Performance Title

1. General information

Site: Neuchatel, during the EXPO2002 May-October 2002
Context: multimedia exhibition
Involved partners: DEI
Involved artists: Carlo De Pirro (music composer, Professor at the Music High School of Rovigo); Roberto Masiero (artistic director, Full Professor in History of Architecture at the University of Venice)

2. Aim

The main objectives are:

- to test some movement analysis patches, for the measurement of high level features
- to investigate some kinds of mapping between movements and music
- to investigate the effect of such mapping on a children audience
- to test the reliability of the MEGASE during a long time performance

3. Concept

In the contest of EXPO 2002, Switzerland planned to build some wood platforms in its four major lakes. Each platform (80 x 30 meters) is dedicated to an artistic topic or to a scientific discipline. The MEGA exhibition was installed in the platform dedicated to Artificial Intelligent and Robotics. The system is made by a room for children, like a magic room, in which each gesture becomes sound, image, color. In this system the visitors will be involved in a communication of expressive and emotional content in non-verbal interaction by multi-sensory interfaces in a shared and interactive mixed reality environment. From the gestures of the visitors (captured by several video-cameras) will be extracted the expressive content conveyed through full body movement. Mapping strategies will convey the expressive content onto a multimodal output (audio and video).
The system focuses on full-body movements as primary conveyors of expressive and emotional content. This approach implies a new and original consideration of the role that the physical body plays with respect to interaction.

4. Relation with MEGA

In the exhibition are involved more aspects of MEGA project:

- analysis of expressive content in human gesture (wp3),
- synthesis of music (wp6),
- multimodal mapping strategies (wp7).

5. Technical description

5.1 Hardware and software set-up

1. 2 video-cameras to capture full-body movements inside the room
2. 2 video-projectors to render the real-time video-processing in the room
3. 1 Computer Cluster composed by:
    a. 2 PC to process the video captured information, called V1 and V2
    b. 1 PC to render audio content, called A1
4. 5 loud-speakers
5. EyesWeb 2.4.1 installed on the 3 PCs

5.2. Description of the employed patches

5.2.1. Patch #1

This patch is installed on PC V1 and is dedicated to the processing of the video, captured by the first video camera. The patch is divided in two parts:

- the first, analyzes the video streaming, in order to calculate some high level features
- the second, implements several algorithm for the real time processing of the video-streaming

The patch is connected via MIDI to PCs V2 and A1

5.2.2. Patch #2

This patch is installed on PC V2 and is dedicated to the processing of the video, captured by the second video camera. On the base of the high level features received from PC V1, the patch processes the video streaming in real-time and sends the results to the video-projector

5.2.3. Patch #3

This patch is installed on PC A1 and is dedicated to the render of audio content. On the base of the high level features received from PC V1, the patch processes in real time some audio tracks, composed by the artist Carlo De Pirro.

6. Performance evaluation

During the 6 months, a large audience visited the exhibition: the Swiss organization specks of about 600000 visitors. Feedbacks from a so large audience have been different: the exhibition was very appreciated in his artistic content, and his sophisticated mapping strategies. On the other side, some problems was stressed by the younger users: in fact, they often reported a difficulties in understanding the relation between their movements and the video and audio contents in the room.