Thesis Project Portfolio

Automating Account Deletion at Synopsys Inc.

(Technical Report)

The Influence of Art and Technology in the Modern Day: A Technological Momentum

Analysis of Artificial Intelligence and its' Relation to Rap Music

(STS Research Paper)

An Undergraduate Thesis

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In Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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Socio-technical Synthesis: Technical Internship and Artificial Intelligence with Rap Music

My technical work and my STS research paper are mainly related to the theme of a technological momentum framework. A technological momentum framework involves the socio-technical theory by Thomas Hughes that says that initially society has complete influence over technology but over time as the technology evolves it begins to influence society itself. My technical work involves an internship I did at the company Synopsys Inc. where I served on a team tasked with automating the deletion of service accounts at the company while my research paper is an analysis of the relationship and evolution of artificial intelligence and rap music. Both of these are distinctly different in terms of their main focus and goals but the framework holds them together as it can be applied to both projects.

My technical work involves an internship I did at the company Synopsys Inc. during the summer of 2022. I was assigned to a team and was tasked with figuring out and creating an automatic workflow that would delete service accounts at the company using a combination of different software such as Python code and Microsoft Power Automate. With the combination of knowledge and experience, I successfully created the workflow. This workflow saves time that usually would be dedicated to someone manually deleting this account. However, now with this technology, deleting a certain account can be done without human intervention. As far as how this internship project relates to technological momentum, people's accounts are being deleted effectively by technology rather than a human which feeds into the framework as an example of influence.

My STS research paper directly relies on the technological momentum framework for organization in the structure of its analysis. The paper is about the relationship between artificial intelligence and rap music and how it has evolved, ending with the case of the artificial intelligence song "Heart on My Sleeve." Using the framework, my paper uses a timeline of influence detailing the conception of artificial intelligence technology to the modern day with the song "Heart on My Sleeve" with the evolution of the technology in regards to rap music in the middle. My analysis shows the dangers of how this technology has been and will continue to influence people as shown by the framework. This is based on existing scholarship work which has mainly been based on modern copyright law with artificial intelligence music and the rights that artists have but do not touch on the music's ability to influence people.

Working on both projects in succession has given much value to each. My technical internship informed me of how a technological momentum framework could work in a real-life situation as I directly created and used the technology. With this knowledge, I was able to do better research and have a much more informed analysis when I created my research paper. Similarly, doing research for my STS paper has shown me the dangers that modern technology can have especially in terms of a technological momentum framework. While I worked at my internship, I was not aware of the complexities that these frameworks and socio-technical ethics have when working with technology in real life. However, I am now much more aware and so I will keep in mind what I have learned when I am to work a job past my time being a student at the University of Virginia. Overall, working on both my technical project and my STS research paper has allowed me to grasp the workings of a technological momentum framework and has allowed me to improve the quality of my paper based on my technical project and look forward to the future with the knowledge I now possess.