Expressive Synthesis of Musical Performances

1. General information
Site: Almeida Theatre at King's Cross – London. 10, 11, 13, 14 July 2002
Context: multimedia event on theatre performance
Involved partners: the DEI developed the software.
Involved artists: Giorgio Battistelli (composer), Ian McDiarmid (actor), Almeida Ensemble, David Parry (conductor), Alvise Vidolin (Sound design) and Davide Tiso (Sound assistant)

2. Aims
The main target is to validate the system in an artistic real-time environment in "ecological" setting (i.e. public performances of musical theatre).

3. Concept
The main concept showed in this artistic performance is the Real Time analysis of expressive gesture, for controlling automatic music composition. The event is composed by two simultaneous performances. The first one is a traditional Musical Theatre performance, with an actor and an orchestra (by 16 elements). The second one is a musical event in which the voice and the orchestra sounds are processed in real-time by the MEGA-System in order to produce autonomous music (algorithm composition) related with the parallel show. The relation between the two events is based on the gesture analysis (WP3).

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 webcam to capture full-body movements on stage
- 1 laptop PC (equipped with a MIDI interface) to process the video captured information, called S1
- 1 Powerbook G4 (equipped with soundboard MOTU 896 MIDI interface and a MIDI Controller Peavey PC 1600) to process the actor voice and the orchestra sound independently, called S2.
- 1 Mixer Soundcraft
- 1 Radio-Microphone for the actor
- 12 Microphones for the Orchestra
- 4 loud-speakers with power amplifiers
- EyesWeb 2.4.1 installed on the laptop PC
- MAX MSP 4.1 installed on the Powerbook.

5.2. Description of the employed patches

The patch is installed on laptop S1 and it is dedicated to the processing of video input, captured by the webcam. 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 Powerbook S2 by means of a MIDI line amplifier.

6. Performance evaluation
During the 4 performances, a large audience participated to the events. The commentators and the reporters have always given positive judgements.