

Short Term Mission Work Plan Abstract

A gesture, when it means an intentional movement along time, can be recognized with Time-Delay Artificial Neural Networks [1], [2] [3]. Once it has been recognized, this gesture could be analyzed in expressive terms. Speed (slow – fast), fluency (jerky – smooth), amount of movement (none – large), distribution (uneven – even) can be expressive terms for describing qualitatively the gesture. If we consider a gesture as an articulation between two postures (or signs), we can decide to assign this gesture to a selection, and to assign each expressive term to modulate the transition from a selection to another selection. Data gloves have been used in several situations to control sounds [4], [5], [6] [7]. A way to map measurement data to sound parameters is to use Artificial Neural Networks. In [7] a sign dictionary called Mimophony was used to determine pitch in a bi-manual instrument (which use two gloves): “the Scangloves”. This instrument has been used in several performances and could be enhanced with the use of gesture recognition (instead of sign recognition). Real time tools based on TD-ANN are currently available for Jmax and can be ported to other music graphical programming software like Max/MSP to contribute to the evolution of the computer-based musical instrument field. In this same goal, resources concerning gloves & sounds can be made available (on a CONGAS website for example) for research and music communities (lists of sensors, peripheral, data acquisition solutions, ANN analysis tools, review of previous works, bibliography, videos & links to videos).

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[3] Modler, P., “An Experimental Set of Hand Gestures for Expressive Control of Musical Parameters in Realtime”, proceedings of 2003 International Conference on New Interface For Musical Expression, McGill University – Montreal, QC, Canada May 22-24, 2003.

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