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# PEACH:

## Personal Experience with Active Cultural Heritage

### RESEARCH AREAS



#### Technology in Every Sense

PEACH is a synergy of various technologies at the vanguard of research. Bringing these technologies together and creating systems that enhance the appreciations of cultural institutions and works of art is the main focus of our project. The specific areas of research include:

##### Software Technologies for Multimedia Distributed Systems

Design of a multi-agent architecture and a software platform to support multiple users that simultaneously move in the environment and interact with many applications.

##### Adaptive and Proactive Technologies for Contextualized Presentations

Design and experimentation of techniques for generating context-aware presentations and planning the behavior of lifelike characters. Search for information (texts, images, etc.) in the chosen domain and metadata preparation.

[Preview the prototype.](#)

##### Speech Interaction for Children

Development of speech recognition technology for children and design of human-computer interfaces based on voice interaction that allows children to interact playfully in natural language. A corpus of speech signals will be collected.

##### Acoustic Technologies

Improvement of the present performances of distant-talking speech recognition through the use of microphone arrays and the placement of microphones in the environment.

Study of ultrasonic analysis techniques to locate single visitors in the environment. Study of distributed multi-microphony for virtual reconstruction of 3D audio. Experimental use of silicon sensors for acoustics.

##### Vision Technologies

Design and test of algorithm based on the integration of passive vision and low resolution laser telemetry to track persons in a physical space and to interpret gestures. Experimentation with technology for overlaying computer-generated graphics to real scenes.

##### Sensors for 3D Vision

Adaptation/manufacturing of an electro-optical sensor to be integrated in existing 3D vision systems. Reconstruction of a simple environment from photogrammetric and/or telemetric surveys.