

STSM DETAILED WORK PLAN

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Control of sonic textures synthesis by means of free motions using Eyesweb platform.

I. Introduction

This document presents the working plan for a STSM submitted by Jean-Julien Filatriau at InfoMus Lab, DIST-University of Genova, Italy. J-J Filatriau is PhD student at Université Catholique de Louvain (UCL, Belgium), under the co-supervision of Dr. Benoit Macq (UCL) and Dr. Daniel Arfib (LMA-CNRS, Marseille, France). His PhD deals with the gestural control of sonic textures synthesis; from now, several digital musical instrument using contact peripherals (joystick, tablet, radiobaton...) have already been developed [1,2]. The aim of the STSM will be to experiment other mappings based on free motions, thanks to EyesWeb platform, for the control of these synthesis techniques. The work at DIST-University of Genova during this project will be under the supervision of Dr. Gualtiero Volpe.

II. Detailed workplan

The making of textures is a field largely associated to the visual domain whereas sonic textures are less known and explored. Sonic textures are characterized by both microscopic and macroscopic features: on the short term scale, they are composed of a series of microstructural components which are subject to some randomness, whereas on the long term scale, some temporal and spectral coherence is preserved.

During last months, we worked at UCL and LMA on new methods to both create sonic textures and gesturally control these synthesis processes in the framework of digital music instruments. Because of their specific properties, we assume that sonic textures require a novel approach, different than the pitch-oriented one, for the mapping between gestures and sound parameters. Indeed the symbolic/semantic content of the sonic textures implies that the gestures associated to them must be very close to "natural gestures". The aim of this STSM will be to explore the possibilities offered by the EyesWeb platform to build a mapping based on free motions for the control of sonic textures synthesis techniques. Further, we would like to study the links between gestural expressive features and sonic textures, relying on existing models previously developed with Eyesweb. We plan to perform an experiment with subjects in order to validate this work. As an outcome of the STSM, a paper will be submitted to an international conference (NIME, DAFX, ICMC...).

From now, we mainly develop methods based on the exploration of wave terrains to create sonic textures. We tried several methods to generate both wave terrains and trajectories to explore these terrains. During a first part of STSM, we would like to experiment different mapping strategies based on natural gestures for the navigation on terrain. Sonic textures can also be rendered by other methods (noise filtering, granular techniques...) During a second part of the STSM, we would like to try to control one of these techniques with free motions. For this a preliminary work will be done to define which method could best fit with this objective.

III. References

[1] Arfib D., Couturier J-M, Filatriau J-J. "*Some experiments in the gestural control of synthesized sonic textures*", in LNCS/LNAI Proceedings of International Gesture Workshop, Springer Verlag (ed.), 2005.

[2] Filatriau J-J, Arfib D., "*Instrumental gestures and sonic textures*", in Proceedings of the Sound and Music Computing International Conference (SMC'05), November 24-26 2005, Salerno, Italy, 2005.