Tom Richmond

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Topic Overview: Algorithmic Composition of Music using Datamining Techniques

The classification of music has been explored from many angles, from genres to artists to era. The work that has been done by previous researchers have been examples on which I have built my own research, trying to keep it unique despite the amount of work that has already been done. Here, I decided to separate classical music into distinctive eras, and I look at many techniques of classification, which are discussed later.

From an algorithmic composition of music standpoint, there is much research that has been done both in conjunction with and removed from the concept of datamining. Both have been useful to look at. The concept of algorithmically creating music has been around far before computers, with examples extending as far back as Mozart and his famous ‘dice game’, but has obviously gained steam in the computer age. The first real attempt at this took place in the 50’s using a rules system and Markov chains. Many such studies proceeded with this rule system, though they were always rules supplied by a human to the computer, not directly learned by the computer. The main methods used over the years have included creating new grammar systems, Markov Chains models, AANs (Artificial Neural Networks), Evolutionary/population based models, and Cellular Automata models, the latter of which I spend time exploring in new ways.

What I have sought to do with my research is invent a new form of algorithmic composition using unsupervised machine learning classifiers such as SVMs, Logistic Regressions, Decision Trees, Rule-based Classification, and Bayesian Networks. The information gathered from these classifiers (specifically the latter three, as they are a bit easier to derive information from to use in the generation process), which have been separating sheets of classical music (representing in \*\*kern format, a textual interpretation) into the six distinct eras of classical music, is then fed into a cellular-automata inspired generation machine, which is used to create a likely sequence of notes, based on which era we have decided to start composing.