

Thesis Project Portfolio

Improving User Workflows in Roblox Studio

(Technical Report)

The Technical Implications and Societal Impacts of Deepfakes

(STS Research Paper)

An Undergraduate Thesis

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Introduction

Although my technical paper and my STS research paper are not directly related, both look at technology that will have a far-reaching impact. My STS research paper focused on both the technical and ethical concerns raised by the existence and development of deepfake technology. Deepfakes have the potential to change the way people interpret media on the internet. My technical capstone paper described my work on a plug-in for Roblox Studio that will assist designers in creating clothes for player avatars. With tens of millions of players using Roblox, avatar clothing designers can reach wide audiences and have a lasting impact on children.

Project Summaries

My STS research paper investigated different methods for the generation of deepfakes and the advancements in machine learning capabilities over the past few years. I also researched ways to detect deepfakes and how those detection methods have or will become obsolete. The ethical concerns surrounding deepfakes are varied and need to be taken very seriously. Deepfakes can be used for blackmail, revenge porn, misinformation, copyright infringement, etc. Although there are several positive applications that could benefit society in the right hands, the negative applications are far more important to consider, and there is a lack of regulation regarding the creation and usage of deepfakes. I discussed the various ways that deepfakes have and will continue to affect society and concluded that governments and social media companies need to step up their efforts to detect and remove deepfakes online.

In my technical paper, I discussed how I approached my summer internship project at Roblox. I redeveloped an existing plug-in for Roblox Studio to assist in-game

clothing designers by allowing them to preview their clothing on an avatar in combination with other clothing items. During development, I consulted with product and design teams at Roblox to determine the best features and designs to incorporate into the plug-in, with additional input coming from user focus groups. Once the updated plug-in is rolled out into production, we expect usage of the plug-in to increase, which will increase the quantity of User-Generated Content on the platform. The goal of the project was to give users more tools to express themselves online, which we accomplished by revamping an outdated and complicated plug-in.

Conclusion

As I wrote both my research paper and my technical paper, I reflected on the ways that technology can impact massive amounts of people. In the case of my technical project, my plug-in has the potential to reach millions of users across the globe, which was important to keep in mind as I worked on different features because even a small change would be noticed by many people. I had to attempt to analyze usage patterns to determine the best way to approach different issues such that usage statistics would rise rather than fall. In my research paper, I explored a technology that is already impacting millions of people worldwide, and has the potential to reach many more. In both cases, I had to think about the societal impact of a new technology. I could tweak the Roblox Studio plug-in to have my desired impact, but for the future of deepfakes, I can only recommend that governments, social media giants, and the public become more aware of deepfakes and push for regulation around their creation and usage. The future will see deepfakes that are indiscernible from real images and videos, which will change the way that we interpret media on the internet.