

COST287 - STSM – Scientific report

Host institution

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Mission period

January 10-24, 2007

Purpose of the visit

This STSM takes place within a collaboration between the VALORIA laboratory (Universit   de Bratagne Sud, France) and the IDMIL laboratory (McGill University, Canada). As described in the STSM work plan, the VALORIA laboratory is specialized in 3D synthesis of gesture and IDMIL laboratory has acquired expertise experience in the field of analysis of gesture interaction during musical performances. This mission aimed at initiate the step of analysing percussive gestures in order to extract relevant features for re-synthesis.

Description of the work carried out

The first step consisted in the presentation of what skills the VALORIA laboratory has acquired in the modelling and animation field ; namely the dynamic modelisation of virtual agent, the design of sensori-motor control mechanisms and the physically-based sound synthesis.

The next step of this mission was to consider the huge range of percussion instruments at the light of synthesis requirements, especially percussion gestures that

involves whole arm implication with amplitude, the benefit of rebound and play postures.

This led to a collaboration with Professor Fabrice Marandola (McGill University – Schulich Music School). It took the form of a collaborative search of percussion gesture literature and typology. Benefiting of Prof. F. Marandola experience of percussion instruments, we took the direction of studying timpani players' gestures. Video capturing of tympani gestures got to a « dictionary » of timpani gesture items.

Among IDMIL experimental devices, we tested capturing devices Polhemus and Vicon, and we chose to study such a gesture by planning Vicon motion capture sessions. Moreover, tests have been runned on Vicon system in order to check the feasibility of capturing percussion gestures. A capture protocol has been set up in collaboration with Prof. F. Marandola.

Future collaboration

The collaboration between the VALORIA laboratory and the IDMIL laboratory is going further up to august 2007. This period will be dedicated to the effective study of timpani gestures and will lead to proposing models of both timpani gestures and interaction processes for re-synthesis.