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Modelling and Analysing Creative Communication within Groups of People: The Artistic Event at FET11

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Abstract

Theatre stage and artistic performances aim at joining participants to act together, to share, shape, and co-create cultural content by means of active experiences. Future networked and social media technologies promote new ways of experiencing cultural events and artefacts. Nonverbal social signals are major components of future social media characterised by embodiment and physical engagement of users. This contribution introduces research results from the EU-ICT-FET SIEMPRE Project, presenting how these results were shown in the final performance at FET11.

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Keywords: nonverbal expressive gesture; emotion; synchronization; leadership; co-creation

1. The EU-ICT-FET SIEMPRE Project

SIEMPRE (www.infomus.org/siempre) investigates theoretical and methodological frameworks, computational models, and algorithms for the analysis of creative communication within groups. Artistic performance is its research test-bed. The aspects considered include entrainment (physical alignment between the individuals), emotional contagion (emotional bonds between them), and co-creation. The project is grounded on the cross-fertilisation of artistic and scientific research, aiming at understanding nonverbal social signals by means of the languages of the arts, in particular music and dance.

2. Research results demonstrated in the final artistic performance at FET11

The final artistic performance at FET11 is grounded on scientific results from the SIEMPRE project: (i) techniques to measure synchronisation and leadership in small groups of people [1,2], and (ii) techniques for multimodal analysis of expressive content. In the performance, nonverbal expressive and social signals define the relations between the movement of four dancers and the real-time processing of pre-recorded music. The active experience paradigm demonstrated here shows novel perspectives for future ICT systems, namely the possibility by a prosumer to actively experience in a personalised way generic, pre-recorded music content, according to non-verbal expressive, emotional, and social behaviour.

3. The performance at FET11

The artistic performance *tanGO – Touching Music* for four dancers and one voice starts with each dancer dancing with a different expressive behaviour causing the reproduction of different interpretations of a pre-recorded tango music. The scientific aim of this part is to show how analysis of expressive gesture is a way to search and re-interpret audiovisual content. Then, the dancers try to reconstruct the whole music piece, whose single voices and interpretations are embodied in their expressive physical movement. Each dancer moves with the others, but they remains with their own peculiar qualities, so they cannot empathise: the resulting audio reveals this as music voices out of synchronism, chaotic. The scientific aim is to show the importance of modelling non-verbal social behaviour in groups.

To exit the situation of chaos, it is necessary a mediator capable to determine a leadership and to define a shared gestural grammar A dancer-leader grasps a mobile phone. The new gestures this dancer adopts teach the others a social expressive movement. The other dancers also grasp mobiles phones and join. The choreography leads to a progressive "entering into synchronisation" of the movements. Then, the singer enters on the stage. The scientific aim is to show techniques to measure leadership and synchronisation.

The four dancers, however, cannot keep synchronised for a long time. Their empathy fades out. They need to involve a bigger group: the audience. A pair of dancers go with the audience in the left part of the theatre, the other two on the right. The dancers and the singer teach the audience to perform synchronised movements. When the audience is in synchronisation with the dancers and the singer the beauty of the music is finally conquered again and the tango has a final apotheosis. The scientific aim is the "Mise en scène" of the research on social behaviour of large groups, emotional contagion, propagation, co-creation.

Acknowledgements

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