

Public Perspectives on How Society Should Respond to Deepfake Technology: Findings from a Qualitative Interview Study

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Abstract. *What are people's perspectives on how society should respond to deepfake technology?* This paper reports findings from a qualitative interview study to identify key themes that characterize people's perceptions of how society should respond to deepfake technology. Findings from a reflexive thematic analysis of interviews with 33 US adults include: the need for individuals to adopt a skeptical attitude towards video, staying up to date with developments in AI and video technology, the need for the government to regulate deepfake technology, and the need for platforms to enhance the transparency of content shared on their apps.

Keywords: Deepfakes, Trust, Disinformation, Journalism, Transparency.

1 Introduction and Background

Deepfakes are highly realistic fake videos created using AI that do not leave discernible traces of manipulation [1] and are typically used to mislead and deceive [2, 3]. Deepfakes threaten to undermine people's shared understanding of the world by decreasing the proportion of authentic videos online and by thus diminishing the information carrying capacity of video [4, 5]. Deepfakes can sow seeds of uncertainty in the public's common knowledge of socio-political events and deplete public trust in news and social media [6].

The domains impacted by deepfakes range widely from politics [3, 7] to popular culture [8, 9] to online harassment [10]. The ease and low cost of production, the open nature of the algorithms, high visual fidelity, and resistance to detection together position deepfakes as potentially very efficient propaganda tools given their high degree of realism and persuasive power [3].

The existing literature on deepfakes is dominated by the technical disciplines (such as computer science, and artificial intelligence) which lay emphasis on improving image synthesis and detection techniques. The scarcity of empirical studies on public per-

ceptions of deepfake technology, and how society should address the technology's potentially deleterious effects, motivated the following research question: *What are people's perspectives on how society should respond to deepfake technology?*

The study reported here was part of a larger interview-based qualitative study to conceptualize the notion of trust in online video. The next section provides a brief description of the methods used to collect data, and the paper then proceeds by listing the findings and ends with a brief summary of the findings.

2 Methods

The design of the study consisted of semi-structured interviews conducted with 33 US adults—21 participants from among the general population and 12 participants who were members of the National Press Photographers' Association (NPPA). The 33 interview participants were recruited via a short Qualtrics survey ($N=631$) on a first come first served basis. The Qualtrics survey consisted of several questionnaires pertaining to the following topics: video consumption; perceived information value of video; level of awareness of deepfake technology and AI; visual literacy; and demographic characteristics.

All interviews were conducted over Zoom between August and November 2022 and recorded with the informed consent of participants. The participants were compensated with \$20 Amazon gift cards, and the interview recordings were transcribed using the AI-based transcription service Rev.com. These transcriptions were then proofread by the author to check for accuracy by cross-referencing the original audio recordings. The interview data were analyzed using the six-phase reflexive thematic analysis [11] method to generate themes that respond to the research question. Participants from among the general public were assigned pseudonyms GPxx, and those from the NPPA were assigned pseudonyms of the form VJxx where 'xx' denotes the participant number (corresponding to the order in which they were interviewed).

3 Findings

Key themes from the interview data are summarized below. In the interest of space, each theme here is provided with the core idea it captures, and one data extract that succinctly illustrates the theme. More quotes to substantiate the themes are provided in the Appendix.

3.1 Individuals' Response to Deepfake Technology

When asked what measures individuals should take in response to advancements in deepfake technology, participants articulated the following.

3.1.1 Skeptical and Critical Attitude Towards Video Consumption

One of the most frequently offered responses to the question of individual responsibility was that people should adopt a critical and skeptical attitude towards video content they encounter online. GP10's comment below is an illustration of this:

[Individuals should] just be aware of ... what's real and what's not real ... use your judgment, your best judgment to know what is real and not real and if you have any questions about it, then to verify the information for yourself, or check the source of the information to see if it is in fact real. So, I think you have to do your due diligence and anything, you have to verify things if you're unsure if they're real. (GP10)

3.1.2 Staying Up to Date on Developments in AI

Participants believed that people should stay up to date with technological developments related to video technology as well as tracking news about the latest developments in AI. For example, GP8 said that "I think people need to learn ... read up more about artificial intelligence, how so close to human-like it could be. Not only human-like, just lifelike, period". Speaking generally of the need to maintain a healthy general awareness of the kind of technologies in use, GP16 described how a lack of awareness could make people vulnerable to cybercrime through the use of deepfake technology:

There's a lot of things that go on where people are calling old people like seniors and saying you know, owe money on your, yeah, this is the IRS, send us money and all kinds of scams. And people fall for it.

3.1.3 Consume and Share Videos Responsibly

This theme captures participants' perspective on responsible behavior in consuming, creating, and sharing video content online. An example of how users could exercise a sense of responsibility comes from the following quote from VJ7, who said,

I feel [people should use deepfake technology] in a responsible manner. Not abusing it and being as responsible as [they] possibly can. Not just as a citizen, but as a person. Not just as a content creator, but as a person, generally as a human being. Knowing your morals and knowing limits at which you use the technology.

This quote is particularly relevant given the high degree to which deepfake technology, and computational photography, has already penetrated into video-sharing apps. GP14 added that given that deepfake technology allows content creators to "...camouflage [content] to make it look like it's legit", users would "have to take [their] own responsibilities when watching things".

3.2 Platforms' Response to Deepfake Technology

Interview participants provided several desiderata when asked about whether or how platforms—such as TikTok, Instagram, YouTube, etc.—should respond to advances in deepfake technology. These desiderata, organized into three themes, are listed below.

3.2.1 Bringing Transparency by Adding Labels or Disclaimers to Deepfake Content

The key underlying need expressed via this theme is that platforms will need to offer more transparency to users in order to convey to them whether a video has been created using deepfake technology or not. One comment that is paradigmatic of this generally expressed need comes from VJ10, who said,

... I think if somebody on Facebook or somebody in these big YouTube worlds could put a disclaimer on the fact that what you're watching is has not been proven to be real, has not been authenticated, has not been, those sort of things could probably help [say] if there was a short intro into that. [...] But I think the big companies need to say something that even though it may be obvious [...] it needs to tell people, at least at the bare minimum, that what they're watching has not been verified to be true ...

3.2.2 Bringing Transparency by Making Video Metadata Accessible to Viewers
Professional visual journalists as well as participants from among the general public expressed the need to be able to examine the metadata about the provenance or processing of videos and photographs. Though professional visual journalists were more articulate in expressing this need in terms of the word metadata, ordinary users expressed that need using indirect terminology. As an example of the latter, GP10 said while acknowledging her lack of expertise, that being able to see “the code” of videos would help contain the abuse of deepfake technology. GP10 said,

If I had more technical knowledge, [which] I'm lacking, I'd wanna be able to look at the code, the actual information contained in the video. I think that would be able to tell me [about] the source file [if] it is altered versus it's straight up computer generated. That information is contained within the source file of it. I don't have the technical knowledge to read it, but I know it exists.

3.3 Governmental Response to Deepfake Technology

This section summarizes the participants' perspectives on how and whether the government needs to make policies to regulate deepfakes and deepfake technology.

3.3.1 The Government Needs to Regulate Deepfakes and Deepfake Technology
The general sentiment expressed by the participants was that the government should take legal measures to prevent the misuse, or all uses of deepfake technology. One of the clearest expressions of a desire for government regulation came from GP15, who referred to the Federal Trade Commission's (FTC) Truth-in-Advertising laws as a precedent for legislating on the use of deepfake technology. GP15 said, “[There are] laws that say it has to be what they're advertising. So, just probably make that law apply to [deepfake technology].”

In aggregate, the perceptions of the participants favored regulation and transparency instead of a blanket-ban approach to restricting the abuse of deepfake technology. The primary consideration for this preference that participants shared in the interviews was that the government cannot rightfully infringe on people's right to free speech as guaranteed by the US constitution. This complication forms the substance of the next theme.

3.3.2 The Government's Hands Are Tied by the First Amendment

Participants also highlighted the complexity of legislation and policymaking. As described by the participants, this complexity arises from the freedom of speech guaranteed by the First Amendment of the US constitution, and the belief that it would be challenging for the government to adjudicate on the distinction between artistic uses of deepfake technology, and its abuse for spreading disinformation.

This complexity is captured in the following quote from VJ11 in response to the question of whether the government should restrict or regulate deepfake technology. She said,

That is a complicated question because in one sense, on one hand I believe, I firmly believe in freedom of speech, freedom of expression, freedom of the press, all the above. And so, it's hard to, you can't regulate it tightly ... because you want to be, I mean, that's the tenet of what our country is founded upon are these freedoms.

3.4 Visual Journalists Need to Stay Informed and Adapt to Deepfake Technology

This theme identifies the core concern expressed by the visual journalists interviewed, which was that visual journalists must adapt to technological developments in order to stay relevant and trustworthy. Some participants also expressed a degree of disappointment about the profession not doing enough to revise the rules of engagement or the code of ethics of their profession to factor in AI and deepfake technology. For instance, VJ3 said,

... the profession is notoriously slow to respond to this stuff. Tech is way far ahead of us and boy, yeah, just historically journalism is, it's like we wait for things to happen instead of having some visionary thought to the process and going, wait a minute, study this as you are doing, thank you. And to hopefully help us navigate this landscape that we're in.

4 Discussion and Conclusion

The answer to the research question—*what are people's perspectives on how society should respond to deepfake technology?*—can be organized into four categories corresponding to actions that can be taken by individual (users or consumers of video content), video-sharing platforms, the government, and visual journalists. These are depicted in the thematic map in Figure 1.

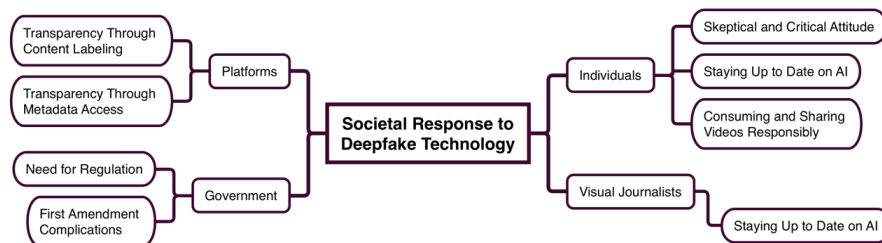


Fig. 1. A thematic map summarizing the key themes.

For individuals, the themes suggest: cultivation of a skeptical and critical attitude towards video consumption; staying up to date on developments in AI; and consuming and sharing videos responsibly. Platforms should bring transparency to their services by adding labels or disclaimers to deepfake videos, and by making video-related metadata accessible to end users. For governments, the themes identified both an expressed need to regulate or restrict the use of deepfake technology and a set of complexities related to free speech issues. Finally, visual journalists highlighted how they need to stay informed about deepfake technology in order to remain trustworthy.

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Appendix

Additional data extracts (quotations) from interview transcripts to support the themes reported in the paper.

Individuals' Response to Deepfake Technology

For section 3.1.1.: Skeptical and Critical Attitude Towards Video Consumption

GP2 (offering the analogy of how potential car buyers should not automatically trust a car dealership's assessment of a car's condition): "... that's like if you walk into a car dealership ... you're not going to just trust that the car is good right off the bat".

GP8: "... if you don't pay close attention to detail, then some of the people wouldn't know what's AI and what's not".

GP10: "...it's our personal responsibility to question things that don't appear to be true or possibly manipulating [the truth]."

GP19: "... it just goes back to a person's own personal moral standards on what they would wanna believe and would. Everybody has to question what you're seeing and what you're believing if you're gonna believe it or not. Question it ...I know I wouldn't just accept it as fact, just [because] so and so said it."

GP20: "... assume that everything that person said is a lie until you can otherwise verify it. [...] [I] just pray that there's just enough people that ... just question what they're seeing and just say, 'Yep, that don't look right'."

VJ4: "It'd be nice if we could encourage people to think more critically, but I think it shouldn't be like, an individual responsibility. I think there needs to be regulation, and tech companies, because they're the ones with the power and with the money, need to be a lot more proactive."

VJ9: "If there's a claim that seems kind of too crazy to be true, I do try and check it before I propagate it. And I can remember specifically some things on Facebook that somebody would say, and it didn't seem right to me, and I'd go check it and come back and post that."

VJ10: "I must say that when I watch a video, I'm looking for cues, I'm looking to see who's presented it, [and] I'm looking to watch what it's about".

VJ11: "... I think that we just take things for a fact when we see them, instead of stopping and analyzing what we're watching and basically circling back to, okay, I just

watched that now let me think about that video and see if I actually believe what I just watched. And just in general ... the lines between fact and opinion have blurred because people have put blinders on. They don't really take much thought into whether it's a fact or an opinion anymore."

For section 3.1.2.: Staying Up to Date on Developments in AI

GP4: "My suggestion is for people to be inquisitive, and always do research and look up bad information [...] [because] if you don't have the knowledge, you can get sucked in by anything."

GP10: "I have always been sort of a life learner, so, I like learning about the world, I like learning about different countries, I like learning about different people. [...] So, I think learning has always been at the forefront of what I do. And so, if I feel like something is not correct, I'm going to do my own research on that. Especially when it comes to things like medical information or anything that personally involves me, and I see a video about something."

GP10: "... the other day I saw a video on one of my apps about this diet pill that's supposed to help you lose 60 pounds in a month. And I'm like, obviously that's not true. But there are probably people that believe it's true and people that are buying that product believing that's true. ... I can't imagine being that gullible ... if it's too good to be true, it's too good to be true and it's not real."

GP11: "... I would really hope that people would want to expand their current knowledge of how to decide for themselves [on questions such as] is this AI enhanced? Is this deepfake, is it not? I think that only makes us better as a society, being able to judge your source and your content for a fact."

GP20: "Staying informed [is] just a part of being a human. Read the news and don't just read the commentators, read the actual news, and stay up on technology..."

VJ5: "So, what can people do? I mean, I do think it's useful to be aware that deepfakes exist. But again, even if you have that awareness, if you're finding something that reinforces your belief system, you're not even gonna acknowledge or even question whether it's a deepfake because that's just like human nature ... I think for most people, [the thought process is] 'this reinforces what I believe, so it must be real'. I mean, maybe I've done that, I don't know."

For section 3.1.3.: Consume and Share Videos Responsibly

GP1: "[Users] need to start to make proper decisions. Even though [they might] see something that may be false, they need to take time before they share [it]"

GP8: “It’s [acceptable] maybe if you need to use it for certain little things, but not ... using it for clickbait. [...] using it for like I said, clickbait to get people’s money, or vote or anything like that [would not be acceptable].”

GP11: It is on users such as herself “to read the terms of agreement” to ensure they comply with a video sharing platform’s policies. GP11 later added that being unscrupulous about sharing content “that isn’t truthful then negatively reflects” on her as a person.

GP12: Creative use of deepfake technology should ensure that “... you’re not personally going to hurt somebody or try to keep it as clean as you can”.

GP14: Given that deepfake technology allows content creators to “...camouflage [content] to make it look like it’s legit”, users would “have to take [their] own responsibilities when watching things”.

GP14: Users “have to take accountability for ... what you’re watching yourself as well, not just what [platforms] should do”.

VJ7: “I feel [people should use deepfake technology] in a responsible manner. Not abusing it and being as responsible as [they] possibly can. Not just as a citizen, but as a person. Not just as a content creator, but as a person, generally as a human being. Knowing your morals and knowing limits at which you use the technology.”

Platforms’ Response to Deepfake Technology

For section 3.2.1.: Bringing Transparency by Adding Labels or Disclaimers to Deepfake Content

GP3: “There was a lot of self-disclosure from the creator who just essentially showed what they did, but to me what they created was like, I guess, distrust in, essentially regular videos because it was ... I’ve worked in video editing before, I know how a lot of this stuff is done. But it just, it was so like, completely new to me. And it just is so real. But it turned out to be fake. So, it created a lot of distrust in essentially almost everything.”

GP4: “I mean, one of the ways would be just to put in a, you know, a banner or an explanation, or it just says, synthetic or AI technology [has been used] in this video. So, basically, you can be aware of it. If you don’t know what it is, that will give you some type of hint to go look it up, see what it actually means, you know. And then that way you will have you can make a decision ... once you’re watching a video that you know what’s going on, but at least have some idea of what’s going on.”

GP10: "... I think that [TikTok is] doing a fair good job of keeping the site safe for everyone. So, in that respect, I don't know if they're weeding out things that are generated by technology or how they're doing that, but I do think most of those sites have a responsibility for notifying their customers if something is real or fake or generated in a synthetic way versus an honest, real [way]. I don't know how they do it, but I'm assuming companies have some responsibility to make sure that their sites are safe ..."

GP15: "... I would say [the platforms] need to be [doing] more labeling and maybe putting blocks on things that are intentionally misleading and [those that] can be proven to be intentionally misleading. But at the same time, I've seen so many videos that get taken down because of a fake copyright strike or for bullying when this person is very, obviously not bullying, but the other person that they're talking about is being a horrible person. But they get to keep their videos."

GP19: It would be acceptable to her if such videos "where they're not trying to convince someone that this is true" were "specified as for entertainment".

GP20: "Well, all of the platforms definitely should [adopt] a good approach at having disclaimers and stuff like that. Not just within the videos but scattered about the website, [signaling the users to] 'take this information with a grain of salt, these videos may be manipulated'. They should just be warnings, just kind of scattered about."

GP21: "... obviously if somebody is going out of their way, purposefully trying to fool people with [a deepfaked video], they won't [label it as such]. But if people just make it known that something is a deepfake, for example, that's pretty obvious and helpful."

VJ7: "I just feel like it should be stated that [the video] isn't real; then it's left for me to decide if I believe [it] or not."

VJ9: "I like what face Facebook is doing with some of the questionable media things that are posted there. The post could still be there, but there there's an encouragement to verify veracity of something".

VJ10: "... I think if somebody on Facebook or somebody in these big YouTube worlds could put a disclaimer on the fact that what you're watching is has not been proven to be real, has not been authenticated, has not been, those sort of things could probably help [say] if there was a short intro into that. [...] But I think the big companies need to say something that even though it may be obvious [...] it needs to tell people, at least at the bare minimum, that what they're watching has not been verified to be true ..."

VJ12: "I think having just some sort of disclaimer or something that shows clearly this was a just synthetically generated video, or this is a non-verified video kind of thinking about those breaking news situations [would be useful]"

VJ12: "... I know TikTok has a thing where if you do use a filter, it says that you've used the filter. But people can download a video and strip that metadata and then you won't be able to know whether a filter is being used".

For section 3.2.2.: Bringing Transparency by Making Video Metadata Accessible to Viewers

GP3: "I feel like [needing a] proof of creation ... we would almost need behind the scenes proof of it actually being produced. Because if you just have the video itself with the actor, there's almost no way to prove that that is legitimate [and] not synthetic."

GP10: "If I had more technical knowledge, [which] I'm lacking, I'd wanna be able to look at the code, the actual information contained in the video. I think that would be able to tell me [about] the source file [if] it is altered versus it's straight up computer generated. That information is contained within the source file of it. I don't have the technical knowledge to read it, but I know it exists."

GP20: "I would have to look at the code. You would have to be able to look at the code. You would need some kind of program that can analyze the code."

VJ2: "We're gonna need just a reliable app where we can drop data into it and say, "Is this what was the original originator and origination of this data?" And then can we trust that entity, whatever it turns out to be. Say I dropped some video into this non-existent app, and it spits out, says, "Yeah, this was created by CBS News using this kind of camera this serial number camera" [then] I'll be able to trust that information because I trust CBS News, [and] then therefore I will by extension trust what I saw [in the video]."

VJ3: "... I think it's gonna be really important for us to be able to go into some metadata and identify what has been changed or how it's been manipulated, or what are the origins of it. I think it's gonna be, that has been important for us in the past. And I think that if there is a way for us to verify content in that way, it's gonna be critical for us to say, yes, this is real, or not ..."

VJ3: "Just as [in] Photoshop we can open up raw files, it's really important to be able to do that, to see exactly what produced a certain video file, are there markers that we look for and understand. It's like how something was created ...".

VJ4: "... I have my background as a photographer, so ... thinking about photo metadata and stuff like that [...] but is there some way that ... a video has some sort of stamp of authenticity or something, you know. Is there a quick way that I could right-click on it and know where it came from or if it was messed up or edited or whatever. And I know that technology is not easily accessible."

VJ11: "... I would be seeing if I can find any metadata from the video, seeing if I can find source material where it came from. If it came from a specific spot, let's say the publisher is known for doing deepfakes, that would be a red flag. [...] a lot of times metadata will show you what type of device it was shot on. So, if it says the video was shot on a Canon camera, then you're like, "okay, that's shot on a Canon". But sometimes when video has been altered, it won't have that information available and it will say it came from Adobe After Effects, for example. So, you look for ... I would look for that in the metadata."

VJ11: "Maybe if websites and manufacturers as a whole would do that more but go more in depth and say this is where [a video or an image] came from, however, this is also the metadata that you can look at and see where it was actually recorded. I think that would be easier for people. That to me that's the only way that you could get it to where people could find metadata easier because it truly is not easy to find if you don't know where to look."

VJ12: "... I think as a media professional, for me, it's really helpful to see the metadata when I look at a picture ... if I download a picture and then I can see, okay, this was photographed with this kind of camera by this person from this publication. [...] Or sometimes we pull from social media or civilians who are shooting videos with their phone, how do we verify that content is real? And I think having some sort of way to just see how it was made and if it went through any programs [would be needed]."

VJ12: "... being able to hover over an image or video and see exactly what we're talking about, not only what camera it was made for, [but] who it was made by, what was made, but also seeing did it go through any applications or editing software before it was posted? And if so, what was edited? So, I mean, I don't even know if that's very accessible to, if it happens, I don't know if that would even make sense for the common viewers, but I think from a media standpoint, that would be helpful ..."

Governmental Response to Deepfake Technology

For section 3.3.1.: The Government Needs to Regulate Deepfakes and Deepfake Technology

GP1: "it should be restricted; if they have to use it, they could use it within the organization"

GP2: "I feel like [the government] should ban it. It should be banned from all platforms ..."

GP6: Deepfake technology should be "restricted ... at the very least regulated" and "It should be restricted ... it should [not be] available for [everyone], not just everybody should have access to it."

GP7: “Okay. Restricted? No, I think, I think it’s ... it’s technology man everyone should be able to use it however they want. You know, I mean, I’m the same guy that I think guns should be fine. I think you should learn how to control yourself and to use your brain. You know, it shouldn’t you know, our technology is amazing. And just because people are stupid, doesn’t mean you should restrict technology.”

GP12: “I think depending on what the subject is or whatever it’s about, I do [think that some deepfakes should be] restricted more so than others ... depends on the topic.”

GP15: “... I was talking before about banning using it to create really bad images, like child abuse images and things like that”.

GP16: “Yeah, it should be a crime. basically, I’m trying to steal from you. Why is that any different from me physically trying to rob somebody? [...] Well not in every case, but [by making deepfakes] I’m trying to deceive you for some kind of gain. There should be some kind of punishment. [...] if you’re trying to pass something as legitimate [that it’s] not, there should be a penalty for anything or for anybody, no matter what it is. If I’m trying to deceive you for some kind of purpose, there should be a penalty.”

GP17: “[because] lots of people might actually want to go into an experiment [for creating deepfakes], just for experimental purposes, so, it should be regulated not restricted”.

GP19: “The government can find people of integrity that wanted do the right thing that are serving as senators or representatives and put ‘em on committees and call these people out and make them come and testify. [...] There would have to be committees and it would have to be talked about and maybe presented to the people ...”

VJ6: “I wouldn’t say it should be restricted because it’s when you restricted that there’s more demand for it you. You know what I mean? So, I would say it should be regulated in a way the government should work all in hand with the social media, the social giants, Facebook, and the rest [to] try to look for solution or software that can scan videos on such platforms. [...] Because the moment you say you wanna stop it or cancel it, that’s when the demand for it goes up ... it’s like demand, supply, scarcity, and everything.”

VJ9: “I not restricted, not regulated, but maybe identified. I might see a role [for] government in identifying egregious examples of things. And again, I’m just thinking of NSA has some pretty incredible technology, I could see them publishing daily or weekly list of the most egregious deepfakes circulating. So, I could see something like that people could peruse if they were interested in doing it.”

VJ10: “No, not at all. I think that any kind of reality, alternate or not, should not be restricted. I think that’s for the individual to decide. And so, if somebody comes up

with a viewpoint that's different than mine or away from my reality, I think that we should all be exposed to it. And it should not be hidden away somewhere as a government secret or something. Yeah, I think it should be out there. Whether it should be labeled as such, whether somebody should put a disclaimer on the front of it, that's always a plus."

For section 3.3.2.: The Government's Hands Are Tied by the First Amendment

GP18: "So, you could pass a law saying you can't lie [in a] television commercial [or] a political commercial. But then how do you define that? How does that come into conflict with the First Amendment?"

VJ2: "You'd do more harm to other expression by gutting the First Amendment than you would ... we're sort of caught. We do need to [do something] but, the cure would be worse than the sickness, I think."

VJ2: "Yes, but I don't see it happening. It's not, what I just suggested is not realistic in the foreseeable future in our political environment".

VJ3: "I don't know because regulation is, well, it could be a bad word for ... greater or lesser. It's a really strange word. Greater or lesser degrees. I think that's gonna be really hard to navigate because like we said, it's also very, can be a very creative advantageous thing too. So, it just depends on what we're talking about."

VJ4: "How do you balance it with free speech? People should be allowed to make art. [...] [Deepfake technology should be regulated] but it's [going to be a balancing act] with the First Amendment".

VJ8: "... I don't know if you could even put that genie back in the bottle at this point if you wanted to ... I see a lot of people use it for just making funny videos or doing benign, fun things. And in those cases, it's just another tool or a filter or whatever to just make something for fun. But yeah, I mean as far as just fully restricting it, I mean, don't think that you can, even if it's something that you want to do. It's kind of out of the bottle at this point."

VJ11: "That is a complicated question because in one sense, on one hand I believe, I firmly believe in freedom of speech, freedom of expression, freedom of the press, all the above. And so, it's hard to, you can't regulate it tightly ... because you want to be, I mean, that's the tenet of what our country is founded upon are these freedoms."

VJ11: "... I do believe that once you cross into the territory of it infringing upon others' rights on other's freedoms, then that's where the regulation should come in. So, if it's posting stuff, it's to the point where it's outright violence, like threatening violence, stuff like that, then I think that 100% should be regulated and there should be penalties for it because that's threatening [and] is infringing upon other people's freedoms, which

is counterintuitive to the whole freedom of speech and stuff at that point. That's when you lose that right, if you will."

VJ12: "... it's a tricky territory when you're making something legal or illegal ... I don't know if there should be any federally mandated rule about how publications are producing media or if they should mandate people share how something was made. [...] And I think if there was a rule, for example, that every single photo had to show someone's full face, then there wouldn't be room to make anonymous portraits [...] So, I think that's the tricky thing with getting the government involved in that we might lose some of that nuance with how we decide to publish information."

Visual Journalists Need to Stay Informed and Adapt to Deepfake Technology

VJ1: "Publishers need to [find] other ways that they can get the message out to reassure their reader of the integrity of the images printed in their pages of the publication. So, it's going to come to news organizations to help educate [readers on] what their policies are, how they do things, why they do things this way. [...] they must strive to educate the readers of their photographic policies."

VJ2: "we will allow our news pictures to be less aesthetic and more truthful", finally adding the admonishment that he will "fire somebody who did that [modifying news pictures for aesthetic purposes]".

VJ3: "We have to figure out if the tools are going to make our storytelling better, in accurate ways. Then we have to figure out where [the] lines are and abide by the code of ethics of what truth-telling [is] versus deepfakes ...".

VJ3: "... the profession is notoriously slow to respond to this stuff. Tech is way far ahead of us and boy, yeah, just historically journalism is, it's like we wait for things to happen instead of having some visionary thought to the process and going, wait a minute, study this as you are doing, thank you. And to hopefully help us navigate this landscape that we're in. Cause it's happening."

VJ10: "I just think there has to be trust between the editors and the people that are supplying the images. That's the only way you could ever establish a working relationship that you wanted to work for. I mean, if I was sending something back from the Ukraine and my editor was going to change it, then I would not trust that editor anymore."

VJ12: "It's kind of whether we like it or not. And I was telling some of my friends and colleagues, we kind of laugh about TikTok. We're like, oh, it's so silly. All the young kids are on it. But I think it's also something to be taken super seriously because with journalism, you're supposed to go where the audience is. And if your audience is not on Facebook and Instagram, if they're on a place like TikTok, even if it feels silly, the right thing to do would be to go there and be part of challenging some of the content you see on there."