

Lab 1 – VocalShield

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Version 1

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1 Introduction

VocalShield is a product that will integrate seamlessly with the many different streaming platforms (ie. Twitch, Youtube, Caffiene, etc.) Its purpose will be to protect the streamers using the product from having their voice cloned and used for any nefarious purposes.

The possibilities of what AI can accomplish are endless and we are just in its early stages of life. We have seen AI programs that are able to create works of art, create pictures and video of events that never happened, and in the context of the issue we are addressing, stealing someone's voice and creating speech that make it seem like the actual person. Our voices are more powerful than we understand in the sense that they can be used for many different purposes. There are voice recognition security systems that are now basically obsolete due to these AI programs.

A more widely used purpose of voice cloning is for political propaganda. I don't think we fully understand how detrimental an AI generated recording of a politician can possibly be. Just one video of them saying some egregious stuff can sway voter's opinions, whether it be true or not. The same could go for popular music artists, in which samples of their voice could be found everywhere on the internet. This can create instances of them losing fans and revenue by association.

The purpose of VocalShield will be to help streamers who, also, have samples of their voices everywhere on the internet and whose revenue can be affected drastically by these programs. We want to provide them with a solution to an issue that seems to have no end in sight. We will do this by providing a product that will alter voice data, making it harder to clone. Overall, it will make digital spaces into safer environments and provide some kind of combat against this new and increasingly dangerous threat.



Figure 1: An AI generated image of Donald Trump and a pregnant Kamala Harris

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4 Glossary

Deepfake technology: involves employing advanced AI algorithms to produce media—videos, audios, images, and text.

Voice cloning: subset within deepfake technology, focusing on audio manipulation.

5 References

Burgess, Matt. "Voice Recognition Privacy & Speech Changer." *Wired*, 1 June 2022, <https://www.wired.com/story/voice-recognition-privacy-speech-changer/>.

McAfee Corp. "McAfee Unveils Advanced Deepfake Audio Detection Technology at CES 2024 to Defend Against Rise in AI-Generated Scams and Disinformation." *McAfee Newsroom*, 8 Jan. 2024, https://www.mcafee.com/zh-tw/consumer-corporate/newsroom/press-releases/press-release.html?news_id=509b05a3-65e9-464d-91f7-2dbc606e111a&src=vanity&offerid=4032003.

Hong, Tan Jian. "Uncovering the Real Voice: How to Detect and Verify Audio Deepfakes." *Medium*, 14 Nov. 2023, <https://medium.com/hkx-s-s-coe/uncovering-the-real-voice-how-to-detect-and-verify-audio-deepfakes-42e4803df431>.

Backhouse, Andrew. "Image Shows Something Is Seriously Wrong." *News*, news.com.au — Australia's leading news site, 17 Aug. 2024, www.news.com.au/technology/online/elon-musks-new-chatbot-grok-shows-how-badly-ai-can-go-wrong/news-story/f54e858c5e693dd440a4c5893a287f2c.