

Evolutionary Sound Design and composition for the Nord Lead 4

By Palle Dahlstedt, Department of Applied IT & Academy of Music and Drama, University of Gothenburg, palle.dahlstedt@gu.se

Publication

Description

Since 1999, I have worked with evolutionary computation in sound design and composition in my research. This has led to a series of very powerful interactive tools, where sounds, musical structures and sometimes whole compositions are evolved in a process that can be compared to selective breeding – you choose the sounds you like, and the computer produces offspring with variations.

In a collaboration between me and the leading synthesizer manufacturer Clavia/NORD, these tools have been brought into the market, integrated into several of their main synthesizer models (Nord Modular G2, Nord Lead 4, Nord Lead A1). When the Nord Lead 4 was released, I made a set of sounds which were designed with this feature, distributed freely to all owners of this instrument, through the manufacturers website. Together with the sounds, I produced a set of 14 short electronic music pieces as a demonstration of the capabilities. In those pieces, both the musical material and the sound design was developed with the help of these interactive evolutionary tools, together with manual work.

This is quite a radical way of working with sound and composition, and I have described these techniques and analyzed their aesthetic implications in a number of publications, for example:

Dahlstedt, P. (2009). Thoughts on Creative Evolution: A Meta-generative Approach to Composition. *Contemporary Music Review*. 28 (1) s. 43-55.

Dahlstedt, P. (2007). Evolution in Creative Sound Design. *E. R. Miranda and J. A. Biles (Eds.): Evolutionary Computer Music*. s. 79-99. London: Springer. ISBN/ISSN: 978-1-84628-599-8

Dahlstedt, P. (2004). Sounds Unheard of: Evolutionary algorithms as creative tools for the contemporary composer. Göteborg: Chalmers University of Technology. ISBN/ISSN: 91-7291-419-X

Dahlstedt, P. (2001). Creating and Exploring Huge Parameter Spaces: Interactive Evolution as a Tool for Sound Generation, *Proceedings of the International Computer Music Conference. Habana, Cuba: Instituto Cubano de la Musica, and San Francisco, CA: International Computer Music Association..* s. 235-242.

It should be mentioned that sound design and synthesizer programming is an inherently creative pursuit. Essentially, you design new instruments for musicians to perform on, or for them to use as a departure point for their own sounds. As contemporary synthesizers are very powerful and complex, rich libraries of sounds are a necessary part of these instruments. The unique thing here, is that they are designed using quite radical tools, allowing design by ear, instead of tedious manual knob-twiddling.

These tools were developed by Palle Dahlstedt within the projects Potential Music and Creative Performance, funded by the Swedish Research Council (VR). The sounds and the music were developed by Palle Dahlstedt within the Creative Performance research project.

Sound examples

14 attached short demonstration pieces.