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# The Coming Reality of Fakes: How Deepfakes and AI Could Reshape the Ad Industry

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## ABSTRACT

Creative artificial intelligence technologies (e.g., Deepfakes, Generative Adversarial Networks) are enabling new ways in of producing and editing the audio and visual content in advertising. These new tools highly automate both extreme changes to – or entire generation of – ads. Examples range from changing a model's skin tone, age, or gender all the way through to swapping the entire body or voice of a model. Our investigation finds that these creative tools may cause potentially dramatic changes in how ads are conceived, produced, edited, and targeted. This paper explores these changes, along with related ethical issues and areas of needed research.

### Management Slant:

- While use of AI is becoming commonplace, more creative forms of AI are only beginning to emerge
- Creative AI has the potential to reshape many, if not all, aspects of the ad production and distribution process
- History indicates that incumbents are often reluctant to recognize and respond to new innovations, often to negative effect
- Industry actors that leverage creative AI before others will likely gain competitive advantage
- In addition to potentially causing structural changes to the ad industry, creative AI will likely affect consumers and thus also associated consumer protections

**Keywords:** Manipulated advertising, creativity, deepfakes, generative adversarial networks (GANs), artificial intelligence (AI), machine learning

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## AVERTING AD-INDUSTRY MYOPIA

AI applications have come a long way since Boden (1998) first imagined how AI might be creative. AI can now autonomously compose original music (e.g., aimusic.co.uk), write novel stories (e.g., charisma.ai), paint unique fine art (e.g., artaigallery.com), and generate convincing audio (e.g., resemble.ai) and video (e.g., deepfakesweb.com) materials that mimic real likenesses. For example, the 2021 movie *Roadrunner* used AI to synthesize the late Anthony Bourdain's voice to read out email correspondence, despite the movie being produced 37 months after his suicide.<sup>1</sup> While many creative applications of AI first emerged outside of the advertising domain, advertising is seeing an increasing number of AI-assisted ads. Consider the US advocacy group RepresentUs campaign.<sup>2</sup> RepresentUs used deepfake techniques to create YouTube videos that show the likeness of famous dictators (e.g., Vladimir Putin, Kim Jong-Un) reveling in some American's unwillingness to vote in the 2020 presidential election. The result is a chilling, viral campaign that confronts hesitant voters with the hidden cost of not voting. Ads such as these that rely on AI-driven techniques are likely to increase as tools and related expertise become more commonplace.

While academic research is increasingly examining AI and its applications to advertising, it has yet to examine how AI is likely to reshape the *practice* of advertising itself. Research examines the important strategic opportunities AI unlocks (e.g., Campbell et al. 2020). It also tends to focus on how the technology underlying AI (e.g., Hayes et al. 2021), or how AI-driven analytics, can improve consumer response to ads (e.g., Deng et al., 2019). Research to date that examines more creative applications of AI – such as its growing role in editing or

generating content in advertising (e.g., Kietzmann, et al. 2020; Campbell et al. 2021) – focuses on how consumers are likely to respond to new ad types unlocked by AI. In short, while knowledge of what advertisers can do with AI - and how consumers are likely to respond – continues to grow, little is known about how creative AI might reshape the ad industry itself.

In this paper we qualitatively investigate the extent to which creative AI may impact all facets of the advertising industry. We do so since it is likely that many industry players may fail to see creative AI as direct rivals to their services (c.f., Levitt 2004), or might downplay the disruptive potential these tools harbor and thus be overtaken by new entrants (Christensen 2013). To help avoid such fate, this paper identifies two key insights. First, we find that AI tools are not all the same, but rather can be thought of in terms of three different forms of intelligence. We describe these, as well as detail how the effects of AI seen to date are mostly concentrated on the two simpler forms and that we are only beginning to see applications of creative AI. Second, while useful in many ways, we also find that high-level and amorphous strategy articles can sometimes insulate decision-makers from the harsh realities that changes can cause at an operational level. For this reason, we purposefully break down the effects creative AI might have on specific ad industry stakeholders. Illustrating these effects in a more concrete manner will help incumbent firms better envision AI's coming effects. We conclude with a set of questions to help guide future academic research on the topic.

## AI ISN'T ALL THE SAME

The questions we examine are yet to be explored in the academic literature, hence we are limited in our ability to provide an in-

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<sup>1</sup> <https://www.newyorker.com/culture/annals-of-gastronomy/the-haunting-afterlife-of-anthony-bourdain>

<sup>2</sup> <https://mashable.com/article/kim-jong-un-and-putin-deepfakes>

depth literature review. We do, however, draw in literature during the discussion of our findings to situate them within wider understanding. This section instead provides a review of ‘AI’ in terms of how it encompasses three different types of intelligence: analytic, interpretative, and creative (de Miranda 2020) since it frames our ensuing investigation.

*Analytic artificial intelligence* refers to the capacity to decompose an unknown into small parts that can be known (Arnauld and Nicole 1996; De Miranda 2020). Analytic intelligence in AI is often applied in computational forms of advertising that make sense of the massive amount of data generated by consumers and organizations to inform managerial or consumer decision-making (Rodgers 2021; Kietzmann et al. 2018). Analytic AI forms have many useful applications such as social media listening that informs managers on the effectiveness of social media investments (Hayes et al. 2021), or e-commerce recommender systems.

*Interpretive artificial intelligence* refers to the ability to interpretively understand and rationally debate oppositional information (Bloch 1983; De Miranda 2020). In AI this form of intelligence can perform decision-making tasks autonomously by using analytics and other contextual data (e.g., Watts & Adriano 2021). For instance, interpretive AI can be employed to generate personalized advertising copies by processing consumer behavioral and other data (Deng et al. 2019). Furthermore, interpretive AI may be able to enhance brand relationships by understanding contextual and consumer data to foster brand engagement (Araujo et al. 2020).

Finally, *creative artificial intelligence* involves the faculty to envision, imagine, and create limitless realities (De Miranda 2020). While there are studies that focus on consumer responses to AI created ads (e.g., Wu & Wen 2021) or theoretically

discuss how AI could be creative (Vakratsas & Wang 2021), creative AI applications have only recently begun emerging. These include deepfakes and GANs – two tools that enable what is referred to as manipulated advertising (Campbell et al. 2021). Deepfakes are a technique that changes aspects (e.g., face, voice, skin tone, gender, handbag color, fashion design, etc.) of a creative work with another through a deep neural network (Kietzmann et al. 2020). GANs instead create entirely new media through use of two oppositional networks: one that creates and a second that assesses the quality of what is created (Whittaker et al. 2020). The two work recursively, with the process only stopping when the resulting quality is deemed acceptable.

Research examines all three types of intelligence, but focus is generally on AI technology itself or on how consumers respond to AI creation (see Table 1). To our knowledge, research has yet to examine how creative artificial intelligence is likely to affect firms.

## **HOW MANIPULATED ADVERTISING IS LIKELY TO AFFECT THE AD INDUSTRY**

Our findings in this section are based on our own expertise in the areas of A.I. and advertising, as well as a qualitative examination of industry news outlets (e.g., AdWeek, Ad Age, The Drum) and consultations with advertising practitioners in the USA, Asia-Pacific, and Europe over the past two years. This section describes the potential effects of creative AI on seven advertising stakeholders: Brand Managers, Planners and Strategists, Creative Teams, Producers and Creators, Talent and Models, Distributors, and Regulators and Policy Makers. For each we describe the potential promises and perils that manipulated advertising might bring. Table 2 summarizes these ideas.

**Table 1: Research Has Yet to Examine How AI Might Affect the Ad Industry**

Publication	Type of Artificial Intelligence			Central Focus			Topic
	Analytic	Interpretive	Creative	Consumer	Tech	Industry	
Hayes et al. 2021	X				X		AI analytics to listen to social media
Araujo et al. 2020	X	X		X			Machine generated personalized ad copy
Deng et al. 2019	X	X		X			AI-based ad planning and buying
Kietzmann et al. 2018	X	X		X			AI analytics and the customer journey
Watts & Adriano 2021		X			X		Machine-learning and contextual bias
Campbell et al. 2021			X	X			Response to manipulated advertising
Kietzmann et al. 2020			X	X			Deepfakes' effects on brand perceptions
Wu & Wen 2021			X	X			Responses to AI generated ads
Vakratsas & Wang 2021			X		X		AI as a tool for creative work in advertising
<b>Current Paper</b>			<b>X</b>			<b>X</b>	<b>Ad industry disruptions due to creative AI</b>

**Brand Managers**

*Promises*

Manipulated advertising offers several potential benefits for brand managers. Most obvious are savings that may result from lower costs of ad creation. Expensive photoshoot and post-production work may no longer be needed if images can be rapidly composited and retouched. Likewise, AI may enable brands to enjoy potentially large economies of scale with ads they do create, being able to rapidly swap out products, models, or even settings to easily create “new” versions. Another benefit of the flexibility afforded by manipulated ads is that ads can be tailored to niche audiences, likely boosting their effectiveness (Iyer, Soberman, and Villas-Boas 2005; Goldfarb and Tucker 2011).

More importantly, the flexibility afforded by manipulated ads provides brands managers with the ability to innovate with

brands in new ways. In conjunction with manufacturing-on-demand capabilities such as Nike I.D., sub-brands and even entirely new brands could be tested at minimal cost. Such an approach would reduce risks often posed by extensions (Aaker 1990) or by their timing (Sullivan 1992). It could also enable brands to target consumers with collaborations and line-extensions that would otherwise be too niche or risky to produce at scale. Like a version of Kickstarter for brands, such efforts could also act as a form of market testing of consumer tastes, preferences, and - most importantly - real purchase behavior (Kohavi and Thomke 2017).

*Perils*

Ironically, the very same abilities of manipulated advertising that offer benefits to brand managers present them with potentially serious risks. The potential for others to release authentic-appearing misinformation

(i.e., information that is inaccurate or misleading) is a potential threat, with research showing that it can take six times as long for accurate information to reach people compared to fake information (Vosoughi, Roy and Aral 2018). In addition, increased variation in brand meaning could result in brands engaging in very different collaborations and extensions between different groups of consumers (Rosenthal and Brito 2017). This could cause major brands, that typically hold relatively homogenous associations among the wider public, to instead splinter in their associated brand meaning. Ultimately, this could lead to non-customized ad formats (i.e., billboards and sponsorship) being less effective.

Consumers, rivals, or even antagonistic groups such as Greenpeace could easily create - or edit existing - ads in ways that confuse, anger, or offend consumers. While such brand hijacking has occurred for years by groups such as AdBusters or by consumers (e.g., Berthon, Pitt, and Campbell 2008), the quality or underlying message of such ads generally revealed that the source was unofficial. AI may change that by both boosting the quality of creating ads, as well as making it easier to subtly change a brand-created ad. This danger may give rise to new brand safety services, such as AdVerifAI.com. Just as fast-fashion retailer H&M is known to rapidly copy higher-end competitors' designs, rivals may begin employing a similar strategy within the advertising domain. By simply copying and minimally tweaking an ad, the costs of creativity and ideation could be shifted onto competitors. Taking steps to prevent, monitor, and enforce such violations will likely be costly.

## **Planners and Strategists**

### *Promises*

Manipulated ads can be tailored to consumers in multiple ways (cf., Campbell,

Sands, Ferraro, Tsao, and Mavrommatis 2020). Chief among these is an ability to personalize ads for micro-segments or individual consumer, with potential cost savings. Personalization can occur in terms of the message being communicated as well as its form, leveraging location data where appropriate. While there are already shifts away from this practice - such as the rise of niche direct-to-consumer brands or Cambridge Analytica-style micro-targeted ads - the capabilities of AI are likely to hasten its demise. For instance, a national drugstore's advertisement could target consumers at a neighborhood level by featuring footage of the local store and employees. The ad could then be even further customized by depicting consumers of similar gender, ethnicity, age, and family structure as a target consumer using emerging tools such as Rosebud.ai. As manipulated advertising technology develops, ads could be interactive with endorsers speaking, and even responding, to consumers by name.

### *Perils*

Manipulated ads have the potential to change many aspects of the work that planners and strategists perform. Typically, this advertising function operates at a macro level, identifying and targeting relatively large consumer segments. Since manipulated ads can be efficiently customized and personalized, advertisers can target ever smaller portions of the long tail. Such micro-segmentation is likely to necessitate new and different processes than those that are used today. For instance, conducting market research on dozens or even hundreds of micro segments could be challenging and costly.

In addition to the challenge of creating ads for many more micro-segments, planners will also be confronted with the task of keeping track of what advertising each consumer has seen. Specialized tools that track a consumer or micro-segment's ad exposure history, and resulting personalized

brand meaning, will likely be needed. Dependency on data and software may also change how advertisers and their clients interact. Shifts seen in results-driven areas of advertising such as search advertising may spill over to more traditionally relationship-focused areas of marketing such as brand consulting and strategic planning. Creativity may become commoditized if creating and testing costs plummet. Agencies need to be prepared for such disruption, which traditionally starts at the low end of the market and creeps upward as quality improves (Christensen, Raynor, and McDonald 2015), and resulting changes in how clients value their services.

### **Creative Teams**

#### *Promises*

For creatives, manipulated advertising expands creative options (Chen et al. 2019) and speeds up the ad design and copywriting process (Qin and Jiang 2019). Ads can feature more scenes, more actors, and more “action” than might otherwise be feasible without a large budget. This includes potentially creepy - or even legally messy - options such as using the likeness of a deceased person in an ad. Being able to personalize ads to micro-segments or individual consumer also provides creatives with lots of opportunities (Campbell et al. 2020), for instance the ability to tell long-tail messages. For instance, being able to include a consumer in the plot of an ad enables whole new types of humor. Likewise, the potential to craft more relevant and personalized long tail messages gives creatives new license. Messages that might have offended some audience members can only be shown to those who will likely appreciate them. Likewise, advertisers can be more assured consumers understand their message since precise targeting can ensure only those with requisite brand history see it.

#### *Perils*

Ironically, the very creativity that manipulated advertising unlocks may be debilitating. In fact, research finds that the presence of constraints tends to boost creativity (Moreau and Dahl 2005). This suggests that removing hurdles imposed by budgets, physics, and time may also make it more difficult for creatives to develop ideas. Relatedly, desire to serve micro-segments unique ads is likely to lead to many more variations and versions of ad ideas being created. Tracking and digesting all these ads poses a challenge for advertisers hoping to create truly unique ideas, who would be likely to inadvertently copy existing ideas. The need to create exponentially more ads is also likely to be taxing on creatives. They may be called upon to create more variations of ads for similar costs as before, since consumer market sizes may remain unchanged. Competitive pressure may simply make personalization the new ‘table stakes’ for the industry. Tension may also erupt within teams as creatives are called upon to simultaneously maintain an ad’s core message while also personalizing and customizing it. Purists may find such an environment challenging to operate within. Creative teams might also see a shift toward engineering and technical employees, with some more traditional creatives resenting their newfound roles and value. Navigating these complexities will likely require dexterity by managers.

### **Producers and Creators**

#### *Promises*

For producers and creators, manipulated advertising expands options and potentially reduces costs. Yang, Liu, and Zhang (2017) explore the application of AI technologies in advertising from the perspective of the ad creation process. Comparing AI and traditional design methods, they conclude that the former is highly efficient, lower cost, and user-friendly

- ultimately delivering shorter design cycles, simplified customer communication, lower labor and economic costs, and improved management. In terms of production costs, it is likely that the cost of creating storyboards and ads themselves becomes radically lower as AI is leveraged to rapidly prototype. Advances in AI will also likely impact production in terms of on-set filming, with AI production leading to a decreased need to film on-set. Further, there will likely be benefits to post-production including voice-over for localization of global ad campaigns to different countries. Examples include the above-mentioned malaria campaign featuring David Beckham, and President Manoj Tiwari's campaign ads in multiple languages. Manipulated advertising will provide opportunity for similar advances in voice and facial adaptation of ad campaigns to local audiences.<sup>3</sup>

#### *Perils*

With manipulated advertising, the relevance and role of producers and creators could decrease. One example of this is evident from recent developments in technology like IBM's Watson. For the movie Morgan, IBM Watson was engaged to develop the first AI-created movie trailer (Nguyen 2016). In this process, Watson analyzed the trailers of hundreds of horror and thriller films to build an understanding of common sounds, scenes, and emotions previously employed in trailers. Following development of this training model, Watson was able to choose the best ten moments from the movie Morgan to be included in the trailer. At the time, Watson was unable to edit the trailer, however the process reduced the time and labor in the trailer creation down from up to 30 days to 24 hours (Nguyen 2016). Such evolutions in technology could lead to a shift toward more tech roles in production and creation, with existing

<sup>3</sup> <https://abcnews.go.com/International/david-beckham-speaks-languages-campaign-end-malaria/story?id=62270227>

production teams shrinking and/or shifting in their make-up. An extreme scenario might involve some production processes being entirely outsourced to consumer and prosumer platforms - much in the same way that platforms such as UpWork, Fiverr, 99Designs, Catalant, Topcoder, Freelancer.com disrupt many creative industries today.<sup>4</sup> Manipulated advertising may also force brands to find new ways to authenticate ads or create ads that are difficult to copy or edit. For instance, if a brand creates an elaborate ad featuring a given product, manipulated advertising may allow a competing brand, or even a brand in another country, to swap out the feature product for their own, while retaining much of the other non-brand specific elements of the ad. This may lead producers to strive to develop ways to fend off those that might try to copy elements of ads to reduce their own ad investment cost, or implement visual cryptography methods (e.g., Lou, Tso, and Liu 2007). Ultimately, these efforts could lead to increased digital security costs for producers.

#### **Talent and Models**

##### *Promises*

Manipulated advertising offers several potential benefits for talent and models. First, it provides an ability for celebrities to effectively be "on" multiple advertising sets simultaneously. This is because creative AI tools would enable celebrities to license their likeness for an ad rather than travel for a physical shoot. Another potential is for advertisers to run highly targeted campaigns that draw on multiple celebrities, targeting each to the segment where they have the most traction. This idea could also be extended to include talent such as micro-influencers. In the past, use of micro-celebrities to appeal to small

<sup>4</sup> <https://www.forbes.com/sites/johnwinsor/2020/01/27/is-your-business-at-risk-of-becoming-obsolete-heres-what-you-need-to-know-to-prep-for-the-decade-ahead/#2438fb85d6f7>

audiences was likely prohibitive due to the fixed costs involved in production. However, manipulated advertising provides brands the opportunity to use highly specific talent for niche audiences. Brands may also be able to engage AI-generated talent and models. There are obvious benefits to this for brands. AI talent do not suffer the same potential downsides as human endorsers. AI influencers will not politically rant, recklessly party or start an irrational social media argument in ways that could be potentially damaging to a brand's image. In this way, AI influencers may be more akin to traditional mascots (Wee 2004).

#### *Perils*

If brands shift towards increased use of manipulated advertising, it is possible that there will be decreased need for celebrity talent and models. This occurred in 2018 when the Kardashians were dropped as social media influencers by French luxury fashion house Balmain, who subsequently appointed virtual AI influencers who the brand suggested better reflected its “unfettered celebration of inclusion”.<sup>5</sup> Other brands, including KFC, LVMH, and Samsung have followed suit. Such shifts may lead to an increase in competition among talent and models. Traditional celebrities may lose value as firms move toward “micro” celebrities that are cheaper. Beyond advertising, brands may move toward virtual ambassadors, including in customer service settings and retail scenarios. At the extreme, as personalization and customization of ads grows, brands may move away from traditional celebrities toward the use of the consumer themselves. Recent technology has seen this shift in fashion modelling. U.K. online fashion retailer ASOS has collaborated with tech-startup Zeekit. Their technology allows consumers to have their body scanned and then simulates how

clothing items look on the consumer, rather than a model. A final threat to talent and models is in the risk of likeness theft by way of deepfakes (Perot and Mostert 2020). It may become easy for a brand - or others - to use a celebrity's image for a campaign without consent. For instance, a deepfake video of Mark Zuckerberg promoting an art exhibition was created by two artists as part of a conceptual art project on AI.<sup>6</sup> This is already affecting a range of celebrities, for instance Sandra Bullock and Ellen DeGeneres' have launched a joint lawsuit against 100 entities for using their personas without permission to sell health products (Perot and Mostert 2020).

#### **Ad Distributors**

##### *Promises*

Advertisers will increasingly be able to apply AI technologies in advertising to improve efficiency in programmatic buying (Huang 2015; Qin and Jiang 2019). In addition, while effective advertising communication traditionally relies on segmenting a large group of shoppers into smaller groups based on meaningful segmentation variables, manipulated advertising will provide advertisers with a tool for enhanced behavioral targeting (Campbell et al. 2020). Advertisers will be able to move from displaying ads to consumers that reflect marketers' inferences about groups of consumers to instead displaying ads specifically targeted to each individual consumer. Such target can be based self-disclosed information or on their individual-level behavior (Campbell et al. 2020; Summers, Smith, and Reczek 2016). Research suggests that such behavioral targeting enhances advertising response rates (Yan et al. 2009). An additional benefit may also likely arise in terms of ad attribution, or the process of tracking the effects of ads and

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<sup>5</sup> <https://pagesix.com/2018/08/30/balmain-drops-the-kardashians-in-favor-of-cgi-models/>

<sup>6</sup> <https://www.cnet.com/news/deepfake-video-of-facebook-ceo-mark-zuckerberg-posted-on-instagram/>

ad campaigns. Personalized ads are necessarily easier to track, enabling more precise tracking of ad efficacy. Ad attribution provides guidance as to which channels and specific ad sequences most profitably lead to conversions, allowing ad distributors to make better decisions about ad spend and optimization.

#### *Perils*

One potential downside of manipulated advertising is derived from its ability to target a segment of one. Such targeted advertising may be good for goal-directed search, which often occurs in later stages of the customer journey. However, opportunities to advertise to consumers earlier in the conversion funnel, when consumer behavior tends to be exploratory, may be missed. Consumers may also become increasingly savvy and develop ways to actively disrupt advertisers' ability to engage in precise ad targeting. Such behavior may be driven by consumer privacy concerns and drive further use of tools such as ad blockers. Much of the opportunity afforded to advertisers by manipulated advertising comes from the ability to achieve precise targeting, hence access to such consumer information becomes paramount. Further, manipulated advertising will likely lead to a need for significantly increased computing power and storage capabilities by ad distributors. This will likely result from several different functions, such as generating highly customized ads and keeping track of which ads consumers have seen. Further, the always-on connectivity required to create, and target ads dynamically may require a significant improvement in current infrastructure. To mitigate these downsides, the rollout of 5G networks may be required to minimize latency and significantly boost data throughputs to potentially offload rendering to local devices. Finally, there may be implications for consumer trust in advertising channels. One shift may be a backlash and

resulting decrease in trust toward channels where manipulated advertising occurs. This may in-turn impact more traditional advertising channels, such as print, where manipulated advertising is absent. Shifts in consumer trust across advertising channels may lead to an increase in the cost of advertising on trusted media channels and outlets.

### **Regulators and Policy Makers**

#### *Promises*

In terms of protecting consumers, one potential benefit of manipulated advertising is that it may lead to situations in which advertising is more, not less, representative of consumers. Manipulated advertising provides the ability for advertisers to tailor elements of the ad (language, ethnicity of models, and so on) to specific groups. Such advances may allow un- or under-represented segments to be able to see people like themselves (or even themselves) in advertising. Another potential eventuality resulting from manipulated advertising is a reduction in consumer fraud. With increased traceability resulting from personalized ads, it may become increasingly difficult for fraudsters to remain anonymous.

#### *Perils*

However, there are also potential downsides which may lead to consumers requiring increased protection. The most obvious challenges resulting from a potential increase in manipulated advertising may be consumer inability to recognize fake content. One possibility is that there is a significant increase in deceptive content which requires new regulation and guidance from policy makers. Astroturfing, or creating the impression of widespread policy, individual, or product support where little support exists, is becoming increasingly commonplace and could gain even more traction with manipulated advertising. Some large companies use sophisticated persona

management software to create armies of virtual astroturfers, with fake IP addresses, non-political interests and online histories<sup>7</sup>. Authentic-looking profiles are generated automatically and can be drawn on for political or corporate campaigns. Manipulated advertising may lead to this practice becoming increasingly difficult to spot as manipulated content not only lowers the cost of creating such campaigns but would also enable quick population of their bot's photo albums.

Furthermore, fake content may increase and become increasingly difficult for brands to manage. As creation of manipulated, realistic-quality video becomes mainstream anyone will be able to create spoof or altered versions of ads. CEOs or brand ambassadors may increasingly appear in disparaging “ads”. The threat of such deepfakes presents new challenges under existing law (Perot and Mostert 2020). As a

result of such developments, regulators may be faced with increasing instances where they are forced to intervene in competitive brand attacks because of manipulated advertising. Similarly, regulators may be asked to set rules concerning how similar ads can be before a brand is deemed to have infringed upon a copyright. Of course, all of this depends on being able to work out what is authentic or original and what is copied. Answering this question may force regulators to become increasingly savvy about the technologies used in manipulated ads. Finally, in this context of the digital era, social media platforms also have a social responsibility to monitor and take down deepfakes, with Twitter having devised specific provisions on ‘synthetic and manipulated media’ to combat misinformation and protect the integrity of discourse on the platform (Perot and Mostert 2020).

**Table 2: Potential Effects of Manipulated Ads and Related Research Questions**

Promises	Perils	Questions for Future Research
<i><b>Brand Managers</b></i>		
<ul style="list-style-type: none"> <li>▪ Easier brand innovation and collaborations</li> <li>▪ Cost savings due to changes in production and effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ads could be easily replicated, stolen, or maligned</li> <li>▪ Increased cost of protecting brands</li> <li>▪ Brand meaning may become even more varied as ad variations proliferate</li> </ul>	<ul style="list-style-type: none"> <li>▪ How do A.I. driven manipulated ads impact brand management strategies?</li> <li>▪ How does collective brand meaning dissipate when this meaning is modified to target individual consumers?</li> <li>▪ To what extent does A.I.-based personalization impact ad efficacy? And which personalization factors (i.e., gender, age, race, etc.) are most impactful?</li> <li>▪ How will brand trolling evolve in an A.I.-enabled world, and how can brands protect themselves, when brand communications are increasingly digital?</li> <li>▪ As barriers to entry of creating a brand continue to fall, will existing brands lose relevance and value?</li> <li>▪ What tools can be used to authenticate and protect brands digital assets from re-use and abuse?</li> </ul>
<i><b>Planners and Strategists</b></i>		
<ul style="list-style-type: none"> <li>▪ Ads that target a segment of one</li> <li>▪ Location-customized Advertising</li> </ul>	<ul style="list-style-type: none"> <li>▪ Need to understand a growing number of micro segments</li> <li>▪ Difficulty monitoring and tracking ad Campaigns</li> </ul>	<ul style="list-style-type: none"> <li>▪ How does interactive manipulated advertising impact consumer engagement?</li> <li>▪ How can hyper-personalized advertising be managed in an increasingly privacy-focused world?</li> <li>▪ How receptive are different consumers to A.I. driven manipulated advertising?</li> </ul>

<sup>7</sup>

<https://www.theguardian.com/environment/georgemonbiot/2011/feb/23/need-to-protect-internet-from-astroturfing>

- More interactive Advertising
- Creative roles may become industrialized
- How do you know what degree of specificity to choose in targeting?
- What role do planners/strategists have when algorithms can costlessly create and test ads?

### *Creative Team*

- Idea creation becomes boundless, since constraints of cost and time/space become irrelevant
- Personal decoders allow for anyone to become the model in ads they see
- Due to the increased variety of ads, being creative may become more challenging
- Dozens or even thousands of different ad versions threaten consistency
- Licensing issues related to deceased/manipulated endorsers
- Do people respond better when it is evident an ad was manipulated?
- What is the dark side to manipulated advertising?
- How will consumers react when seeing ads featuring a deceased celebrity?
- When should a manipulated ad feature the consumer, an anonymous model, or a mid-level/major celebrity?
- When should an ad be real versus manipulated?
- When does creativity not add value to an ad?
- In a world of infinite ad variations, how can ads stand out? Will everything be seen as derivative?
- To what extent can creativity be mechanized?

### *Producers and Creators*

- Decreased production costs
- Decreased localization costs
- Ability to “recycle” ads
- Brands can crowdsource ad production using sites such as Fiverr
- Production teams could shift toward tech staff rather than filming staff
- Increased Digital Security Costs
- To what extent can prior ads be re-used with minimal changes to models or featured products?
- To what extent can ads be held consistent across cultures with only minimal changes to language?
- To what extent can distinctive creative elements be used to protect ads from copy and misuse?
- How will producers and creators react as their roles shift from being hands-on to more digital?
- What new tools are needed to support manipulated ad production?
- How can consumers be encouraged or dissuaded from recreating or spoofing ads?

### *Talent and Models*

- Ability to be on multiple sets simultaneously
- Micro-celebrities and influencers can now be used to target niche audiences
- Decrease in use of “macro” celebrities as firms move to cheaper “micro” celebrities
- Brands may shift toward virtual brand ambassadors or personal decoders enabling ads that feature consumers themselves
- Celebrity likenesses may be “borrowed” for campaigns
- What are the negative effects of manipulated advertising on talent/models?
- How does seeing products on yourself impact product evaluation and purchase? And demand for models?
- How might manipulated advertising affect perceptions of beauty?
- To what extent will mega-celebrities have value in a world of individualized advertising?
- How can celebrities and models protect their likenesses?

### *Distributors*

- Ability for advertisers to target an audience of one
- Ads become easier to track, enabling more
- Need for increased server power
- Tracking data may become increasingly important, but consumers may be
- How can distributors optimize their mix of mass, localized, and personalized advertising messages for clients?
- How might a shift to highly personalized advertising affect prices? Will price differences shift from placements to instead accrue to distributors with better ability to target specific individuals?

precise ad effectiveness measures to be collected and assessed.

ever more reluctant to provide it.

- If ads aren't generally trusted, advertising may increasingly turn to high quality media channels to instill trust in their ads, driving up prices

- To what degree will consumers tolerate marketer use of private data for manipulated advertising? What can make consumers more open to their data being used for such purposes?
- What technical requirements are needed to target, serve, and track personalized A.I.-customized ads?
- How can distributors ensure consumer trust in the legitimacy of advertising is retained?
- How will a shift to A.I.-driven manipulated advertising affect attribution?

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### ***Regulators (i.e., FTC) and Policy Makers***

- Under-represented segments can see people like themselves in ads (e.g., minorities)
- Increased traceability of personalized advertising may make it more difficult for fraudsters to remain anonymous.

- Increased need to monitor for fake content as brand attacks can be more easily engineered.
- Increased potential for stolen likenesses, ads, and even brand names.
- Consumers may be less able to recognize when or if content is fake.
- Rise in deepfake native ads

- What detection mechanisms are available to identify and trace the source of deceptive, fraudulent, or malicious manipulated advertising?
- Can ads be authenticated and/or locked? Can their genesis be authenticated through a blockchain-type approach for produced ads?
- How can brands protect against attacks by fake brands?
- To what extent would consumers benefit from disclosure that ads are manipulated?
- How can (or should) industry and policy making bodies regulate the production of "perfect" or idealized actors and models to protect vulnerable consumers, such as children or those with mental health issues?
- What is the role of policy makers in regulators, government and industry to identify and remove fake or damaging manipulated content on both traditional and digital channels?

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## **WHERE TO NEXT?**

In this section, we identify multiple research questions that manipulated advertising raises for the ad industry, many of which are interesting from a theoretical perspective as well. For brevity, these questions are listed in Table 2. Here we look across these questions to distill larger themes and highlight key questions.

A theme evident in Table 2's research questions is commoditization. All industry actors are in some way touched by the potentially very real risk that manipulated ads may erode value while also creating it. Better understanding who is most at risk of gaining or losing value - and why - during this transition is likely valuable. A second theme concerns protection. At a micro level, are there strategies and tactics that can benefit individual actors? For instance, talent and models might employ anti-surveillance

camouflage<sup>8</sup> to protect their identity from theft. Brands might be interested in digital tactics similar to visual cryptography that could similarly scramble unlicensed copies (Lou, Tso, and Liu 2007). Likewise, vulnerable consumers also warrant concern. At a macro level, these might be organized by third parties such as regulators, although in some instances industry bodies such as the IAB may work to implement them. This might involve new systems - like existing systems that regulate radio frequencies or cell frequencies - that keep a database of authentic ads. Pre-registering ads before public distribution would not only serve as valuable evidence in any copyright cases but be a mechanism through which consumers can verify the legitimacy of ads they encounter. The ensuing databases might also prove helpful in developing AI-based tools to automate detection of deepfakes<sup>9</sup>. In

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<sup>8</sup> <https://www.theatlantic.com/technology/archive/2014/07/makeup/374929/>

<sup>9</sup> <https://www.wired.co.uk/article/deepfakes-ai>

addition, policy and regulation in areas such as copyright and fair use may require updating in response to the challenges of manipulated advertising (Perot and Mostert 2020) and the risks it poses to at-risk consumers.

## CONCLUSION

Deepfakes and GANs leverage powerful creative AI tools to generate convincing and true-to-life advertising content. As these technologies become more widely adopted in

the advertising industry, manipulated advertising will present significant opportunities and threats. Brand managers, ad planners, strategists, members of creative teams, producers, models, distributors and regulators will have to weigh the potential impacts of manipulated advertising on their respective domains. We hope that this paper helps ad industry stakeholders to better conceive of these potential impacts.

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