In recent years, sound engineers and computer scientists have been employing various Machine Learning techniques to generate original compositions. Some of the most notable algorithms have been able to mimic the creative styles of the world's most famous composers such as Bach, Beethoven and Mozart. In this paper we explore the application of Machine Learning for generating ByteBeat music, a class of music that was originally invented for early video games because it could be stored in short lines of C. We take an approach based on a genetic algorithm, which starts with a randomly generated set of tracks. These tracks iteratively reproduce, mutate and die, with the ultimate goal of optimizing towards a fitness value, which aims to measure the musicality of each song. We describe several approaches to each step in this process, including random generation, mutation, crossover, feature extraction, and fitness. After this, we walk through the current algorithm as it stands, as well as possible improvements.

\end{abstract}

\subsection{Authors \& Contributors}

(Roberto Noel and Gus Xia, 2019).

\section{Introduction}

Computer Music is changing the playing field for artists around the world. Over the past few decades, engineers transformed the music industry, discovering new techniques for feature extraction, style classification, and much more. One of the most impressive outcomes from this research has been the use of Machine Learning to simulate human creativity, generating original compositions that are nearly indistinguishable from those of the greats. Despite the field of Computer Music being around for nearly 80 years, new developments in Artificial Intelligence have drastically accelerated progress in the field. We are now at the frontier of discovering the range of possibilities available to us with these techniques.