

Comparing Deepfake Videos and Real Campaign Ads

(Technical Paper)

Social Influences on Deepfake Advancement and Regulation in the Political Sphere

(STS Paper)

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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

This paper will look into the potential long-term impacts of Deepfake as a looming threat in the political sphere. Deepfakes are synthetic media that have been digitally manipulated to replace one person's likeness convincingly with that of another (UVA, 2022). These videos can be used to enhance entertainment and video game graphics, as well as improve customer support and caller response applications. However, they can also be used maliciously to spread false information, an increasingly common phenomenon witnessed as the technology becomes more accurate and accessible.

This topic is increasingly important as there are 65 elections in 54 countries slated for 2024 (McKenzie, 2023), where Deepfake videos can mistakenly erode public trust and potentially sway an election with false evidence. Examples include fabricated videos of Donald Trump running from an arrest from the police, Joe Biden responding to a press question regarding transgender women, and the Ukrainian president, President Volodymyr Zelenskyy, urging soldiers to put down weapons and return to family (Milmo, 2023). Detection technologies for Deepfakes are struggling to keep up with rapidly improving Deepfakes, causing concern about debunking faked advertisements (Barria, 2023).

For these concerns, this paper will look at the current political election and the current and prospective influence of Deepfake. The technical focus of this paper is on the current effectiveness of marketing patterns employed by campaign artists and how Deepfake can augment them. The STS reach project aims to investigate some of the societal factors that are affecting how Deepfakes may transform society. By looking into political tactics in appealing to the public and other societal factors leading to Deepfake, we can gain a better understanding of Deepfake's impact in the political field.

Technical Project: Comparing Deepfake Videos and Real Campaign Ads

What insights and marketing strategies can be found by comparing the real videos and Deepfake videos created by campaign artists during a political election?

With Deepfake videos potentially increasing in campaigns plans, there is insight that could be gathered in looking at the strategies deployed in these videos. If one can identify the typical patterns that surround a Deepfake video and what makes it different from a “real” video (where a “real” video is not one that has been artificially manipulated, but can include clips of unedited videos arranged in such a way to promote misinformation) in the context of a political campaign, then softwares that are searching for these artificially-created videos can have another aspect to search for. There is huge marketing potential here as well as it can highlight areas where campaign plans are lacking or doing poorly, and thus have to fill in this need with Deepfake videos.

To collect the data, I plan to use information from the year leading up to the 2020 election. It is important to keep in mind that this data may be skewed due to Covid-19 preventing many regular campaigning aspects, however, this data is also the most relevant as it contains the most up-to-date technologies used in campaigning. I will then be comparing the campaign elements used then to the ones that are being used currently. I will be focusing on the main Democratic and Republican candidates and parties in doing so to maximize the depth of the findings. There are already some examples that are coming to light about Deepfake videos being created about Trump’s campaign and his campaign officers that can be used to look at marketing strategies and intent.

I plan to use a mixture of Natural Language Processing to extract information from what is being said during these ads, as well as a comparison video analysis that can look at if there are

untraditional elements present in the video (e.g. a Deepfake video had AI-generated photos of the Florida governor riding a rhinoceros, which is a scenario improbable enough that the comparison video analysis would ideally tag it) (McKenzie, 2023).

The final result should give more insights on the differences in campaign efforts between the two American presidential campaigns, and where Deepfakes have been used to amplify the candidates success. The final result should also be able to explain the possible reasons for these differences as Deepfakes will be overcompensating in areas that previous campaign efforts lacked in. These findings will apply to future marketing strategies and can lead to the prediction and prevention of Deepfake videos being exposed to the public.

STS Framework: Social Construction of Technology

Introduction

Social construction of technology (SCOT) is a theory which argues that technology is shaped by human actions and is a response to societal forces. Deepfake is a technology created in response to politicians attempting to create false information about their competitors. Previous tactics of these “attack ads” entailed purposefully misinterpreting an opposers claims or manipulating their words to make them appear unappealing. However, Deepfake videos open up a new format of attack ads that falsify seemingly objective evidence and leave the public unsure of what they can believe. In considering the problem of Deepfake and analyzing its impact, analysis will be done through the key components of SCOT: relevant social groups, interpretative flexibility, problems & conflicts, closure & stabilization, and wider context (Humphreys, 2005).

Social Groups

SCOT states “all members of a certain social group share the same set of meanings, attached to a specific artifact” (Pinch & Bijker, 1984). There are four relevant social groupings that occur: producers, users, lobbyists, and bystanders.

Producers of Deepfake videos want monetary gain for creating them, as well as the ability to develop new technologies or more realistic methods. Users are typically politicians and/or campaign managers that deploy these technologies. Their goal is to portray themselves positively or portray their competitors negatively (Roberts, 2023). They are tightly coupled with producers of these videos to create the most effective advertisements.

Lobbyists are those who advocate for greater Deepfake regulations. Future concerns about the role of Deepfake videos in eroding public transparency has caused many requests for

laws or policies enforcement. For example, Google has implemented Deepfake identification technologies to limit the fraudulent behavior of accounts due to these lobbyists (Klepper, 2023).

Lastly, bystanders are the public who are exposed to these videos. They have a goal in receiving accurate information about the political candidates they are screening. Many bystanders do not know they are being lied to about content, and may not exercise the proper validation measures in ensuring that their information is reliable (Cohen, 2023).

Interpretive Flexibility and Problems & Conflict

Interpretive flexibility is defined by SCOT as the idea “that technology design is an open process that can produce different outcomes depending on the social circumstances of development.” (Klein & Kleinman, 2002). Deepfake has many positive uses in the entertainment sector, such as creating more realistic CGI effects. However, untagged Deepfake videos raise concerns about feeding into public mistrust. In this case, this misinformation and its impact on how people vote or perceive the candidates can cause the technology to develop even further if results favor the candidate who used this Deepfake video.

The goal of producers to create better Deepfake videos supplement politicians who deploy these methods. This is to the detriment of the public who are unknowingly misinformed. There are worries in causing a lower voter turnout as voters feel less educated to make important decisions. This could be especially concerning as the older generations, who make up a larger portion of voters, display a greater lack of internet literacy and can be easily influenced (Roberts, 2023).

This also spurs the importance of the goals of the lobbyists in informing the public and attempting to create more regulations. However, many of these regulations are limited to social

media companies, such as Google and Meta (Cohen, 2023), and can be further expanded to the government and other federal advertisements. Current laws that limit impersonation, such as slandering a police officer or practicing law without a license, are not appropriate in regulating Deepfakes. This is partly due to Deepfakes being trained on publicly available videos, of which there are huge and uncredited databases online (Barrier, 2023). Regulations also must be correctly implemented as there are arguments regarding the infringement of free speech in limiting the creation and posting of Deepfake videos (O'Sullivan, 2023).

Closure & Stabilization

Closure is when relevant social groups consider their problem with the artifact to be solved. Stabilization is the process by which members of a relevant social group come to communicate definitions and specifications of an artifact similarly over time (Humphreys, 2005). With methods of Deepfake continuously improving, it is hard to see closure or stabilization of this technology happening in the near future. There is tremendous potential for growth of Deepfake, like seeing Deepfake videos happen in live recordings or videos created from scratch instead of using an older video as a reference. Thus, there are no stable features or potential problem solving currently evident. As videos inherently feel objectively true and hard to forge, it can be hard to convince the public of what is true or not. In addition, Deepfakes are hard to detect as they become more accurate and believable and appropriate technologies are not future developed alongside (Roberts, 2023).

Wider Context and Conclusion

The last tenant of SCOT addresses wider context. Looking at just the political election in America, we can predict that a side that may think they are losing in the early-prediction polls in certain categories may use a Deepfake video to turn the public to their side. In addition, if politicians are willing to pay large amounts of money for the creation of these videos, then producers of Deepfake videos may be more compelled to create even more advanced videos that may be virtually indistinguishable from real videos. It is important to analyze the effectiveness of these videos so that we are better able to identify fake videos and better inform the public.

Lastly, there is a legitimate concern that these videos can cause the public to lose trust in politicians and the news system, potentially causing a decrease in voter turnout as voters are unsure of the information presented to them. We may see changes in society encouraging more live events, verification and validation of videos, and marketing strategies as we become more situated with Deepfakes in society. In analyzing these issues, there will hopefully be a how Deepfake regulations can be properly applied and how Deepfake can be implemented into society fairly.

Research Methods

I plan to look at current examples in where a Deepfake video has been used, and the impact it had on the public, whether that be through if recent pollings changed, if they are more likely to believe future negative content about the competitor, and if learning that the video was a Deepfake changed their thoughts on the competitor (Cohen, 2023). I plan to explore what are the main users of Deepfake (i.e. senators, cabinet members, etc.) and who are the main people they attack. I also plan to explore videos that, so far, are believed to be real videos and how the public generally accepts it or if they believe that the video is fake. I also want to look at things over a

dynamic period of time, so that I can observe if the increasing awareness of Deepfake videos has resulted in an equally increasing distrust in the general public (Roberts, 2023).

Works Cited

Cable News Network. (n.d.). Inside the Pentagon's race against Deepfake Videos. CNN.

<https://www.cnn.com/interactive/2019/01/business/pentagons-race-against-deepfakes/>

Cohen, B. (2023, October 13). How the rise of deepfakes will impact the 2024 presidential

elections. Infosecurity Magazine. <https://www.infosecurity-magazine.com/>

[opinions/deepfakes-impact-presidential](https://www.infosecurity-magazine.com/opinions/deepfakes-impact-presidential)

Engler, A., Kaplan, L., MacCarthy, M., Raso, C., & Kyooeun Jang, L. P. (2022, March 9). *Is*

seeing still believing? the deepfake challenge to truth in Politics. Brookings.

Guardian News and Media. (2023, August 3). Doctored sunak picture is just latest in string of

political deepfakes. The Guardian. <https://www.theguardian.com/technology/2023/>

[aug/03/doctored-sunak-picture-is-just-latest-in-string-of-political-deepfakes](https://www.theguardian.com/technology/2023/aug/03/doctored-sunak-picture-is-just-latest-in-string-of-political-deepfakes)

Klepper, D., & Press, T. A. (2023, November 8). Meta updates AI deepfake policy for

political ads, 2 months after google did it. Fortune. [https://fortune.com/2023/11/08/meta-](https://fortune.com/2023/11/08/meta-label-ai-generated-deepfake-political-ads-2024-election/)

[label-ai-generated-deepfake-political-ads-2024-election/](https://fortune.com/2023/11/08/meta-label-ai-generated-deepfake-political-ads-2024-election/)

McKenzie, B. (2023, August 24). *Is that real? Deepfakes could pose danger to free elections*.

UVA Today.

Mshaw. (2023, October 11). Drawing the line on AI-based Deepfakes proves tricky for Congress.

Roll Call. <https://rollcall.com/2023/10/11/drawing-the-line-on-ai-based-deepfakes-proves-tricky-for-congress/>

O'Brien, M. (2023, October 5). U.S. lawmakers question Meta and X over AI-generated political deepfakes ahead of 2024 election. PBS. <https://www.pbs.org/newshour/politics/u-s-lawmakers-question-meta-and-x-over-ai-generated-political-deepfakes-ahead-of-2024-election>

Swenson, A. (2023, August 10). FEC moves toward potentially regulating AI deepfakes in campaign ads. PBS. <https://www.pbs.org/newshour/politics/fec-moves-toward-potentially-regulating-ai-deepfakes-in-campaign-ads>

Washington grapples with AI deepfakes on the campaign trail. POLITICO. (n.d.).

What the heck is a deepfake?. What the heck is a deepfake? | UVA Information Security. (n.d.). <https://security.virginia.edu/deepfakes>