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Local and Global Control in Computer-Aided Composition

Jacopo Baboni Schilingi

I have been deeply involved in computer-aided composition since 1994 and developed a number of libraries for computer-aided composition software: initially for PatchWork, then for OpenMusic and more recently for PWGL. In this paper I show how to use PWGL's Multi-PMC engine, conceived by Mikael Laurson, to link three of my libraries: JBS-Profile, Morphologie and JBS-Constraints. I discuss why computer-aided composition is fundamental for writing music today by demonstrating a theoretical approach. The theory I expose in this paper is a short and resumed version of the Hyper Systemic Music Theory, which I published in 2007. This theory studies the musical properties of created musical material in order to define rules to generate musical developments. My attention is focused on the relation between local and global control, and I give an example of how to manage the two in the PWGL environment.

Keywords: Computer-aided Composition; Hyper Systemic Music Theory; PWGL Libraries

Something in Between

I distinguish two different attitudes in developing musical material: the first giving attention to a global control, the second to a local one. So far, my personal research has tried to find a balance between these two poles. I consider that in music I need both perspectives: a global control to manage macro structures close to 'how I perceive it', and a local one for the micro structures close to 'how I conceive it'. A considerable amount of musical examples that I have studied over the last 10 years show me that, generally, computer-aided composition does not allow this kind of double control. I believe that one of the main problems of controlling systems in music is how to move from a global control to a local one and vice versa, keeping the same approach to programming. How can we take some decisions inside a given process while respecting the global rules we have chosen? How can we manage unexpected local situations that we cannot foresee? Is it possible, today, to keep the

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