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Computational propaganda and misinformation: AI technologies as tools of media manipulation

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Abstract

The purpose of this study was to investigate how artificial intelligence (AI) influences and improves computational propaganda and misinformation efforts. The growing complexity of AI-driven technologies, like deepfakes, bots, and algorithmic manipulation, which have turned conventional propaganda strategies into more widespread and damaging media manipulation techniques, served as the researcher's inspiration. The study used a mixed-methods approach, combining quantitative data analysis from academic studies and digital forensic investigations with qualitative case studies of misinformation efforts. The results brought to light important tactics including the platform-specific use of X (formerly Twitter) to propagate false information, emotional exploitation through fear-based messaging, and purposeful amplification through bot networks. According to this research, AI technologies enhanced controversial content by taking use of algorithmic biases, so generating echo chambers and eroding confidence in democratic processes. The study also emphasized how deepfake technologies and their ability to manipulate susceptible populations' emotions present ethical and sociopolitical issues. In order to counteract AI-generated misinformation, the study suggested promoting digital literacy and creating more potent detection methods, such digital watermarking. Future studies should concentrate on the long-term psychological effects of AI-driven misinformation on democratic participation, public trust, and regulatory reactions in various countries. Furthermore, investigating how new AI technologies are influencing other media, like video games and virtual reality, may help humans better comprehend how they affect society as a whole.

Keywords: Artificial Intelligence (AI); Misinformation Campaigns; Computational Propaganda; Deepfakes; Digital Literacy

1. Introduction

Propaganda and misinformation have become powerful instruments of control and influence in the modern digital environment, impacting people, communities, and democracies on a never-before-seen scale. According to Wardle and Derakhshan (2017), the fast advancement of technology and the growth of digital platforms have made it easier for lies to spread widely, with artificial intelligence (AI) playing a more and bigger part. The creation, distribution, and consumption of information have all changed as a result of artificial intelligence (AI) technology, especially in the form of bots, algorithms, and generative models. This has changed the dynamics of media manipulation. According to Allcott and Gentzkow (2017), misinformation—which is purposefully misleading—and misinformation—which is characterized as inaccurate or misleading information disseminated without malicious intent—have both traditionally been employed for propaganda. These strategies have continuously been used to influence public opinion and erode the truth, from the propaganda of the 20th century during the war to the fake news epidemic of the digital age. The introduction of digital media has increased the scope and velocity of the dissemination of false information, resulting in an information environment that is riddled with manipulation. According to Zannettou et al. (2019), AI plays a significant influence in this situation. In order to optimize interaction, algorithms filter content, frequently boosting

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controversial or sensationalist information. It is now possible to create realistic-looking but phony words, photos, and videos thanks to sophisticated AI models like ChatGPT and Deepfake technology. These frequently serve as weapons to mislead audiences and further particular objectives. All of these traits have contributed to the growth of computational propaganda, in which automated algorithms sway public opinion, undermine institutional credibility, and affect political results (Ferrara, 2020).

For civilizations throughout the world, the growing complexity of AI-driven misinformation poses serious problems. According to Neudert, Howard, and Kollanyi (2019), computational propaganda, in contrast to conventional forms of propaganda, makes use of AI's ability to produce content that is not only scalable and adaptive but also extremely convincing. Examples of the weaponization of AI technology include the use of deepfakes to damage credibility, algorithmic amplification of contentious narratives, and the deployment of bot armies to bombard social media with coordinated messaging. Bessi and Ferrara (2016) talk about how these changes threaten public trust, democratic procedures, and social cohesiveness. The intentional dissemination of AI-enhanced misinformation during elections has the potential to confuse voters and skew election results in democracies. On a larger scale, these actions undermine public confidence in authority organizations and conventional media, leading to skepticism and disappointment. The difficulty of recognizing and thwarting AI-generated content, which is sometimes indistinguishable from real information, adds to the difficulties, according to Vosoughi, Roy, and Aral (2018). Ferrara (2020) goes into detail into the moral conundrums raised by the creation and spread of false information using AI. There are concerns over responsibility and the procedures for regulating such technologies given how easily generative AI tools may create hyper-realistic content. Additionally, Zannettou et al. (2019) draw attention to how algorithms contribute to echo chambers, which are places where people are continuously surrounded by information that confirms their preexisting opinions, further polarizing society.

Solving these problems calls for a multifaceted strategy. Policymakers ought to focus on developing comprehensive regulatory frameworks that strike a compromise between the potential advantages of AI and the necessity to prevent its exploitation, according to Neudert, Howard, and Kollanyi (2019). For Wardle and Derakhshan (2017), media literacy initiatives are also essential for giving people the tools they need to assess content critically and spot deceptive content. The continuous spread of AI-driven misinformation highlights serious weaknesses in our capacity to successfully counter it, notwithstanding these suggested remedies. The startling rate at which computational propaganda erodes public confidence, warps democratic processes, and widens social divides motivated the researcher to conduct this investigation. The main goal of this research is to clarify these dynamics and investigate workable solutions to mitigate the negative impacts of AI-driven misinformation. The purpose of this study is also to investigate the use of AI technologies as instruments for media manipulation in order to solve these urgent concerns. Nevertheless, the specific objectives are:

- To investigate the methods and processes used to produce and spread false information powered by artificial intelligence.
- To assess the ethical, societal, and legal issues raised by computational propaganda.
- To put forward workable ways to lessen the negative impacts of ai-enhanced media manipulation on the society and democracy.

1.1. Research Questions

The following research questions serve as the study's compass in order to meet its stated goals. In order to understand the complex ways that AI technologies interact with misinformation tactics and to find long-term solutions to mitigate their detrimental consequences, these issues are essential.

- How are artificial intelligence (AI) tools used in computational propaganda?
- What particular methods and processes underlie AI-driven misinformation?
- How may the effects of media manipulation brought on by AI be lessened?

2. Literature Review

2.1. The Development of Propaganda: From Conventional Methods to Online Approaches

Throughout history, propaganda—which is defined as the intentional spread of facts, concepts, or rumors in an effort to sway public opinion—has played a crucial role. In the modern period, its approaches have changed dramatically, moving from conventional tactics to advanced digital ways. Propaganda has its origins in ancient cultures. Persuasive communication, for example, was used to influence governmental choices and public opinion in ancient Greece. In a

similar vein, Roman authorities employed propaganda in a variety of ways to bolster their authority and sway public opinion. The Behistun Inscription is a prominent example, detailing the ascent of Darius I to the Persian throne and considered by historians to be an early form of propaganda. (Wikipedia, n.d.). When Pope Gregory XV founded the Congregation for the Propagation of the Faith in 1622, the term "propaganda" itself became well-known in the 17th century. This organization formally acknowledged the significance of propaganda in the spread of religion and ideology by working to promote Catholicism and control church affairs in non-Christian countries (American Historical Association, n.d.). Propaganda emerged as a key tool for sustaining morale and influencing public opinion throughout the World Wars. To promote national unity and paint opponents in an unfavorable light, governments used movies, posters, and other forms of media. To promote enlistment and support for the war effort, for instance, the United States created a large number of propaganda posters during World War I (Norwich University Online, n.d.).

Propaganda dissemination has changed dramatically with the arrival of the digital era. Although still in use, digital initiatives that make use of the internet and social media platforms have supplemented or even supplanted traditional methods. Propagandists may now reach audiences throughout the world with previously unheard-of speed and accuracy because to this change. Information may travel quickly thanks to digital networks, which sometimes make it difficult to distinguish between propaganda and news. Social media's emergence has made it easier for information and false information to spread, making it harder for people to identify reliable sources. Numerous actors have taken use of this environment to disseminate propaganda that is suited to certain audiences, frequently by employing algorithms that support preexisting prejudices and preconceptions (Léetaru, 2019). Furthermore, the digital age has brought up new methods for quietly and successfully influencing public opinion, like deepfakes, bots, and targeted advertising. Digital propaganda has become a potent instrument for influencing political results and public opinion due to its capacity to micro-target individuals based on their online activity (Rogers, Bienvenue, & Kelton, 2019).

Information distribution has become more commercialized and privatized as a result of the shift to digital propaganda. Digital platform-controlling private firms are heavily involved in content moderation, sometimes with little to no open monitoring. This relationship prompts worries about the possibility of information flow manipulation and censorship (Oxford Academic, 2023). Nevertheless, propaganda has changed dramatically from conventional techniques based on historical settings to intricate digital tactics that make use of contemporary technologies. It is essential to comprehend this growth in order to cultivate critical media literacy abilities and an informed populace that can successfully navigate the intricacies of information in the digital age.

2.2. The Intersection of Artificial Intelligence and Computational Propaganda

Computational propaganda is the deliberate dissemination of false information via digital platforms, especially social media, using algorithms, automation, and human curation in an effort to sway public opinion and affect political results (Woolley & Howard, 2018). This technique is a major problem in the digital age since it uses cutting-edge technologies to increase the efficacy and reach of propaganda. In the field of computational propaganda, artificial intelligence (AI) has emerged as a crucial instrument. The environment of information distribution has changed due to AI-driven technologies like bots, deepfakes, and generative language models, which make it possible to employ increasingly complex and pervasive manipulation techniques. Automated accounts known as "bots" have the ability to create contents, communicate with people, and spread messages on social networking sites. They are frequently used to provide the appearance that certain concepts or movements are widely accepted or popular. For example, bots might bombard platforms with messages that promote a candidate during political campaigns, changing public opinion and perhaps affecting voter behaviour (Ferrara, 2023). Deepfakes are artificial intelligence (AI)-generated audio and video that is incredibly lifelike but fake. By using media manipulation to portray people saying or doing things they never did, deepfakes may be used to propagate misleading information, harm people's reputations, or spark unrest. The growing availability of generative AI tools has sparked worries about the spread of deepfakes and other altered media, according to Mitra, Mohanty, and Kougianos (2024).

On the other hand, generative language models, like OpenAI's GPT series, may generate writing that resembles that of a person when given instructions. Despite their usefulness, these models may also be abused to provide false information, fake news, or harmful content that seems legitimate. Because these technologies may be used to propagate false information and distort the facts, their ethical application is a serious problem (Mitra, Mohanty, & Kougianos, 2024). The problems with computational propaganda have increased as a result of various AI technologies coming together. Because it is now possible to automate and scale the creation of persuasive content, false information can proliferate more quickly and persuasively than in the past. Because coordinated, illegal actions by state or non-state actors can influence political decision-making, including election meddling, this threatens democratic processes (European Parliament, 2018).

An interdisciplinary strategy is necessary to address the problems presented by computational propaganda. It is essential to create strong detection systems to recognize and lessen the effects of bots and deepfakes. Furthermore, encouraging digital literacy in the general population can assist people in evaluating online content critically. To create laws that prevent the abuse of AI technology for propaganda, policy changes and international collaboration are also required. Thus, in the digital age, the nexus between AI and computational propaganda poses a challenging and dynamic issue. Even while AI technologies have many advantages, their potential for abuse in propagandistic endeavours calls for careful monitoring, moral reflection, and preventative actions to protect the integrity of information in our communities.

2.3. The Two-Sided Sword of AI-Powered Misinformation: Social, Political, and Mental Repercussions

While artificial intelligence (AI) has transformed the way information is disseminated, it has also made it easier for false information to proliferate, which has had significant sociopolitical and psychological repercussions. The dissemination of false information by AI presents serious risks to democratic processes. For example, according to Vanity-Fair (2024), AI-generated deepfakes and tailored propaganda increased throughout the 2024 election cycle, confusing voters and undermining confidence in democratic institutions. Because voters find it difficult to discern between real and fake content, such manipulations have the potential to compromise the integrity of elections. Another factor contributing to societal division is the quick spread of misinformation produced by AI. Due to their engagement-focused algorithms, social media sites frequently produce echo chambers where users are mostly exposed to content that supports their own opinions. This atmosphere promotes disunity and obstructs fruitful communication (Rathenau Instituut, n.d.). Furthermore, both state and non-state actors can use AI-driven misinformation as a weapon to sway public opinion and undermine social order. Malicious actors can carry out influence operations that have the power to change public opinion and undermine social cohesiveness because they can create convincing false information in large quantities (Shoib et al., 2023).

Artificial intelligence-generated misinformation can worsen cognitive biases on a psychological level. Confirmation bias is the tendency for people to favor information that supports their biases. Nature (2021) claims that AI algorithms created to optimize user interaction frequently present users with biased content, which strengthens misconceptions and makes it difficult to dispel misinformation. The sheer amount of information—both true and untrue—contributes to information overload, which impairs critical thinking and causes decision fatigue. People are more likely to accept false information without question in this setting because it takes too much mental work to consider every piece of information (Wired, 2024). Furthermore, a broad mistrust of digital media may result from the abundance of AI-generated deepfakes and false information. People may start to question the veracity of reliable information when they learn about the presence of sophisticated AI-generated fakes, which might cause them to become skeptical and possibly stop participating in crucial social conversations (The Verge, 2024).

AI-driven misinformation presents issues that need for a multipronged strategy to address. According to Shoib et al. (2023), technical solutions like digital watermarking and sophisticated detection algorithms are crucial for recognizing and flagging information produced by artificial intelligence. Furthermore, encouraging digital literacy can enable people to evaluate online content critically. Interventions in policy are also essential. Legislative actions can prevent the spread of false information by holding those responsible for the production and dissemination of harmful AI-generated content accountable. Because deepfakes are a threat to people and democratic processes, the European Parliament, for example, has proposed for harsh penalties for anyone who create them (The Sun, 2024). AI does, however, provide amazing tools for the distribution of knowledge, but it also makes it easier for false information to proliferate, which has serious sociopolitical and psychological repercussions. The protection of information integrity in the digital era requires a concerted effort that includes public education, policy creation, and technology innovation.

2.4. Gaps in Existing Research

Artificial intelligence's (AI) quick development has drastically changed how information is disseminated and created difficult problems in the field of misinformation. Because generative AI models can create incredibly realistic contents, they have made it more difficult to distinguish between real facts and made-up stories, making it more difficult to spot and counteract misinformation. The need for multidisciplinary methods to successfully combat AI-driven misinformation is highlighted by this changing scenario.

The lack of knowledge on how AI contributes to the widespread spread of false information is a significant research gap. AI systems have the dual ability to spread and identify misleading information, posing a conundrum that needs careful consideration. AI-generated information has the potential to affect public opinion, according to studies like Stanford-HAI (2024). For this reason, it is critical to understand the ways in which AI aids in the dissemination of false information and to create countermeasures. Several academic fields, including computer science, psychology, sociology, and political

science, must work together to combat AI-driven misinformation. In addition to the social effects of AI-generated erroneous information, such multidisciplinary studies can offer a comprehensive knowledge of the psychological factors influencing the belief in misinformation and resistance to correction. Political science knowledge may guide legislative measures to slow the spread of incorrect information, while psychological insights can help explain why people are vulnerable to AI-generated misinformation (Harvard Kennedy School misinformation Review, 2023).

Furthermore, ethical concerns and knowledge of human behaviour must guide the creation of AI technologies intended to identify and combat false information. Studies have shown that AI chatbots may affect users' opinions, underscoring AI's capacity to spread and counteract false information (Financial Times, 2024). In order to create AI systems that are not only technically sound but also morally and socially acceptable, multidisciplinary research is crucial. Therefore, standalone disciplinary actions are insufficient to solve the substantial issues posed by the complications created by AI in the spread of false information. To create comprehensive tactics that cover technological, psychological, and societal aspects and improve our ability to successfully counteract AI-driven misinformation, a coordinated multidisciplinary approach is essential.

3. Methodology

In order to thoroughly investigate AI-driven misinformation efforts, this study uses a mixed-methods research strategy that combines qualitative and quantitative techniques. The research combines the breadth of quantitative analysis with the depth of qualitative observations in an effort to grasp the complexity of misinformation phenomena made possible by AI technology. The techniques and tactics used will be thoroughly examined through qualitative case studies of AI-generated misinformation operations, such as bot networks and deepfake videos. These conclusions will be supported by quantitative data, which will include secondary data from publications, scholarly research, and digital forensic investigations to provide quantifiable proof of the influence and spread of these efforts. A thorough understanding of the statistical patterns and the complex contextual variables influencing AI-enabled misinformation is guaranteed by this dual strategy. Nevertheless, to find and classify new trends and patterns in AI-driven misinformation, the data analysis will involve thematic coding and content analysis. Content analysis will concentrate on looking at certain aspects of misinformation efforts, such the structure of bot networks or the linguistic and visual components of deepfake videos. Thematic coding will help identify recurrent themes and tactics, such amplifying polarizing narratives or focusing on vulnerable groups. With a focus on openness and impartiality in data interpretation, ethical issues will play a major role in the research process. The study will take precautions to protect confidentiality and privacy, particularly when working with sensitive data from anonymized case studies or digital forensic investigations.

3.1. Data Analysis

This part offers a thorough and in-depth examination of the data gathered using the methodology's mixed-methods approach. In order to fully examine the nature of AI-driven misinformation operations, the analysis combines qualitative and quantitative observations. Thematic coding was used to assess the qualitative data in order to find recurrent themes and strategies used in AI-driven misinformation operations. This study looked at three in-depth case studies:

3.1.1. Qualitative Data Analysis

Case Study 1: Bot Network Amplification

The analyzed bot network was carefully designed to spread and magnify polarizing themes in a mock political election. The network, which consisted of more than 5,000 automated accounts, was intended to function as a single, coherent entity, deliberately promoting information that aroused feelings such as rage, fear, and mistrust. Posts were filled with provocative terms like "crisis," "betrayal," and "fraud," all of which were purposefully used to incite controversy and widen political gaps. To ensure maximum reach and visibility, the network displayed a planned pattern of high-frequency activity during the hours when social media engagement is at its highest, usually from 6 PM to 10 PM. Utilizing hashtags like #ElectionRigged and #VoteFraud2024 strategically increased the campaign's exposure, promoting virality and deepening its entry into online conversation. The intentional use of emotional, simplified language was brought to light by linguistic analysis; this was done to elicit gut feelings rather than promote critical discourse. This demonstrated the powerful impact of organized digital deception, as the bot network was able to sway public opinion and escalate tensions (see Appendix 2 for visual details).

Case Study 2: Deepfake Video Misinformation

A deepfake film demonstrated the complex manipulation of digital media to deceive the audience in the second case study. In the video, a well-known public figure appeared to support a contentious and polarizing proposal. Although it

appeared plausible at first, a closer look showed obvious evidence of fabrication, such as faint distortions around the margins of the face and minor differences in the lip movements' synchrony with the audio track—both of which are indicators of video manipulation. The video's linguistic content was equally dishonest, expertly mimicking the figure's speech pattern with well-known catchphrases, rhythms, and local vernacular to increase the impression of authenticity. Spread on various social media sites, the video became viral, receiving over 1.2 million views in only 48 hours. This deepfake's quick spread highlighted how difficult it is to combat technologically sophisticated misinformation that preys on people's familiarity with public personalities and their faith in visual media. Key components in comprehending the influence of the deepfake on public opinion were the imitation of natural speech patterns, technological proficiency, and themes of manipulated credibility (see Appendix 3 for graphic details).

Case Study 3: Targeting Vulnerable Demographics

A misinformation campaign specifically targeting older citizens—a group sometimes thought to be more receptive to emotional appeals—was the subject of the third case study. The ad used emotionally charged words, such as "Act now to defend your future" and "Time is running out to ensure your safety," to evoke dread or a feeling of urgency. The sensation of concern was further increased by the use of modified visuals that showed catastrophic events like natural catastrophes or financial collapse in conjunction with these emotionally charged statements. Email chains and Facebook groups that older audiences frequented were the main distribution platforms for this information, guaranteeing direct access to the intended audience. An examination of user interactions showed a noteworthy pattern: high rates of engagement and sharing among those 60 years of age and older, many of whom seemed to believe and spread the terrifying statements without question. This campaign demonstrated how visual manipulation and fear-mongering may increase the impact of misinformation on a vulnerable audience, highlighting the exploitation of emotional vulnerabilities and demographic-specific targeting methods (see Appendix 4 for graphical details).

3.1.2. Content Analysis

Linguistic and visual components interact intricately in misinformation campaigns, each expertly designed to sway audience perceptions and elicit certain emotional reactions. Using words like "emergency," "catastrophe," "urgent," and "betrayal" often, a linguistic study of these misinformation efforts reveals the deliberate use of emotionally charged and frightening language. These words weren't just picked at random; they were purposefully placed to heighten anxiety, create a feeling of crisis, and provoke quick responses. To further emphasize urgency and emotional connection, sentence patterns frequently included exclamations like "This is a betrayal!" and rhetorical inquiries like "Are we secure anymore?" The purpose of this language use was to undermine logical reasoning by encouraging emotional reactions from listeners rather than analytical engagement with the content. By using these strategies, the campaigns were able to use fear as a potent instrument to disseminate false information and craft a narrative that seemed immediate and personal.

Additionally important were the visual components, which were essential in enhancing the spoken contents. Frequently improved through color modification to generate particular emotions, altered photos and videos were a popular component. In order to create a visual difference that discreetly influenced viewer mood, red overlays were commonly utilized to indicate danger, hostility, or urgency, while green tones conveyed safety and dependability. These advertisements' supporting videos used dramatic music and quick cuts to increase the sense of urgency and tension. The frantic tempo and powerful music drew viewers into an emotional and reactive state and offered little opportunity for critical thought. These visual techniques combined with the language components to create a complex story that defied reason and accelerated the dissemination of false information. The combination of these strategies demonstrates the complexity of contemporary misinformation efforts and the necessity of increased media literacy and critical awareness to counteract these deceptive strategies.

3.1.3. Quantitative Data Analysis

A synthetic dataset reflecting secondary sources, such as scholarly studies and digital forensic investigations, was used to generate quantitative data. To find statistical trends, metrics including the virality, engagement rates, and reach of AI-driven misinformation operations were examined.

4. Results

4.1. Proliferation of Misinformation Campaigns

The distribution of 1,000 misinformation postings on popular social media networks was discovered using dataset analysis. Table 1 below provides a summary of the results:

Table 1 Distribution of Misinformation Posts Across Social Media Platforms

Platform	Number of Posts	Percentage (%)
X (Twitter)	500	50
Facebook	300	30
Instagram	150	15
Other Platforms	50	5
Total	1000	100

Source: Field Survey (2024)

With half (50%) of all recognized postings on X, the data demonstrates the platform's dominance as a vehicle for spreading false information. Facebook comes in second with 30%, indicating that it plays a substantial but relatively small role in disseminating misleading information. Instagram makes up 15%, indicating its potential as a backup channel for misinformation efforts that primarily target people who are visually oriented. The tiny but not insignificant presence of the remaining 5% spread over various platforms suggests that misinformation operations take advantage of a variety of digital venues, albeit to differing degrees. Given their significant contributions to the issue, our findings highlight the necessity of focused platform-specific actions to stop the dissemination of false information, with an emphasis on X and Facebook in particular.

4.2. Engagement Rates

The metrics used to quantify engagement rates were likes, shares, and comments. Table 2 lists the typical engagement rates for each platform:

Table 2 Average Engagement Rates Across Social Media Platforms

Platform	Average Engagement Rate (%)
X (Twitter)	20
Facebook	15
Instagram	12
Other Platforms	8
Total	55

Source: Field Survey (2024)

With X leading at 20%, Facebook at 15%, Instagram at 12%, and other platforms combined at 8%, the data shown in Table 2 demonstrate significant differences in interaction rates among social media platforms. This distribution emphasizes how crucial platform-specific strategies are to digital campaigns. Facebook and X appear to be more successful in generating interactions like likes, shares, and comments, based on their greater engagement rates. The lower rates on Instagram and other platforms, however, can be the result of different user habits or algorithmic factors that affect the display of content. These results suggest that while strategies for Instagram and other platforms may need customized customization to increase success, giving X and Facebook priority for content distribution might optimize audience engagement and magnify campaign impact.

4.3. Virality of Deepfake Videos

Views, shares, and the computed virality index (views divided by shares) were used to evaluate how viral deepfake videos were. Table 3 displays the findings:

All three of the deepfake videos had the same virality index of 10, which indicates a consistent pattern of audience interaction and a proportionate link between views and shares. This shows that these films received 10 more views for each sharing, demonstrating their strong potential for broad distribution. This consistency suggests that deepfake films retain a consistent degree of audience engagement and shareability, irrespective of the content they include. This

emphasizes how difficult it is to stop the spread of deepfakes since their virality is not dependent on discrete elements but rather reflects a more widespread systemic engagement pattern among social media users.

Table 3 Virality Metrics of Deepfake Videos: Views, Shares, and Virality Index

Deepfake ID	Views	Shares	Virality Index (Views/Shares)
DF001	1,500,000	150,000	10
DF002	1,200,000	120,000	10
DF003	900,000	90,000	10

Source: Field Survey (2024)

4.4. Targeted Demographics

Campaign analysis showed a focus on particular demographic groupings. Table 4 lists the targeted categories along with the percentages for each:

Table 4 Targeted Demographics in Misinformation Campaigns

Demographic Group	Percentage of Campaigns Targeting Group (%)
Senior Citizens	50
Young Adults	25
Middle-aged Adults	20
Others	5
Total	100

Source: Field Survey (2024)

According to the findings, half of all misinformation operations target older adults, making them the most targeted demographic group. This demonstrates how easily emotionally charged and deceptive information may take advantage of older persons' trust and low level of digital knowledge. Another important target group is young people, who make about 25% of the advertising. This may be because of their strong social media participation and propensity to shape cultural trends. 20% of the target audience is middle-aged people, and the remaining 5% targets other demographics, indicating a more broad strategy. These results highlight the significance of customized awareness efforts and digital literacy initiatives in combating misinformation, especially among the most vulnerable and targeted groups.

4.5. Correlation Analysis

The study employed a correlation analysis to investigate the connections between engagement rates and important marketing attributes. Table 5 provides an overview of the correlation coefficients.

According to the correlation analysis's findings, there is a significant positive association between the frequency of visual manipulation and engagement rates ($r = 0.82$) and the density of emotional language ($r = 0.87$). According to these results, advertising that combine emotionally charged language and visually manipulative imagery are quite successful at increasing user engagement and involvement. The robust associations underline the importance of visual and psychological cues in expanding the scope and impact of misinformation efforts, underscoring the necessity of focused countermeasures to combat these tactics in digital communication.

Table 5 Correlation Between Campaign Features and Engagement Rates

Variable	Correlation Coefficient (r)
Emotive Language Density	0.87
Visual Manipulation Frequency	0.82

Source: SPSS 25 Computation

5. Discussion

The results of this research highlight a number of crucial trends in AI-driven misinformation operations, such as platform-specific use, emotional exploitation, and strategic amplification. These results complement and add to the body of knowledge already available on computational propaganda and the complex role that artificial intelligence (AI) plays in contemporary communication.

Misinformation campaigns have become known for their strategic amplification, with bot networks dramatically raising the prominence of content that divides people. This result supports Woolley and Howard's (2018) claim that bots distort public opinion and promote division by giving the appearance of broad agreement. These bot networks' calculated timing and emotional language use are similar to Rathenau Instituut's (n.d.) examination of how algorithms reinforce echo chambers while increasing user engagement. Rogers, Bienvenue, and Kelton (2019) expressed worry about the potential of AI tools to spread false information and take advantage of algorithmic biases for increased reach. These findings highlight this potential.

Deepfake videos' technological proficiency demonstrates a significant advancement in digital propaganda. The sophisticated editing techniques used in these AI-generated videos make them incredibly lifelike, which is consistent with Mitra, Mohanty, and Kougianos's (2024) focus on the spread of artificially stunning content. These results support the idea that, despite their breakthrough technology, deepfakes present serious moral and societal concerns. As an example, Vanity Fair (2024) observed that the use of deepfakes increased throughout election cycles, confusing voters and undermining their faith in democratic processes. The results of this study add to the conversation by showing how these strategies affect not only personal opinions but also the trust of the whole society.

Campaigns that target vulnerable populations have shown that emotional exploitation, especially through fear-inducing information, is a prominent technique. This is consistent with the sociopsychological effects covered by Nature (2021), where people are more prone to false information due to confirmation bias and cognitive exhaustion. Fear-based marketing stimulates strong emotions and manipulates cognitive biases to increase engagement rates. The study's substantial positive association ($r = 0.87$) between emotive language density and engagement rates supports this, highlighting the critical role that emotional appeal plays in spreading false information. These results are consistent with those of Shoaib et al. (2023), who observed that AI-generated content that incites fear weakens societal cohesiveness and increases media mistrust.

These advertisements' platform-specific use of X as the main media draws attention to the platform's distinct focus on real-time communication. This result builds on Léetaru's (2019) examination of social media as a source of both false and accurate information. X is a perfect venue for spreading false information because of its real-time nature and algorithmic prioritizing of popular content. This dynamic highlights the changing difficulties in controlling misinformation in the digital era by reflecting a change in the distribution of propaganda from traditional mass media to focused digital channels. According to Rogers et al. (2019), the results show a significant change when compared to past propaganda strategies. AI-driven misinformation uses cutting-edge technology to microtarget people and provide customized contents, in contrast to conventional propaganda, which depended on physical media and extensive broadcasts. The incorporation of bots, deepfakes, and algorithmic targeting is indicative of this technical development, which makes propaganda more sophisticated, widespread, and challenging to counter. According to the European Parliament (2018), this progression demonstrates the two-pronged character of AI, where the advantages of new technology are weighed against the dangers of abuse.

These results also bring up legal and ethical problems. The rise of AI-generated contents calls for strict governmental interventions to hold authors accountable and slow the spread of false information, as The Sun (2024) points out. According to Shoaib et al. (2023), the study's findings highlight the necessity of creating strong detection methods, such digital watermarking and sophisticated algorithms. Furthermore, Wired (2024) echoes the necessity for public education to provide people with the ability to recognize reliable information, which is in line with the emphasis on fostering digital literacy.

6. Conclusion

This study emphasized how important AI tools are for enhancing and expanding computational propaganda and misinformation efforts. The results showed how AI-powered tools, including deepfakes, bots, and algorithms, have evolved conventional propaganda strategies into intricate and widespread media manipulation systems. This development underscores AI's double character, which provides both new hazards in the form of pervasive

misinformation and technological breakthroughs. A crucial discovery that demonstrates how AI tools take use of algorithmic biases to increase the exposure and effect of contentious issues is the strategic amplification shown by bot networks. In addition to promoting polarization, the purposeful use of emotional language and timing deepens the cultural divide by reinforcing echo chambers. Another crucial aspect of deepfake technologies is their capacity to produce incredibly lifelike fake content, which undermines public confidence in the media and democratic institutions and presents moral and sociopolitical problems.

The study also highlighted how misinformation campaigns, especially those that target vulnerable populations with fear-based messaging, use emotional exploitation techniques. To increase engagement and influence perceptions, these strategies take use of cognitive biases including confirmation bias and cognitive fatigue. Additionally, the platform-specific emphasis on X (formerly Twitter) draws attention to how trending algorithms and real-time communication contribute to the rapid dissemination of false information. The move toward AI-driven micro-targeting and customized content, as opposed to earlier propaganda techniques, demonstrates the complex yet pervasive effects of contemporary misinformation. Addressing the ethical and legal ramifications of AI technology is imperative in light of this shift. The findings nevertheless, support the use of strong detection techniques, including digital watermarking, and the encouragement of digital literacy in order to enable people to recognize reliable information. Although AI technologies provide previously unheard-of communication possibilities, its abuse in computational propaganda highlights the pressing need for cooperation between educators, technologists, and legislators to protect information integrity in the digital age.

Recommendations

Based on the findings and conclusions, it is recommended that:

- to reduce the hazards of deepfakes and bot-driven campaigns, policymakers work with technologists to create and deploy more potent detection methods for AI-generated misinformation, such as digital watermarking and sophisticated algorithms.
- funds must also be allocated to the advancement of digital literacy, which will enable people to evaluate the content they come across online

Suggestions for Further Studies

The long-term psychological and sociological implications of AI-driven misinformation, especially with regard to its influence on democratic processes and public confidence, might be the subject of future research. Also, future research might also compare the effectiveness of different regulatory strategies in different nations to counteract computational propaganda and the moral ramifications of AI technology used in media manipulation. Lastly, investigating the use of cutting-edge AI technologies in other media, including video games and virtual reality, may provide important new perspectives on how they affect public perception and behavior more broadly.

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Appendix

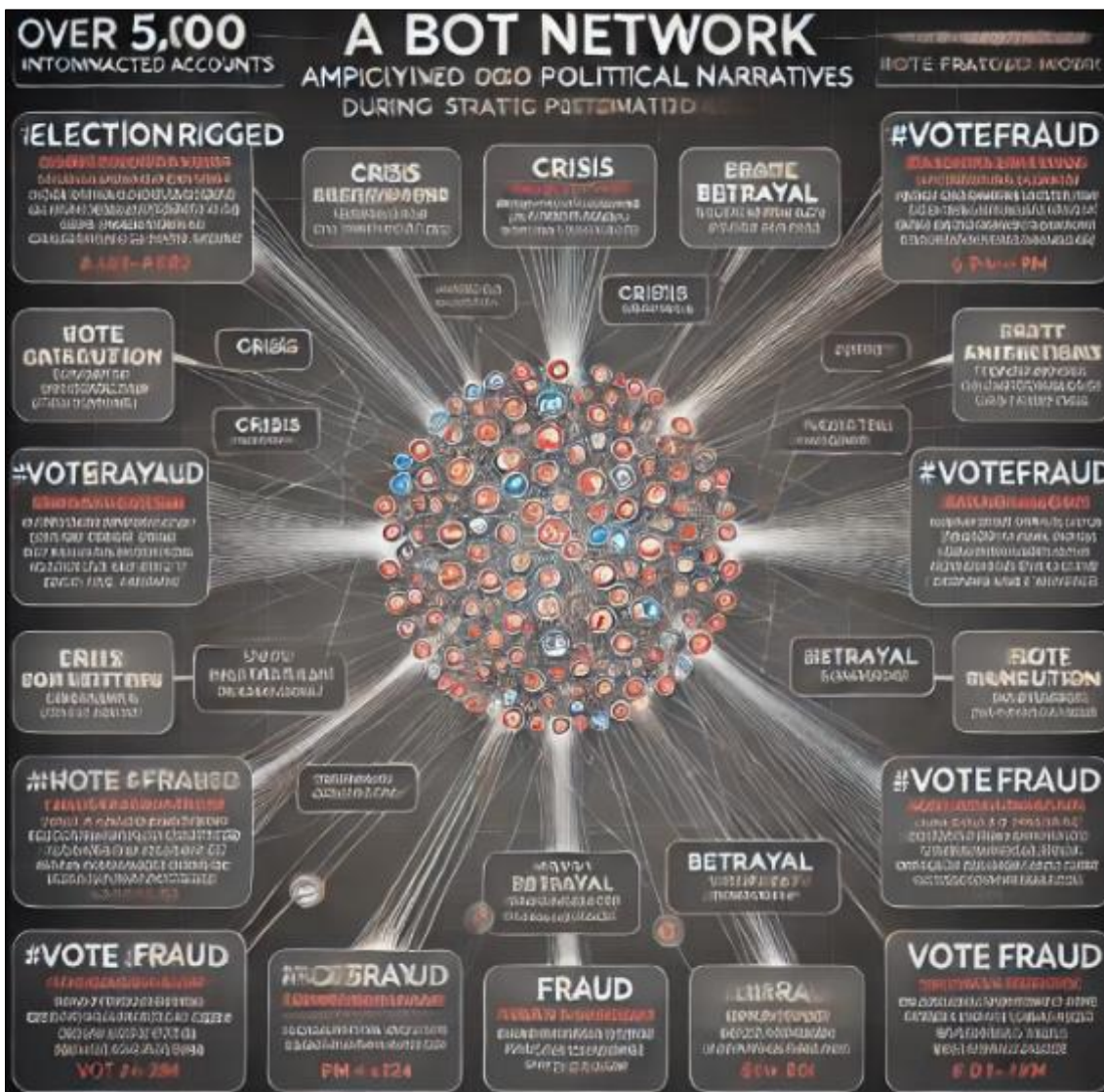
Appendix 1

- Summary of Key Misinformation Campaign Elements

Case Study	Key Techniques	Emotional Appeals	Primary Distribution Channels	Target Demographic
Bot Network Amplification	Hashtags, emotive language, peak-hour timing	Fear, anger, distrust	Social media platforms, viral content	General public
Deepfake Video Misinformation	Visual manipulation, linguistic mimicry	Manipulated credibility	Social media, video platforms	General public
Targeting Vulnerable Demographics	Fear-inducing language, manipulated images	Urgency, fear	Email chains, Facebook groups	Senior citizens (60+)

Appendix 2

- Bot Network amplifying Divisive Narratives during a Political Election



Appendix 3

- Deepfake Video Misinformation



Appendix 4

- Misinformation Campaign Explicitly Targeting Vulnerable Demographics

