Chaos Melody Theory™

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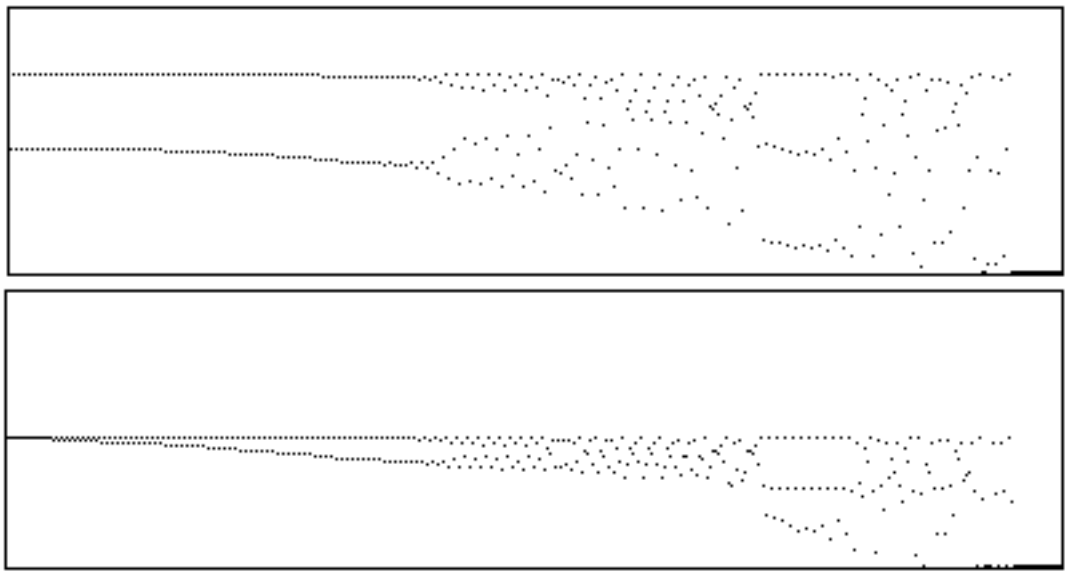

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Abstract

This paper is about a new type of music theory that is chaotic in origin, and organic and human in feeling. This music is derived from a simple mathematical function whose output is fed back into the input over and over, out from which flows a stream of numbers that form extremely interesting organic melodies. It is called "*Chaos Melody Theory*". This type of algorithmic music is the result of a recursive process in which a simple iterative function, such as $f(x) = 1 - rx^2$, or $f(x) = rx(1-x)$, is used to generate a stream of numbers that is scaled and mapped to MIDI note numbers and directly applied to the pitch parameter. The generic term "chaos music" will refer to such music, where pitch is being controlled by a mathematical iterated function. *Chaos Melody Theory* will be compared to certain aspects of traditional Western music theory, however, this paper will not come to any absolute and profound conclusions.

A benefit of *Chaos Melody Theory* is that practically anyone - non-musicians and any non-mathematicians alike - can produce beautiful and satisfying music using hardware and software that was created for this purpose. The performer is only required to vary a few parameters that control the phrasing, dynamics and the amount of chaos. People can explore their sense of musical dynamics and phrasing, even with no prior musical training, and they can empower themselves by controlling elegant mathematics, hearing instant feedback. Most importantly, it allows people with no formal musical training to get personally involved with music again, using technology and math, which many argue have taken away from musicality in the past.

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