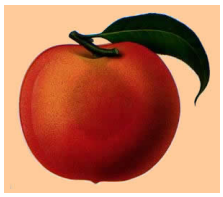

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PEACH:
Personal Experience with Active Cultural Heritage

VISION & GOAL

Vision

We see PEACH as the tool with which to put personal experience and the formative aspect of cultural heritage appreciation on the foreground, while combining the latter with educational entertainment. Particularly important in modern society is the ability to attract and stimulate audiences by developing the appropriate technology that will enhance their appreciation of cultural heritage. Games that not only entertain, but simultaneously instruct while using interactive technology can be an effective way to reach younger and less enthusiastic audiences.

Obstacles to enjoying cultural heritage can arise from simple logistic problems, such as the lack of an adequate structure in which works of art can be displayed. Safeguards imposed in order to preserve the objects themselves can also limit a visitor's experience in a museum. The same can be said about the one-time visitor who lacks the background, social or artistic connection necessary to fully appreciate the experience of visiting a cultural institution.

With PEACH we are addressing these and other issues concerting the quality of cultural heritage appreciation. We want to provide individuals with the tool to transform passive works of art into active ones that can be manipulated and presented in a personalized manner and according to each visitor's interests and needs. PEACH aims at being the tool that will empower the visitor with the answers to cultural heritage questions, while creating an interactive and entertaining educational environment.

Goal

The emphasis of the project is to experiment with different solutions applied to technologies that are only partially available today, thus, it is unrealistic to think of developing one single system. Two simulators will be created, each one corresponding to a showcase with the following aim:

- Definition of the system's general characteristics and of the constituting platforms
- Definition of the communications protocol through agents operating in various platforms
- Characterization of the behavior of each technical component
- Development of data fusion techniques for multimodal/multimedia input

The first showcase will demonstrate the interaction aspects in the physical space and will be developed in three phases. The second showcase will demonstrate integration aspects with virtual reconstructions and will be developed in two phases.

A Synergy of Activities and Technologies

PEACH has a two-fold approach. On the one hand, the project intends to link the physical space, where the cultural object is found, with the information space, where the meaning of the object is interpreted, while facilitating an augmented and personalized visit. On the other hand, it envisions a remote and interactive appreciation of cultural heritage by means of an accurate and virtual reconstruction of the object.

This research activity builds on a context where information technology is focused on natural interactivity and microsensory systems. The former encompasses natural language processing, perception, image understanding, intelligent systems and others. Throughout the project, synergy and integration of different research sectors will be emphasized and methodologies of agent architectures and data fusion will be adopted. Two general areas of research can be highlighted:

- The study of techniques for multi-sensorial analysis and modeling of physical spaces. This includes the use of visual sensors such as video cameras, laser telemetry, infrared and audio sensors as would be an array of microphones and ultrasonic signals. The latter is used for monitoring a dynamic environment and collecting information about objects and about the environment itself in order to achieve accurate virtual reconstructions.
- The study of techniques for individual-oriented fruition and information: (i) use of formalisms and technologies derived from the field of natural language generation in order to build contextual presentations; (ii) use of multi-agent architectures to provide suggestions and propose new topics, (iii) use of speech and gestures as input and audio and animated characters as output.

It can be noted that the application of a technology based on multi-agent and simulated architectures represents, on its own, an original component of the project, facilitating experimentation with partial solutions in an incremental fashion. As a result of this research, new technologies, both hardware and software, will be developed for the *active* appreciation of cultural heritage.