

*Algorithmic Music Composition Using Scheme*

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Music theory is the discipline of composing and studying music, often framed as systems and rules, such as scales, chords, and rhythms, as well as higher-level aspects like song structure.

This paper and accompanying program explore the relationships between music composition and music theory rudiments and computer programming using Scheme, a functional list processing language. The program relies on the strengths of the language, and interprets musical structures using functions on finite state machines implemented as linked lists. An intuitive interface for building musical components such as scales, chords, and measures is defined using functions that operate on sets of musical notes and/or time. These components are then used to build musical pieces, utilizing some degrees of randomness for diversity.

This research has found that functional languages in the list processing language family can build a powerful and intuitive interface for music composition and music theory. It is hoped that this work will lead to more study in the area of generating music using computers or technology, as well as extensions onto this implementation to expand the rules enforced when generating the songs to further create interesting music.