Abstracts

Giovanni De Poli
Sound models for synthesis: a structural viewpoint

For the needs of music production and multimedia art, sound synthesis algorithms are needed which are versatile, responsive to user's expectations, and having high audio quality. It is useful to organize our intuitive sound abstracts into models. A computational model can be used for representing and generating a whole class of sounds, depending on the internal structure of the model and on the choice of control parameters. We will review some of the most important computational models that are being used for sound synthesis in musical production from the viewpoint of the model structure. Moreover, the Centro di Sonologia Computazionale of Padova University has done research on synthesis models for a long time and the main achievements in both the scientific and musical fields will be presented.

Keywords: sound models, time and frequency models, physical modeling, sound control models, Centro di Sonologia Computazionale.

Agostino Di Scipio
Sound synthesis *in the work of Iannis Xenakis.*
Survey of a composer's research

Unlike many composers of his generation, Iannis Xenakis personally devised and implemented the sound synthesis techniques used in some of his creative efforts. Eight of his works feature – in part or exclusively – sounds obtained with analogue or digital synthesis techniques, in a time span that goes from *Analogique B* (1959) to *S.709* (1994). All of his electroacoustic music after *La Légend d'Eer* (1977) has sounds synthesized with computer technology. The sound synthesis procedures he devised, reflect peculiar operational and technological conditions, and indeed represent tokens of musical and sonological knowledge characteristic of a truly unique practice. In this

paper we provide a survey of Xenakis's efforts with sound synthesis, delineating their historical path through the experimenting of different technical contexts of material production and the corresponding theoretical and musical implications. Xenakis' approach on sound synthesis is viewed as a domain of design of direct compositional relevance. Across subsequent steps in his carrier, Xenakis's notion of 'synthesis' appears as a process or device *generative of sound and music at once*, in a single compact constructive gesture or strategy *making it difficult to tell matter from form*. Gradually, the musical work's identity seemed to incorporate not just a specific linguistic-formal configuration, but the set of conditions of possibility elaborated by the composer – that is, eventually, the computer programming code (*Gendy3*, 1992). Iannis Xenakis' commitment to crafting sound generation techniques – before using them to also craft music – witnesses at an attitude in which the appropriation of the material means of creative labour is an irreducible precondition for freedom of expression and musical aesthetics.

Keywords: micro-composition, "granular" and "non-standard" synthesis, automated composing, sound/music integration, multiple time scales, history of computer music.

Panayotis Kokoras
Fab Synthesis: Performing sound, from Musique Concrète to Mechatronics

This article firstly explores and identifies the implications of sound performance and expression as a building block in electroacoustic sound composition. Secondly, it attempts to introduce and describe Fab Synthesis as a sound synthesis paradigm that facilitates uncompromised sound expressivity and encourages the combination of human and electromechanical agents to interact seemingly.

Keywords: sound synthesis, mechatronics, sound composition, tangible sound, sound performance classification, Fab Synthesis.