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Original Article

The Impact of Machine Learning on the Proliferation of State-Sponsored Propaganda and Implications for International Relations

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Abstract: *This article explores the impact of the advancements of artificial intelligence (AI) and machine learning in the field of information operations. The article begins by examining how artificial intelligence can be harnessed to address false information on the web. It also delves into the potential risks and limitations associated with AI strategies, such as deep fakes. To sum up, the article thoroughly explores various solutions to address the spread of AI-driven false information and improve the online environment. The article recognizes that there is not a single solution to combat disinformation. The upcoming wave of misinformation demands a society with the strength to resist and remain resilient.*

Keywords: *Disinformation, Artificial Intelligence, Deep Fakes, Algorithms, Profiling, Micro-Targeting, Automated Fact-Checking, Social Media.*

I. INTRODUCTION

In the past few years, numerous democracies across the world have been dealing with a combination of cyber-attacks, manipulation of information, political and social disruption, taking advantage of existing tensions within their societies, and harmful financial influence. This paper will focus on information operations used by foreign entities to manipulate public opinion, undermine trust in media and institutions, discredit political leaders, widen societal rifts, and influence voters' decisions.

These difficulties are unfolding in the context of an expanding digital economy, which has coincided with the rise and rapid integration of new technologies like the Internet of Things (IoT), robotics and artificial intelligence (AI), 5G, and augmented and virtual reality (AR/VR). While the spread of false information on the internet is not a new issue, advancements in information technology, such as AI, have changed the methods by which information, including misinformation, is created and distributed (Bentzen, 2018).

Despite the many advantages they offer, AI-powered systems bring up a wide range of ethical concerns and present potential threats to human rights and democratic political processes in the OSCE region. Experts have raised concerns about the lack of fairness in algorithms, which can result in discriminatory practices like racial and gender biases. They are also worried about content personalization leading to partial information blindness and the infringement of user privacy. There is also the issue of potential user manipulation and the use of video and audio manipulation without consent (Frissen, Lakemeyer, and Petropoulos, 2018).

The 2016 US presidential election demonstrated how the growing impact of digital transformation is reshaping democracy and political dynamics. The efficiency and reach of disinformation campaigns and related cyber activities have been enhanced by algorithms, automation, and AI, influencing the formation of opinions and voting decisions of US citizens (Howard, Woolley, and Calo, 2018). As AI continues to play a larger role in our daily lives, algorithms will have more influence, allowing attackers to infiltrate government and corporate networks to steal information, violate individual privacy, and manipulate elections with minimal detection (Fly, Rosenberger, and Salvo, 2018).

This paper acknowledges that AI applications have both positive and negative aspects. Artificial intelligence offers an effective and economical way to combat the spread of misinformation online by automatically identifying and deleting false content. However, it also has its own unforeseen drawbacks. This article outlines disinformation as information that is deliberately created and spread to cause harm or for financial gain, and which is false, inaccurate, or misleading in nature (European Commission, 2018). This paper identifies the differences between disinformation, which is intentionally misleading or inaccurate information, and misinformation, which is unintentionally misleading or inaccurate information.

While there is no universally agreed-upon definition of AI, it can be defined as the capability of a system to carry out tasks that are typically associated with human intelligence, such as learning and decision-making (Fischer, 2018). In simple terms, machine learning (ML) involves using algorithms and extensive datasets to teach computer systems to identify unknown patterns and gain insight from data without direct programming. These systems can learn and extract valuable information autonomously (Fischer, 2019). In this paper, AI refers to the machine learning techniques that are making progress toward artificial intelligence. These techniques include audio-visual analysis programs that are trained using algorithms to detect and control questionable content and accounts to aid human decision-making (Marsden and Meyer, 2019).

II. AI DISINFORMATION SOLUTIONS

Numerous efforts are being made globally to combat disinformation. The most recent data from the Duke Reporters' Lab shows that 194 fact-checking initiatives are operating in over 60 countries (Reporters Lab, 2023). In the last five years, the number of fact-checking initiatives has increased fourfold, from 44 active initiatives in 2014 (Adair, 2014). Until now, fact-checking has primarily relied on human involvement for verifying the accuracy of information. As disinformation proliferates, relying on manual fact-checking is seen as less effective and efficient in examining every piece of online information.

The first solutions for automating fact-checking on the internet were introduced during the past decade. The election of Trump sparked a greater curiosity in the study of AI-aided fact verification. In recent years, there has been a surge in funding allocated to automated fact-checking (AFC) projects aimed at assisting professionals in detecting, confirming, and rectifying social media material. In 2016, the London-based fact-checking charity Full Fact received a €50,000 grant from Google to develop AFC tools, just to mention a few of their projects that year (Jackson, 2016). In 2017, the charity received an extra $500,000 (equivalent to over €447,000) in funding from the Omidyar Network and the Open Society Foundations (Full Fact, 2017). The Chequeado, an Argentine nonprofit organization, and the Duke Reporters' Lab have both developed tools that analyze media transcripts to detect claims that can be fact-checked (Funke, 2019). Until now, nonprofit fact-checking organizations have primarily led the way in developing and putting into action AFC (Graves, 2018).

Initially, AI seems to offer a neutral solution to disinformation, as it is based on computing power rather than human influence. With the increasing precision and capability of AI systems, there is a growing belief that machines can outperform humans in eliminating personal biases from decision-making, where humans have previously struggled.

A. Algorithmic Detection of Disinformation

AI solutions have been highly successful in the field of information operations, specifically in identifying and deleting unlawful, suspicious, and unwanted online content. AI methods have effectively been able to detect and identify fake bot accounts through techniques called bot-spotting and bot-labeling (Rosenbach and Mansted, 2018). Social media companies are helping users by identifying accounts as bots, allowing users to better comprehend the content they are interacting with and assess its accuracy independently (Rosenbach and Mansted, 2018). In terms of their precision, detection algorithms still require further improvements to reach the same level as e-mail spam filter technology.

Internet service providers like Google, Facebook, and Twitter use machine-learning algorithms to detect and eliminate trolls, identify and delete fake bot accounts, and predict and locate sensitive content. Facebook reports that the majority of terrorist-related removals, fake accounts, adult nudity and sexual activity, and graphic violence-related removals are identified by AI tools rather than users. These AI tools are often trained with data from the company's human moderation team (Marsden and Meyer, 2019). Facebook is now incorporating similar technologies to identify false stories and to detect duplicates of stories that have been proven false (Mark Zuckerberg, 2018).

Pattern recognition, closely connected to machine learning and AI, enables the detection of negative online behavior. Drawing inspiration from previous instances where users and fact-checkers have identified inaccurate articles, AI can be utilized to pinpoint patterns of words that indicate false stories (Faesen et al., 2019). Currently, achieving fully automated fact-checking

is still a far-off aspiration. Social media platforms still depend on a mix of AI for routine tasks and human evaluation for the more complex cases, also called hybrid models and filters (Mark Zuckerberg, 2018). In 2018, Facebook hired 7,500 human moderators to examine user content (Lagorio-Chafkin, 2018). Furthermore, the company revealed plans to create an autonomous group for content oversight by the end of 2019. This group will be composed of external individuals, not employees, and will review some of Facebook's most contentious content moderation choices (Harris, 2019).

III. THREATS ASSOCIATED WITH AI TECHNIQUES

The improvements in machine learning technologies will help those combat malicious online information campaigns, but they also have the potential to empower adversaries to expand the reach and impact of their operations soon (Rosenbach and Mansted, 2018). According to Eric Rosenbach and Katherine Mansted of the Belfer Center for Science and International Affairs at Harvard Kennedy School, advancements in technology are expected to rapidly disseminate, giving both state and non-state enemies a technological advantage (Rosenbach and Mansted, 2018). Non-state groups like ISIS have successfully used misinformation for recruitment, but lack the resources to expand their activities (Polyakova and Boyer, 2018). On the other hand, countries like Russia and China allocate significant resources to the development of new technologies (Polyakova and Boyer, 2018).

A. Deep Fakes

Using AI in the creation of audio and video content poses a significant obstacle. The term 'deep fakes' refers to digital audio or visual content that is convincingly realistic and difficult to distinguish from real material. It was first utilized in the film industry. In today's world, they are being used in various online platforms for entertainment, consumer manipulation, and even political and global issues (Bayer et al., 2019). There are currently both paid and free software options available on the market. In the near future, the primary limitation to creating a convincing deep fake will likely be the availability of a substantial training dataset, specifically video and audio of the individual being replicated (Chesney and Citron, 2018).

Many fraudulent videos and images still show clear signs of manipulation that make them easy to detect. By 2030, deep fakes may be virtually indistinguishable from authentic information and more readily created. Distinguishing between genuine and altered content may become nearly impossible for news consumers and increasingly challenging for machines (Bayer et al., 2019).

AI-generated videos have been created to show politicians saying things that they never actually said on multiple occasions. In 2017, computer scientists at the University of Washington created a realistic video of former US President Barack Obama by using a program that could transform audio recordings into a lip-synced video of Obama speaking the words (Suwajanakorn, \Seitz, and Kemelmacher-Schlizerman, 2017). In May 2019, US House Speaker Nancy Pelosi was targeted by a deceptive video that used deep fake technology to make it appear as though she was slurring her words as if intoxicated, similar to the Obama video that was created as a demonstration of the technology's capabilities. Despite not being a deep fake, the video became widely popular on social media, leading to discussions about Pelosi's state of health (O'Sullivan, 2019).

Deep fakes allow malicious individuals to distort reality in two ways: they can use fake videos to sow uncertainty, and they can also pass off genuine information as fake (Chadwick, 2018). As people become more informed about the risks of deep fakes, the use of this technique is expected to become more feasible.

B. Humans "out of the loop" of AI systems

While fully automated fact-checking is still a long way off, as the size of training datasets increases, AI systems will continue to improve and may ultimately be able to take over from human supervision. Bots currently have the ability to enhance existing content, but they are not yet capable of generating original content. The upcoming AI research is concentrating on developing more advanced tools that can comprehend human language, context, and reasoning. AI-powered bots may ultimately take control, capable of creating, convincing, and customizing content for various target audiences (Rosenbach and Mansted, 2018).

It is legally necessary to involve humans in content moderation due to certain legal obligations. A recent study supported by the European Science-Media Hub emphasizes the importance of restricting the automatic implementation of AI-generated solutions to preserve human control and the right to appeal. Bot accounts may still be suspended in large numbers, but there will be proper auditing of the system processes used (Marsden and Meyer, 2019). Involving humans in decision-making can help

challenge the algorithm's decisions and actively review the design, development, deployment, and use of AI applications, making corrections when needed (Panel, 2019).

C. International Relations

Machine learning-driven propaganda can have profound consequences on international relations. They can be mainly summarized as damage to the mutual trust between nations, degradation of information ecosystems, and strengthening the existing geopolitical conflicts. Firstly, they represent the erosion of trust. Machine learning-enabled state-sponsored propaganda smears the information space. When a nation shares unofficial, biased, or even disgraceful information about other nations through digital media, it leads to mutual distrust and enhanced diplomatic tensions. This distrust can undermine the nation's ability to cooperate, decrease the efficiency of diplomatic efforts, and fuel domestic conflicts (SHAH, 2023).

Moreover, the distortion of information ecosystems through machine learning-driven propaganda also makes it impossible to maintain foreign relationships. Through curating content for different groups and changing public opinion, states also win media narratives on the tables. People start seeing a distorted image of states, which not only ruins interactions at home but also taints foreign ones (Durante, 2021). In addition, the rise of state-mandated propaganda through machine learning technologies fuels the fire of the already existing geopolitical conflicts. Through digital platforms, states can push narratives beneficial for their geopolitical activities and boost rivalries, political conflicts, and regional destabilization (Καραγκιόζης, 2020). As such, the spread of polarization narratives, misinformation as well as the manufacturing of public opinion fuels the fire of the existing geopolitical rivalries and escalates the scale of hostilities and confrontation.

IV. SOLUTIONS AND RECOMMENDATIONS

Policymakers, politicians, user communities, fact-checkers, social media platforms, journalists, and other stakeholders are all facing a complicated problem that cannot be addressed with a universal solution. The legislator faces numerous regulatory questions when it comes to using AI to combat disinformation and other online threats. The next part details various technical, legal, regulatory, and educational strategies, both current and developing, that can address the difficulties presented by AI systems in the realm of information operations.

A. De-emphasize and Correct False Content

Social media companies can adjust their news feed algorithms to reduce the impact of false information. Platforms should not only flag and lower the ranking of false content but also display accurate corrections for content that has been proven to be false or misleading on the internet (Avaaz, 2019). The spread of accurate and evidence-based responses is equally important as well. While it may be challenging to attribute online disinformation campaigns, it is crucial to publicly call out the individuals responsible when there is enough evidence and to coordinate efforts to attribute and respond to the disinformation.

B. Promote Greater Accountability and Transparency

The potential prejudices in algorithmic decision systems could be balanced out through the examination of AI systems. Conducting an audit would intensify the examination of both the data and the processes involved in creating models with the data. One instance of this is the Algorithmic Accountability Act, a proposed US regulation that would compel companies to conduct bias and discrimination audits of their AI systems, perform impact assessments, and make necessary corrections (Robertson, 2019). Incorporating ethics training into computer science education, specifically focusing on creating "ethical by design" applications, has the potential to reduce the risk of introducing biases into software code (Gitika, 2019).

Furthermore, there is a growing demand for greater algorithmic transparency, in addition to increased accountability (79). Tech companies and developers have strongly opposed such proposals, contending that unveiling the source code would require them to disclose proprietary information and undermine their competitive edge (80).

C. Technological Remedies for Deep Fakes

Law professors Robert Chesney and Danielle Citron suggest three technological solutions for combating deep fakes. The initial aspect concerns the improved identification of counterfeit materials with the use of forensic tools. Due to the lack of faces with closed eyes in most training datasets, new techniques have been created to identify unusual eyelid movements to enhance the detection of deep fakes. As the deep fake technology continued to advance using a virus and anti-virus approach, once this forensic method became known, the newest deep fake generation quickly adjusted (Bentzen, 2018).

The second technological solution refers to authenticating content before it is disseminated, known as the digital provenance solution (Hosanagar and Vivian Jair, 2018). If digital watermarks are applied to audio, photo, and video content upon

creation, these markers could be used in the future to verify if the content is genuine or a suspected fake (Vincent, 2019). One theoretical technological strategy involves the use of "authenticated alibi services" to track and record an individual's actions, movements, and locations, to provide evidence of their whereabouts and activities at any given moment (Chesney and Citron, 2018). While alibi services and improved lifelogging may be beneficial for high-profile individuals with vulnerable reputations, like celebrities and politicians, they pose significant threats to personal privacy.

D. Regulate Social Media Content

European and American leaders are trying to figure out ways to enforce rules on internet content. Current proposals have either increased the burden and accountability on platforms or given governments more authority over online content. The suggested regulations have presented several obstacles and have encountered opposition from multiple groups, including platforms, civil rights groups, and users.

Social media platforms have implemented technical resources and other skills to combat disinformation through self-regulation and investment in research and development. After the May 2019 European elections, many groups and officials have contended that self-regulation attempts are inadequate (Schaake, 2019). They believe that online platforms, due to their significant influence and data control, should be subject to enforceable regulation, external oversight, and independent impact assessment to ensure that they adhere to fundamental rights in privacy protection and content moderation.

A crucial part of the solution is identifying and defining the roles, responsibilities, and liabilities of the different parties involved. Redistributing the balance of this ecosystem should not involve granting online platforms the power to act as the sole authority in deciding what constitutes truth. This may result in excessive censorship, as platforms may remove legal content out of abundance of caution and to avoid penalties. Smaller platforms with limited resources can't realistically be expected to monitor all content. The same applies to larger Internet companies too: even though Facebook has a user base larger than the entire populations of China and India, its team working on online content safety and security is about the same size as Belgium's police force - just 30,000 people (Harbath and Chakrabarti, 2019). A more effective system is needed to control the online content dominated by inappropriate material, and social media companies need more assistance to handle this issue, which has grown beyond their control.

It's not appropriate for governments to be the only ones responsible for overseeing online content. They frequently fall behind private industry in terms of technical knowledge, infrastructure, and their grasp and assessment of emerging technologies (Harbert, 2018). Frequently, advancements in technology outpace the development of government policies, leading to their rapid obsolescence. Furthermore, governments do not act as impartial data intermediaries. The expansion of government control over data raises worries about laws that could violate civil rights and allow governments to silence free speech for political reasons.

E. Tech Plomacy alongside Diplomacy

Countries can improve the involvement and confidence of various stakeholders by emulating Denmark's example and establishing "tech delegations" or "tech ambassadors", or by delegating these duties to appropriate national authorities. Acknowledging the significant influence of technology companies on global policies, techplomacy has the potential to open up new channels for communication and cooperation between the technology sector and government. Leaders of nations can utilize this partnership to address topics including interference in elections, spreading false information and damaging content, online security, and gathering electronic evidence for policy inquiries (Foremski, 2019). Techplomacy can also encourage tech companies to take on a level of responsibility that matches the significant influence they hold. This can help ensure that companies are meeting their obligations (Brocklehurst, 2019). At a national level, techplomacy involves appointing an individual or entity to oversee and coordinate the activities of current cyber envoys and diplomats. To effectively carry out its duties, the national authority must be granted a clear directive and strong support from the government.

F. Media and Digital Literacy

Technology alone cannot solve the problem of disinformation; other measures are also needed in the battle against it. As stated by Dr. Alexander Klimburg, who leads the Cyber Policy and Resilience Program at The Hague Centre for Strategic Studies, believes that targeting the technical aspects of cyberspace is ultimately a means to target human cognition (Strain, 2019). Therefore, it is important for responses to not only address the technical aspects but also to prioritize the psychological aspect. Eventually, the effectiveness of disinformation lies in its appeal to a receptive audience. Enhancing media and digital literacy is a highly effective and powerful strategy to improve our understanding of information and strengthen our democracies against

online misinformation. Teaching digital and media literacy should start at a young age. It is important to concentrate not only on children but also on election officials, elderly citizens, and marginalized and minority groups (Tsao, 2019). Actually, older adults, who experience the largest disparity in digital skills, are the most inclined to participate in national elections (Tsao, 2019). Social media platforms are putting resources into programs aimed at promoting digital literacy. In 2018, Facebook introduced a Digital Literacy Library in six different languages designed to assist young individuals in developing the ability to assess information thoughtfully and create and distribute content ethically (Facebook, "Digital Literacy Library). In the same year, Twitter collaborated with UNESCO to encourage greater media and information literacy among online users (UNESC, 2019).

G. Cyber Security

There is a growing trend of malicious actors combining disinformation with conventional cyber-attacks. Increasingly, social media platforms are facing more frequent incidents of data breaches, malware attacks, network intrusion, and social manipulation. Breakthroughs in machine learning will allow attackers to automatically create malware and offensive cyber capabilities, elude detection, and circumvent existing defensive measures (Faesen et al., 2019). Protecting the digital systems that governments, businesses, and society rely on, and educating the public about personal cybersecurity, is crucial for effectively defending against disinformation and other cyber threats. Along with vital infrastructure, it is crucial to focus on enhancing the cybersecurity of electoral systems and procedures. National laws, industry initiatives, and globally accepted strategies can all work together to put the required protections in place.

H. R&D for AI

To prevent disinformation attacks, it will be necessary to increase funding for the research and development of artificial intelligence. This will help enhance algorithms and their capacity to identify fake content. The EU has the potential to increase its funding for the intersection of AI and disinformation, going beyond its current initiatives. The European Commission raised the budget for its External Action Service's strategic communications team from €1. 9 million to €5 million in 2019 to combat disinformation and educate the public about its negative effects (European Commission, 2018). Additionally, under the Horizon 2020 Program, the Commission allocated an extra €25 million for research and innovation projects focused on creating tools to detect and analyze content and networks, as well as understanding how information spreads across different platforms.

V. CONCLUSION

As online content expands, automated fact-checking has the potential to be a faster and more cost-effective alternative to human oversight. It could prevent false content from being uploaded or remove it entirely. It could be another five to ten years before AI can accurately differentiate and detect harmful content within various linguistic, cultural, and political contexts without much human intervention (Faesen et al., 2019). Human supervision is crucial as long as AI cannot understand the nuances and complexities of context. We still need to improve detection algorithms to match the accuracy level of e-mail spam filters.

This paper illustrates that the advancement of AI systems can have both positive and negative implications for democratic societies. AI systems will enhance human activities in the digital space by detecting disinformation, bots, modified text and images, and manipulated audio and video material. Conversely, if opposing parties utilize the same technologies, it will enhance their ability to expand the impact and scope of information operations. As conflicts between democratic and authoritarian nations intensify, AI and computational propaganda may be employed as weapons in political warfare against democratic societies. The urgent need for immediate and comprehensive action is highlighted by the threat of state-driven propaganda using machine learning in international relations. Governments, technology companies, civil societies, and international organizations should collaborate to respond to this threat. Improving transparency, promoting media literacy, implementing suitable regulations, and fostering global collaboration will enable them to address the dangers of machine learning-driven propaganda and safeguard the integrity of international relations in the modern digital age.

There should be a stronger international initiative to develop methods for identifying and addressing AI-generated content. Efforts to address deceptive and detrimental content should already be directed towards the upcoming wave of disinformation, powered by AI advancements and decentralized computing, which is projected to circulate more rapidly, be more complex, and more challenging to identify. Government policies are outpaced by the rapid evolution of new technologies, leading to the undermining of existing legal and policy structures. To promote ethical AI usage and proactively address potential misuses, it is essential to foster closer collaborations and dialogue between policymakers, engineers, and researchers (Feldstein, 2019). Recognizing the potential of technology companies, such as social media platforms, to offer effective solutions, governments, and other stakeholders need to work together with them to create improved filters that can stop the dissemination of false information.

Simultaneously, it is essential to conduct further research to comprehend the extent, range, and source of false information, as well as the underlying trends and tactics employed by both state and non-state malicious actors to coordinate and magnify disinformation. Analyzing the truthfulness of material, the flow of information, and the dissemination of false information necessitates increased investment in time, research, tools, algorithms, and data access for independent investigators. Regarding the second point, there are several obstacles and issues associated with releasing datasets, such as privacy concerns, the challenging process of turning datasets into useful data, and the potential for malicious use of the data.

VI. REFERENCES

[1] A Multi-Dimensional Approach to Disinformation: Report of the Independent High Level Group on Fake News and Online Disinformation (Brussels: European Commission, April 30, 2018).

[2] Adi Robertson, "A New Bill Would Force Companies to Check Their Algorithms for Bias," The Verge, April 10, 2019, https://www.theverge.com/2019/4/10/18304960/congress-algorithmic-accountability-act-wyden-clarke-booker-bill-introduced-house-senate.

[3] Alexander Klimburg, The Darkening Web: The War for Cyberspace (Penguin Press, 2017), 55.

[4] Algorithmic Accountability Policy Toolkit" (AI Now Institute, October 2018), https://ainowinstitute.org/aap-toolkit.pdf; Tam Harbert, "Can the Government Keep Up with the Pace of Tech?," Techonomy, November 11, 2018, https://techonomy.com/2018/11/can-government-keep-pace-tech/.

[5] Alina Polyakova and Spencer Phipps Boyer, "The Future of Political Warfare: Russia, the West, and the Coming Age of Global Digital Competition," The New Geopolitics of Europe and Russia (The Brookings Institution, March 2018), https://www.brookings.edu/research/the-future-of-political-warfare-russia-the-west-and-the-coming-age-of-global-digital-competition/.

[6] Avaaz for Facebook, Twitter, and all technology platforms to issue corrections to fake news: "Facebook: Issue Corrections to Fake News!," Avaaz, February 12, 2019, https://secure.avaaz.org/campaign/en/correct_the_record_imp/.

[7] Bayer, Judit, et al. "Disinformation and propaganda–impact on the functioning of the rule of law in the EU and its Member States." European Parliament, LIBE Committee, Policy Department for Citizens' Rights and Constitutional Affairs (2019).

[8] Bhardwaj Gitika, "Women and the Fourth Industrial Revolution," Chatham House, June 25, 2019, https://www.chathamhouse.org/expert/comment/women-and-fourth-industrial-revolution.

[9] Bill Adair, "Duke Study Finds Fact-Checking Growing Around the World," Duke Reporters' Lab, April 4, 2014, https://reporterslab.org/duke-study-finds-fact-checking-growing-around-the-world/.

[10] Brent Harris, "Global Feedback and Input on the Facebook Oversight Board for Content Decisions," Facebook, July 27, 2019, https://newsroom.fb.com/news/2019/06/global-feedback-on-oversight-board/.

[11] Chris Marsden and Trisha Meyer, "Regulating Disinformation with Artificial Intelligence: Effects of Disinformation Initiatives on Freedom of Expression and Media Pluralism" (European Parliamentary Research Service (eprs), March 2019).

[12] Christine Lagorio-Chafkin, "Facebook's 7,500 Moderators Protect You From the Internet's Most Horrifying Content. But Who's Protecting Them?," Inc., September 26, 2018, https://www.inc.com/christine-lagorio/facebook-content-moderator-lawsuit.html.

[13] Clara Tsao, "Disinformation, Global and Continental Case Studies" (May 29, 2019), https://www.disinfo.eu/2019/06/07/eu-disinfolab-annual-conference/.

[14] Daniel Funke, "These Fact-Checkers Won $2 Million to Implement AI in Their Newsrooms," Poynter, May 10, 2019, https://www.poynter.org/fact-checking/2019/these-fact-checkers-won-2-million-to-implement-ai-in-their-newsrooms/.

[15] Database of Global Fact-Checking Sites," Duke Reporters' Lab, n.d., https://reporterslab.org/fact-checking/.

[16] Donie O'Sullivan, "Doctored Videos Shared to Make Pelosi Sound Drunk Viewed Millions of Times on Social Media," CNN, May 24, 2019, https://edition.cnn.com/2019/05/23/politics/doctored-video-pelosi/index.html.

[17] Durante, Tommaso. "International Relations, New Global Studies, and the Epistemic Power of the Image." New Global Studies 15.2-3 (2021): 255-286.

[18] Eric Rosenbach and Katherine Mansted, "Can Democracy Survive in the Information Age?" (Belfer Center for Science and International Affairs, Harvard Kennedy School, October 2018), https://www.belfercenter.org/publication/can-democracy-survive-information-age.

[19] European Media Literacy Week," European Commission, March 25, 2019, https://ec.europa.eu/digital-single-market/en/news/european-media-literacy-week.

[20] Facebook, "Digital Literacy Library," Digital Literacy Library, n.d., https://www.facebook.com/safety/educators

[21] Faesen et al., "Understanding the Strategic and Technical Significance of Technology for Security: Implications of AI and Machine Learning for Cybersecurity."

[22] Faesen et al., "Understanding the Strategic and Technical Significance of Technology for Security: Implications of AI and Machine Learning for Cybersecurity."

[23] Fischer, "Artificial Intelligence: China's High-Tech Ambitions"; Louk Faesen et al., "Understanding the Strategic and Technical Significance of Technology for Security: Implications of AI and Machine Learning for Cybersecurity" (The Hague Security Delta (HSD), 2019).

[24] Full Fact Awarded $500,000 to Build Automated Fact-checking Tools," Full Fact, June 29, 2017, https://fullfact.org/blog/2017/jun/awarded-500000-omidyar-network-open-society-foundations-automated-factchecking/.
[25] James Vincent, "Deepfake Detection Algorithms Will Never Be Enough," The Verge, June 27, 2019, https://www.theverge.com/2019/6/27/18715235/deepfake-detection-ai-algorithms-accuracy-will-they-ever-work.
[26] Jamie Fly, Laura Rosenberger, and David Salvo, "Policy Blueprint for Countering Authoritarian Interference in Democracies" (The German Marshall Fund of the United States (GMF), 2018).
[27] Jasper Jackson, "Fake News Clampdown: Google Gives €150,000 to Fact-Checking Projects," The Guardian, November 17, 2016, https://www.theguardian.com/media/2016/nov/17/fake-news-google-funding-fact-checking-us-election.
[28] Kartik Hosanagar and Vivian Jair, "We Need Transparency in Algorithms, But Too Much Can Backfire," Harvard Business Review, July 25, 2018, https://hbr.org/2018/07/we-need-transparency-in-algorithms-but-too-much-can-backfire.
[29] Katie Harbath and Samidh Chakrabarti, "Expanding Our Efforts to Protect Elections in 2019," Facebook Newsroom, January 28, 2019, https://newsroom.fb.com/news/2019/01/elections-2019/.
[30] Louk Faesen et al., "Understanding the Strategic and Technical Significance of Technology for Security: Implications of AI and Machine Learning for Cybersecurity" (The Hague Security Delta (HSD), 2019).
[31] Lucas Graves, "Understanding the Promise and Limits of Automated Fact-Checking" (The Reuters Institute for the Study of Journalism at the University of Oxford, February 2018).
[32] Marietje Schaake, "Letter Calling for Parliamentary Inquiry Tech Companies – Democracy, Marietje Schaake, June 5, 2019, https://marietjeschaake.eu/en/letter-calling-for-parliamentary-inquiry-tech-companies-democracy.
[33] Mark Zuckerberg, "A Blueprint for Content Governance and Enforcement," Facebook, November 15, 2018, https://www.facebook.com/notes/mark-zuckerberg/a-blueprint-for-content-governance-and-enforcement/10156443129621634/.
[34] Marsden and Meyer, "Regulating Disinformation with Artificial Intelligence: Effects of Disinformation Initiatives on Freedom of Expression and Media Pluralism," 16.
[35] Naja Bentzen, "Computational Propaganda Techniques" (European Parliamentary Research
[36] Olivier Panel, "Algorithms, the Illusion of Neutrality: The Road to Trusted AI," Medium, April 10, 2019, https://towardsdatascience.com/algorithms-the-illusion-of-neutrality-8438f9ca8471.
[37] Paul Chadwick, "The Liar's Dividend, and Other Challenges of Deep-Fake News," The Guardian, July 22, 2018, https://www.theguardian.com/commentisfree/2018/jul/22/deep-fake-news-donald-trump-vladimir-putin.
[38] Philip N. Howard, Samuel Woolley, and Ryan Calo, "Algorithms, Bots, and Political Communication in the US 2016 Election: The Challenge of Automated Political Communication for Election Law and Administration," Journal of Information Technology & Politics 15, no. 2 (April 3, 2018): 81–93.
[39] Questions and Answers – The EU Steps up Action against Disinformation (European Commission, December 5, 2018), http://europa.eu/rapid/press-release_MEMO-18-6648_en.htm.
[40] Robert Chesney and Danielle Citron, "Deepfakes and the New Disinformation War: The Coming Age of Post-Truth Geopolitics," Foreign Affairs, February 2019, https://www.foreignaffairs.com/articles/world/2018-12-11/deepfakes-and-new-disinformation-war.
[41] Rosenbach and Mansted, "Can Democracy Survive in the Information Age?," 12.
[42] Sean Brocklehurst, "Dane against the Machine: Tech-Diplomat Aims to Protect Fundamentals of Democracy in Digital Age," CBC News, February 24, 2019, https://www.cbc.ca/news/technology/national-casper-klyge-tech-ambassador-1.4828015.
[43] Service (eprs), October 2018).
[44] SHAH, Syed Atta Ullah. "Exploring the Confluence of AI and International Relations." Journal of AI-Authored Articles and Imaginary Creations 1.1 (2023): 25-27.
[45] Sophie-Charlotte Fischer, "Artificial Intelligence: China's High-Tech Ambitions," CSS Analyses in Security Policy (eth Zurich, February 8, 2018), https://css.ethz.ch/en/center/CSS-news/2018/02/artificial-intelligence-chinas-high-tech-ambitions.html; "itif Technology Explainer: What Is Artificial Intelligence?" (Information Technology and Innovation Foundation(itif), September 4, 2018), https://itif.org/publications/2018/09/04/itif-technology-explainer-what-artificial-intelligence.
[46] Steven Feldstein, "We Need to Get Smart About How Governments Use AI," Carnegie Endowment for International Peace, January 22, 2019, https://carnegieendowment.org/2019/01/22/we-need-to-get-smart-about-how-governments-use-ai-pub-78179.
[47] Supasorn Suwajanakorn, Steven M. Seitz, and Ira Kemelmacher-Schlizerman, "Synthesizing Obama: Learning Lip Sync from Audio," acm Transactions on Graphics 36, no. 4 (July 2017).
[48] Tom Foremski, "The First Ambassador to Silicon Valley Struggles with 'TechPlomacy,'" ZDNet, February 1, 2019, https://www.zdnet.com/article/danish-ambassador-to-silicon-valley-struggles-with-techplomacy/.
[49] UNESCO Partners with Twitter on Global Media and Information Literacy Week 2018," UNESCO, October 25, 2018, https://en.unesco.org/news/unesco-partners-twitter-global-media-and-information-literacy-week-2018.
[50] Valerie Frissen, Gerhard Lakemeyer, and Georgios Petropoulos, "Ethics and Artificial Intelligence," Bruegel, December 21, 2018, https://bruegel.org/2018/12/ethics-and-artificial-intelligence/.
[51] Καραγκιόζης, Κωνσταντίνος Συμεών. "International relations: technology and new materialism." (2020)