Thesis Project Portfolio

SongSift: A Playlist Generator for the Seldom Played

(Technical Report)

The Day the Music Died? Generative Artificial Intelligence and its Effect on the Music Industry

(STS Research Paper)

An Undergraduate Thesis

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Executive Summary

The intersection between music and software is much broader than you might think. My technical report provides an overview of the Capstone project I undertook this semester, which was developing a web application that generates new Spotify playlists for the users based on the preferences they input. I took on this Capstone project because I wanted to provide a way not just for the users to find new music, but to specifically find new music from artists they'd never heard of before, helping to put smaller musicians on the map. For my STS research paper, I explored the impacts that generative AI might have on the music industry, should it continue to gain a foothold. I decided to research this topic because of its relevance to me personally as a professional software engineer and a recreational musician. The technical and STS portion of my thesis are of course related in that they each pertain to music and technology, but on a deeper level they both express concern for those who are not giants in the industry. Something I talk a lot about in my paper is that the music industry is comprised of all kinds of people who are not superstars and not very well-known who are just trying to make a living. In light of this, the purpose of my capstone, in its own, humble way, is to try and get these lesser-known artists a little more traction, at least in terms of Spotify's recommendation algorithms.

The primary purpose of my Capstone project—called SongSift—is to present to its users new and interesting playlists, based on various input parameters the user can use to fine tune the results. What makes it unique, though, is its utilization of Spotify's popularity score: a number between 0 and 100 that Spotify assigns to every track, based on its current popularity (i.e., how many streams it is getting). One of the inputs a user can adjust on SongSift is the max popularity score of a song. That means he could set it to 100 and SongSift will create a playlist with all kinds of tracks on it, most of them probably well-known. Or he could set it to 50, 30, or 10, and SongSift will create a playlist full of songs he has probably never heard before, as well as artists

he has never seen.

Currently, SongSift is not publicly available, but I have shared it with a few friends and have received positive feedback overall. I have also used it quite a bit, and through the playlists it created for me I have discovered a few smaller artists. Throughout the process, I learned more about how Spotify functions on the software side and, though only in a small way for now, accomplished my goal of helping people find new, lesser-known music.

The STS research portion of my thesis explored these questions: what effects might the rise of generative AI have on the music industry? How might it impact the industry as a whole and, perhaps more importantly, how could it impact those whose livelihood depends on their profession within the industry? These questions are significant to everyone—not just those within the industry—because what happens with generative AI has the potential to impact every corner of music. I approached these questions through the framework of actor-network theory, emphasizing the music industry's role as a vast network with many different actors.

I compiled evidence through literature review of a wide variety of sources, and ultimately the conclusion I reached is that the extent to which generative AI impacts the music industry depends on the extent to which it is incorporated into the industry. But even if it is not that heavily incorporated, it will still likely come at the cost of at least some human jobs. My conclusion then goes on to discuss an idea I flesh out in the paper regarding the inherent humanity of music. Musical expression is one of the purest forms of human creativity, so when artificial intelligence begins to creep in, you start to lose some of what makes it so special.