other French research networks on interactive art will be also brought in contact with PLEIAS. Another task that can be undertaken concerns the documentation of New Media and interactive art experimentations already carried out within the lab. Residence possibilities and on site collaborations with lab-members will also be examined.

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