THE REALITY OF STATISTICS: CREATING PERFORMANCE EVALUATION MODELS FOR SURVIVOR AT UVA

THE MONSTER: ASSESSING THE NEGATIVE OPINIONS ON AI GENERATED MUSIC

A Thesis Prospectus
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By
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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction / General Problem

For both my technical project and my STS project, I will be focusing on the idea of machines being able to replace human evaluation and impact in creativity and objectivity. Given the importance of creative works in society, it is important to analyze the potential positive or negative ramifications of creative roles in society being replaced by computer algorithms, AI, or other machines. The primary investigation centers around the potential for pre-loaded data to replace our own opinions, ingenuity, or creativity. For my technical project, I will be using data provided to me by Survivor at UVA, a competition club on Grounds, to create a "game score" that allows for contestants in the competition, or "season", to be compared to each other. To do this, I will be designing a formula that takes the multiple parameters provided that influence a contestant's performance in the competition, and I will be using those to create a weighed scoring system to determine the success of a contestant's performance as it compares to others from past seasons or within the same season. The main goal of this is to determine whether or not this qualitative idea of someone having a "good" or "bad" performance, can be accurately modeled with quantitative data.

Through studies conducted in an attempt to gather a public opinion on AI generated music, it has been found that most people disapprove of it in comparison to music created by human composers. For my STS project, I will be discussing the public opinion on AI generated music, focusing on the negative opinion and attempting to ascertain what about AI generated music creates this negative opinion. The project will investigate this distaste for AI generated music through the lens of Smit's Monster Theory. Music has been an integral part of society even before we had a written history, not only for the purposes of entertainment, but also to

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communicate and relay emotions. Now, society needs to assess whether the impact AI could have on this important piece of our culture should be feared or welcomed as a new facet of how we view music.

Technical Research Problem

My research project, entitled "The Reality of Statistics: Creating Performance Evaluation Models for Survivor at UVA," will explore the ability to take an opinion-based model of evaluation and apply it to quantitative data. This research project takes data provided from across three competition lengths, or "seasons," of Survivor at UVA that provides both quantitative measures of events that influence a contestant's performance in the season and the qualitative rankings of player performance in that season provided by the executive production team from that season that were tasked with continual evaluation and execution of the season. I will take the quantitative measures provided by the club and determine their correlation with the executive production team's rankings of those players to find their overall trend in comparison and strength of correlation to the executive team rankings. I will then create a formula, using these measures of correlation and trend to design a formula that takes the quantitative data from the season and creates a "game score" for a particular contestant for that season to determine their overall performance as compared to others in the season, and others across other seasons.

While this project would only currently influence one club at one university, this project has the potential to connect other Survivor clubs across universities in a way to compare their data and scores to one another. This project could also pave the way for others to create quantitative scoring systems for other competitions or events that do not have an accurate quantitative measure to analyze performance.

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STS Research Problem

Music has always been used in society as a format to express and elicit emotion from an audience. This has made music into the multi-billion dollar industry it is today, influencing many facets of our culture and our day-to-day lives. In a field as subjective as music, public opinion is imperative to a project's success. If the public sees fault in AI generated music, there will be no opportunity for it to exist successfully. This public opinion is formed mostly by emotional interpretation of the art, which, while it can be viewed as immeasurable or irreplicable, machine learning tools and AI generated music have made large strides into being able to use aspects of musicality to produce and evaluate music to mimic these emotional responses in people. However, it is not always successful, as seen by the negative opinion on AI generated music that is currently held by a large proportion of the populus. Even though music is an art form with layered meaning, there is also a fiscal element to music production and release that is reliant upon consumers, being the public, enjoying the music. No matter how advanced the technology for AI music generation becomes, if the public has a distaste for it and does not accept it, it will not find commercial success, which limits the viability of the work.

My STS research project, entitled "The Monster: Assessing the Negative Opinions on AI Generated Music," will be an exploration of the current opinions on AI generated music in its current state and ability, using what society consider to be "natural" to assess the negative attitudes that surround AI generated music. It aims to answer the question: "What are the aspects of AI generated music that cause consumers to react negatively to it?" I will rely heavily on Martijnte Smit's Monster Theory, which discusses how technology is at its most controversial when it combines two facets of society that are perceived as mutually exclusive, which in this case, are emotion and technology (Smits, 2006). This theory elucidates the contentious fusion of

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emotion and technology, a particularly relevant theme in the context of music creation. In societal consciousness, emotion and technology often reside in distinct spheres, a dichotomy evidenced in various works of fiction, highlighting apprehensions about technology's manipulation of emotions potentially leading to adversarial consequences.

Through research and analysis, I will assess the elements of AI generated music that incite negative opinions with only a baseline understanding of musical convention and the music industry. I will be using studies that already use this populus and will conduct my own assessments. This populus was selected for my analysis because America has long been a global hub of entertainment and music, and the American perception of music, while being diverse, also offers a specific focus group. A “baseline understanding” for this investigation means that the audience is familiar with music from the standpoint of a listener, but not as a person with experience in production or release. The baseline understanding of music ensures that the opinions assessed are not influenced by a greater understanding of musical conventions and the inner workings of the music industry that could sway their opinions on AI generated music.

By using previously collected data sets of people analyzing AI generated music, I will assess their opinions on the music using the parameters found in other studies [(Chu et al, 2022) and (Imasato et al, 2023)]. The difficulty of this research method is that emotion and opinion on feeling is difficult to quantify, especially towards something as complex as music. However, researchers have been able to mimic these facets that convey emotion in songs by using machine learning tools that evaluate the harmony, melody, and rhythm of the song (Imasato et al, 2023). While these are not how we evaluate emotion outside of the realm of song, these are tools that have been used by artists to project a certain emotion onto a person, which is important not only in the music industry for recording artists, but it is also used by people attempting to use music to

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curate an energy, such as movie producers, restaurateurs, and even fitness instructors. The research will use both quantitative and qualitative data collected, including non-verbal reactions to the music, ranking on factors such as "originality" and "naturalness," and open form responses to gather the opinions of the listeners. From these results, I hope to find a pattern that will point to the aspects of AI generated music that causes a negative reaction in the audience. From here, I hope to connect these aspects to Smit's Monster Theory, explaining how the AI generated music takes this fusion of emotion and technology and elicits a negative response from the audience. This analysis will help to demonstrate the reasoning for the current disdain for AI generated music and could help future researchers and producers of music to ascertain where AI generated music can be improved to make the public more in favor of it, if that is at all possible.

Conclusion

Music has been a means of expression for the human population dating back thousands of years. Humanity has used music to entertain, tell stories, and convey emotions that other forms of communication cannot. The deeply personal role music has in the human experience leads to its strong significance in society. So, when technology has progressed to the point that it can utilize this form of communication to elicit these emotions, a sense of dissatisfaction presents, and the reasoning and extent of this negativity will be assessed in the STS paper. However, it's important to know if in the current state of AI generated music, it can realistically replace the work done by composers, which will be explored in the technical project. Both the technical paper and the STS paper will work in tandem to assess the possibility of AI generated music's widespread acceptance and use in society through the dual analysis of the abilities of the music generation to make accurate predictions of musical trends, and the current public opinion and where the dissent exists.

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Throughout history, music has served as a powerful medium for human expression used to entertain, narrate stories, and evoke emotions that go beyond our typical structure of language. Its profound significance underscores the deeply personal connection individuals have with music, making it a cornerstone of cultural identity. However, as technology advances to the point where it can replicate this intricate art form, a sense of unease emerges, prompting questions about the authenticity and emotional resonance of AI-generated music. This dissatisfaction and its underlying causes are the focal points of exploration in the STS paper. The technical project delves into the practical implications of developing a game score system for Survivor at UVA, focusing on quantifying and evaluating contestants' performance in the competition. By analyzing data and designing quantitative models, it aims to create a reliable framework for assessing players' success based on various parameters provided by the competition. Together, these projects will evaluate the broader implications of technological advancement in diverse domains, probing the boundaries of machine learning and AI in shaping various aspects of human activity. By synthesizing findings from both projects, we can gain a comprehensive understanding of the nuanced challenges and opportunities presented by the potential stifling or uplifting of creativity and opinion through the use of AI, machine learning, or other technical processes.

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