

Thesis Project Portfolio

Software Maintenance: An Alternative Production Environment and Other Improvements

(Technical Report)

Federal or State Statutes: Which is the Better Legislative Measure to Combat Deepfake Pornography?

(STS Research Paper)

An Undergraduate Thesis

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The Necessity of Change in Technology

There is a video of you having sex on the Internet. You do not remember being with this person because it never happened. Others are watching the video online, too.

- Douglas Harris (2019), *Deepfakes: False Pornography is Here and the Law Cannot Protect You*

In early January of 2021, I listened to a podcast for my *Democracy in Danger* January Term class. The podcast discussed the rise of deepfake pornography as a threat to our nation's democracy by undermining a core democratic right: the right to sexual privacy. My curiosity piqued by such a bizarre phenomenon, I investigated the legislative status of deepfake porn, only to discover that current statutes fail to adequately address it. My STS research paper thus discusses the pitfalls of current laws for deepfake pornography and argues the need for a new federal statute, although it does so from the lens of analogies, a rather unique perspective. My technical project, however, comes from a previous internship and involved changing a company application's deployment architecture to allow access to production-quality data for improved error correction and thus an enhanced user experience. Though the two projects are loosely related, they had one theme in common: change.

The technical portion of the project explored software maintenance on a business analytics application from a prior internship, but it focused on modifying the deployment architecture of the application's source code. The primary objective of this project was to improve error handling in the production stage without directly affecting the production stage itself and thus affecting the user. Obtaining data from the production stage was

necessary because testing the application in lower stages such as silo did not produce high quality data needed to ensure ideal error prevention. By creating an alternative pre-production stage in the application's deployment architecture, access to data from the production stage was made possible while maintaining testing which would not disrupt the user. This process necessitated the sunseting of some production environments of the application and the lowering of the application's microservices, which saved my company a substantial amount of money per month. The improved deployment architecture should allow for better software error handling, improving the application's user experience.

The STS portion of the project, on the other hand, analyzed current legal frameworks addressing deepfake pornography and argued that a statute that prohibits the publication of deepfake material is more effective when instituted federally than when instituted by each state. Many legal experts specializing in this field have reached a consensus that current statutes such as tort laws fail to both effectively penalize the creator of the deepfake and provide adequate redress to the deepfake victim, though they have reached different conclusions on what the optimal statutory solution to deepfakes is, whether it is creating a new federal statute or whether it is expanding state revenge porn laws to include deepfake porn. By drawing analogies from previous legislation central to women's rights, this paper emphasized the need for a federal statute to successfully combat deepfake pornography. Though this paper is one of many of its kind, hopefully, it will play a role in future legislation of deepfake pornography given its distinctive perspective on the issue through an analogy framework.

As stated above, completing these two projects together enabled me to see the importance of change in various manifestations of technology and computing. The STS portion of the project advocated the need for change in current legislation to protect and provide recompense for deepfake pornography victims given the status quo's lack of action towards this phenomenon. The technical portion of the project, likewise, demonstrated the continuous need for change in software to adapt to evolving client requirements and security vulnerabilities. Though software development and deepfake technology are different entities, they are two sides to the same coin of technology. The flaws in each subfield point to the larger field of information technology where change is an absolute necessity for the welfare of the people.

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