

# Artificial Intelligence and Its Transformative Impact on Modern Politics

**Jinhan Li**

University Place, Washington State, 98467, United States

lijinhanovo@gmail.com

**Abstract.** Since the advent of artificial intelligence (AI) with the Turing test and the Dartmouth Conference, AI has continued to evolve. This evolution has encompassed the introduction of cybernetics, big data, and machine training. However, as the development of artificial intelligence becomes more sophisticated, several issues have begun to emerge. This paper examines the increasing influence of artificial intelligence (AI) in the political sphere over time, specifically examines how AI is being used in the political process, including applications such as sentiment analysis, targeted advertising, and more. It also considers the challenges that have emerged alongside the development of AI, including those related to privacy, voter manipulation, and the transparency of the political process. The paper presents case studies of the 2016 US presidential election and the 2019 Indian general election, which demonstrate how artificial intelligence is exerting a significant influence on democratic political processes, and concludes that as AI becomes increasingly beneficial to human society, concerns are emerging regarding regulations, ethics, political involvement, and other issues. The research addressed the issue of maintaining democratic integrity in politics while advancing artificial intelligence, which offers numerous benefits for modern politics. The paper calls for implementing regulatory policies that would prevent the unethical involvement of artificial intelligence in politics. Additionally, it emphasizes the importance of ensuring that the advantages of artificial intelligence are utilized effectively and fully in the modern political landscape.

**Keywords:** Artificial Intelligence, Transformative Impact, Modern Politics.

## 1. Introduction

As the 2024 U.S. presidential election approaches, marking the 60th in American history, modern political campaigns are increasingly embracing advanced technologies such as big data and, most notably, artificial intelligence (AI). These technologies are emerging as transformative forces in politics, with AI playing a particularly crucial role. Artificial Intelligence is revolutionizing political strategy, acting as both an asset and a challenge, shaping voter outreach, sentiment analysis, and strategic decision-making in unprecedented ways [1].

The foundation of this transformation traces back to Alan Turing, one of the most prominent figures in mathematics and computer science, whose concept of the Turing Test laid the groundwork for AI development. While Turing could not have predicted the profound impact of AI on political processes, his work initiated a journey that has seen AI overcome significant hurdles—such as the AI Winter—to become a powerful tool in today's political landscape [2].

Today, AI is applied across various fields, including politics, where it is redefining how campaigns are conducted. Tools like chatbots, voter sentiment analysis, and AI-driven ad targeting are integral to modern political strategies, signaling AI's growing influence in shaping voter behavior and campaign success. However, as AI continues to expand and reshape politics, it also raises societal concerns about how such technology should be used responsibly, highlighting the need for thoughtful governance in its application.

This paper addresses several pivotal issues about the growing influence of artificial intelligence (AI) in contemporary politics. The paper examines a range of ethical concerns, including the moral implications of utilizing AI as a tool to serve the people, particularly in the context of political campaigns. Furthermore, the paper addresses the regulation of AI in politics, including the prohibition of deep fakes and misinformation, and examines strategies for harnessing the dual role of AI in both enhancing and challenging modern politics. The research significance of the paper primarily concerns the dual role of AI and its transformative potential in modern politics. On the one hand, AI has the potential to improve modern politics, making it more effective, efficient, and transparent. On the other hand, there is a risk that AI will be misused to disseminate misinformation, influence voters, and undermine the integrity of modern politics. Furthermore, it elucidates the advantages and disadvantages based on empirical evidence from real-world case studies in both the 2016 US presidential election and the 2019 Indian general election. It also identifies ethical concerns regarding the misuse of AI and calls for government regulations to prevent such misuse, including voter manipulation, lack of transparency, and inadequate data privacy protection. These regulations are essential to ensure the continued progress and innovation of AI while safeguarding its responsible integration into modern democratic politics.

## 2. Early stage of Artificial Intelligence

### 2.1. *The early foundation - turing test*

Alan Mathison Turing, an English mathematician, logician, and computer scientist, is widely regarded as the father of artificial intelligence and a pioneering figure in the information age. Turing's contributions extend beyond mathematics and cryptography to the foundational development of artificial intelligence (AI). Despite the uncertainties surrounding AI during his time, Turing remained optimistic about its potential, recognizing the transformative impact it could have on society. His perseverance and vision have earned him a lasting legacy in the field of AI.

In 1950, four years before his death, Turing published one of his most influential works *Computing Machinery and Intelligence*, a seminal paper that continues to shape the field of AI today. In this paper, Turing introduced the concept that has become a cornerstone in AI development: the Turing Test. The test proposes that a machine can be considered intelligent if it can convince a human judge of its humanity through conversation. This framework has fundamentally influenced how we define and evaluate AI systems, laying the groundwork for modern natural language processing and machine learning applications.

The Turing Test remains one of the most discussed ideas in AI, shaping research into human-machine interaction and AI's ability to mimic human intelligence. Turing's contributions continue to influence both theoretical and applied aspects of computing, cementing his status as a key figure in the evolution of AI [3, 4].

The contributions of Alan Turing form the cornerstone of modern AI, influencing how machines process information, learn, and interact with humans.

### 2.2. *The birth of AI - dartmouth conference*

The term "artificial intelligence" was first introduced at the Dartmouth Conference by John McCarthy, an American computer scientist and one of the founding fathers of AI. The Dartmouth Conference, now regarded as a foundational event in the development of artificial intelligence, was an eight-week project organized by John McCarthy in collaboration with Marvin Minsky, Claude Shannon, and Nathaniel Rochester. The goal of the Dartmouth Conference was to convene researchers and scholars to investigate,

and its prose statement was that "a significant advance in one or more of these problems can be made if a carefully selected group of scientists work on it together for a summer." And this is the conference that was created to solve the problems of most clarifying and developing ideas about thinking machines, for which John McCarthy chose the name "artificial intelligence" for the new field. The conference saw the introduction of many new concepts and perspectives on AI, which together laid the foundation for the development of the field. These include machine learning, neural networks, and natural language processing, which continue to evolve and shape the landscape of artificial intelligence today. Undoubtedly, the notion of "artificial intelligence" emerged as a central and transformative idea at the conference, making the conference a seminal event for artificial intelligence as a field, and from that point on, the word "AI" began to be an academic discipline [5].

### *2.3. AI development from human brain- neural networks*

In the study of biology, a neural network is a fundamental component of the human brain, composed of interconnected units called neurons. These neurons communicate with one another by transmitting signals, allowing the brain to process information and perform various tasks necessary for the functioning of the human body. Similarly, in the development of artificial intelligence (AI), the concept of neural networks has been pivotal. Several pioneers contributed to this idea, but two key figures stand out: Warren McCulloch and Walter Pitts.

In 1943, McCulloch and Pitts developed the first artificial neuron model, which served as the foundation for artificial neural networks. Their work culminated in the seminal paper "A Logical Calculus of Ideas Immanent in Nervous Activity". This paper introduced a formalized model of how neurons in the brain could work together to process information and execute computations. Their work was biologically inspired, reflecting their ambition to design AI models that could function like human brains by simulating the behavior of neurons [6].

The McCulloch-Pitts neuron was capable of processing binary inputs, such as true or false (or 1 and 0), and though simplistic, it represented a significant breakthrough. The model demonstrated that artificial neurons could, in theory, be used to build complex networks capable of solving problems similar to how the human brain operates. Although limited to binary operations, the artificial neuron model was pivotal in transforming AI models to become more analogous to the human brain in terms of structure and processing [7].

Today, neural networks remain a central concept in AI development, widely regarded as the right direction for the field's future. Their biologically inspired structure and ability to process large datasets have proven indispensable in making AI more adaptive and applicable to real-world problems, demonstrating their lasting importance in advancing AI technologies [8].

## **3. AI in modern politics**

### *3.1. Introduce of AI in political campaigns*

As Artificial Intelligence (AI) becomes more sophisticated, its influence across various sectors continues to expand, including the political arena. From voter sentiment analysis to targeted political advertising and microtargeting, AI is playing a transformative role in political campaigns, reshaping how politicians engage with voters, gather insights, and shape strategies. Its ability to process vast amounts of data with unparalleled speed and precision allows for more effective and targeted political outreach, providing significant advantages in terms of efficiency. Over the years, AI has become increasingly stable, efficient, standardized, and humanized, showcasing its capabilities across various fields. In areas such as healthcare, AI-driven systems are used to diagnose medical issues, while in transportation, AI powers self-driving cars. AI's impact has extended into everyday life through platforms such as AI-powered chatbots like OpenAI's GPT models and personalized learning systems. Similarly, AI is playing a growing role in the political landscape of the United States, where diversity in the electorate presents unique challenges that require innovative technological solutions [9].

One of the most significant ways AI is transforming modern politics is through voter sentiment analysis, which involves AI-powered algorithms analyzing large datasets from sources like social media, public polls, and online forums to gauge public opinion. This process enables campaigns to craft messages that resonate with specific voter groups, thus enhancing political engagement.

### *3.2. Voter sentiment analysis in political campaigns*

Voter sentiment analysis uses AI algorithms to analyze vast datasets derived from social media, public polls, online forums, and news outlets. This AI-powered approach enables political campaigns to gain insights into public opinion and voter preferences more efficiently than traditional methods, free from the biases that can influence human analysis. For example, by tracking social media trends, AI can predict voter behavior, helping campaigns strategize based on public opinion. This information allows campaigns to adjust their messaging, focusing on topics that resonate with different voter segments, and build loyalty among voters by addressing their concerns in real-time. AI's role in this domain is increasingly evident, as more and more elections rely on it to analyze voter concerns on platforms such as Twitter, Instagram, and Facebook [10].

By gathering and analyzing keywords and topics, AI provides campaigns with insights into the most pressing issues for voters. It allows political teams to understand what topics are gaining traction, where voter concerns lie, and how campaign outreach and policy positions can be adjusted to meet voter demands more effectively. Additionally, AI can help politicians understand voter concerns across geographic regions, allowing them to fine-tune their strategies based on local issues.

### *3.3. Targeted political advertising*

Another significant application of AI in political campaigns is targeted political advertising. AI-driven algorithms, particularly those utilized by social media platforms, excel at personalizing content based on individual user behavior, interests, and preferences. These same algorithms can be used to deliver highly targeted political ads to specific voter segments, ensuring that the message resonates with individuals on a personal level [11].

In this regard, targeted political advertising shares some similarities with voter sentiment analysis, as both are data-driven and rely on analyzing public opinion. However, while voter sentiment analysis is more about gathering data from voters, targeted political advertising focuses on delivering tailored messages to the right audience. For instance, a liberal party is unlikely to spend resources advertising to deeply conservative voters. Instead, AI-driven algorithms analyze data on user interests, behavior, geographic location, and political preferences to ensure that ads are directed at persuadable voters or the party's base [12].

One prominent example of targeted political advertising in action was the 2016 U.S. Presidential Election, during which both Donald Trump and Hillary Clinton made use of AI-driven targeted advertising platforms. The Trump campaign, in particular, leveraged data from Cambridge Analytica, a political consulting firm specializing in data analytics. Cambridge Analytica used AI-driven algorithms to analyze voter preferences, fears, and values, then deployed ads tailored to specific voter groups. These ads addressed issues voters were most concerned with, ensuring that the campaign's messages aligned with voters' interests, demographics, and political leanings.

### *3.4. Microtargeting in swing states*

Another key strategy used by the Trump campaign in 2016 was microtargeting swing voters. Microtargeting uses data analytics to deliver personalized content to specific geographic areas, voter segments, or even individual voters [13]. In the context of the 2016 election, this approach was particularly effective in swing states such as Michigan, Wisconsin, and Pennsylvania. By identifying swing voters in these critical states and delivering targeted ads that addressed their concerns and interests, the Trump campaign was able to boost voter turnout in key regions [14].

For voters, this process of microtargeting means that different individuals would receive personalized ads based on their interests. For example, a senior citizen might receive ads focused on healthcare and

senior services, while a young college student might see ads addressing student debt and job opportunities [15].

#### **4. Challenges about usage of AI in modern politics**

##### *4.1. The rising challenge of AI in politics*

The development of Artificial Intelligence (AI) has evolved dramatically over the past century, overcoming technological limitations and becoming integrated into daily life. AI has brought transformative benefits, but as its role in politics deepens, serious ethical concerns are emerging, particularly in relation to data privacy, voter manipulation, and transparency. Addressing these challenges responsibly is essential to maintaining the integrity and fairness of democratic processes [16].

##### *4.2. AI-driven deepfake technology could destroy democracy*

One of the most pressing concerns is the use of deepfake technology in political campaigns. As AI technologies become more ingrained in society, they introduce new challenges that can have far-reaching consequences. While early challenges related to AI revolved around economic and technological limitations, today's challenges are more focused on how to manage its growth and ensure it is used to benefit rather than harm society [17].

A deepfake is an AI-driven algorithm that creates highly realistic synthetic images and videos. Although deepfakes can be used for entertainment or educational purposes, they have also emerged as a serious concern when applied to political campaigns. The rapid development of AI has outpaced the creation of ethical guidelines and legal restrictions, making deepfakes a gray area that poses a risk to the truthfulness and transparency of democratic processes.

Misinformation is one of the greatest threats to democracy because it undermines voters' ability to make informed decisions. When deepfake technology is used to spread false or misleading information, it distorts the political landscape, creating an environment where voters may be influenced by fabricated content [18]. This is particularly concerning during elections, where the right to accurate information is essential for voters to cast their ballots based on a clear understanding of candidates and policies.

During the 2019 Indian general elections, one of the largest democratic exercises in the world, deepfake technology was employed in a controversial manner. A deepfake video produced by the BJP's IT cell featured BJP leader Manoj Tiwari delivering a political message in several different languages. The video was designed to reach a broader audience, overcoming language barriers in a linguistically diverse country like India.

Shortly after its creation, the video went viral across several social media platforms, including WhatsApp, Facebook, and Twitter. While the video was effective in reaching a larger portion of the electorate, it also raised significant ethical concerns. Many believed that although deepfakes could be a valuable tool for outreach, their use must be subject to strict regulations to prevent misinformation and ensure the fairness of political campaigns.

This incident demonstrated that AI tools like deep fakes can be used to manipulate public opinion, potentially threatening the very foundations of democracy. While the use of AI-driven technologies in politics can offer benefits, such as bridging communication gaps, it also calls for the creation of ethical guidelines to prevent its misuse and protect the democratic process.

The use of AI in political campaigns, particularly deep fakes, highlights the urgent need for ethical frameworks and legal regulations. Without adequate oversight, AI technologies could be weaponized to deceive voters and undermine public trust in political systems. To ensure that AI serves society positively, it must be carefully managed and regulated, ensuring that it promotes truthfulness and transparency, rather than threatening democratic ideals.

#### **5. Conclusion**

In conclusion, the development of Artificial Intelligence (AI) has been both transformative and relentless, evolving from its early conception to its integration into everyday life. From overcoming the challenges

of the AI Winter to navigating the ethical dilemmas posed by AI-driven deepfake technology, AI continues to shape society in profound ways. Its potential, particularly in modern politics, is undeniable, as evidenced by its role in voter sentiment analysis, targeted political advertising, and microtargeting in key elections like the 2016 U.S. Presidential Election and the 2019 Indian General Election. AI has demonstrated that it can perform tasks more efficiently and accurately than humans, revolutionizing the way political campaigns are conducted.

However, as AI technologies advance, societal concerns grow, particularly in fields as sensitive as politics, where misinformation or errors could have far-reaching consequences. The misuse of AI, especially with tools like deepfakes, underscores the need for ethical standards and legal regulations governing AI's application. Issues such as data privacy, voter manipulation, and transparency must be addressed to maintain the integrity of democratic processes.

While AI holds great promise, it is essential to strike a balance between innovation and safeguarding democratic values. The future of AI in politics will undoubtedly present both opportunities and challenges, and the key lies in ensuring that AI serves society responsibly. AI is poised to play a significant role in shaping the next chapter of human history, much like the Industrial Revolution did in the past. Rather than halting its growth, governments, and societies must collaborate to ensure AI evolves in ways that benefit both democracy and society at large. Fostering this balance will be crucial as we move forward into the era of AI.

## References

- [1] Perault M., Babwah Brennen J. Generative AI in political ads may amplify bias, and their impact may be stronger on smaller, down-ballot races. Brookings, 2023. <https://www.brookings.edu>
- [2] Turing AM. Computing Machinery and Intelligence. *Mind*, Oxford University Press, Vol. 59, No. 236, October, 1950, pp. 433-460.
- [3] Turing AM. Computing Machinery and Intelligence. *Mind*, 1950. <https://www.jstor.org/stable/2251299>
- [4] Copeland B.J. Alan Turing: Father of the Modern Computer. Oxford University Press, 2012.
- [5] McCarthy J., Minsky M., Rochester N., Shannon C.E. A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence. *AI Magazine*; 2006. <https://doi.org/10.1609/aimag.v27i4.1904>
- [6] LeCun Y., Bengio Y., Hinton G. (2015) Deep Learning. *Nature* 521, pp.436–444.
- [7] Schmidhuber J. Deep Learning in Neural Networks: An Overview. *Neural Networks*, Volume 61, January 2015, pp.85-117.
- [8] Russell S.J, Norvig P. Artificial Intelligence: A Modern Approach. Pearson; 2021. <https://www.pearson.com>
- [9] The impact of generative AI in a global election year. Brookings, 2024. [https://www.brookings.edu/articles/the-impact-of-generative-ai-in-a-global-election-year&#8203;;:contentReference\[oaicite:0\]{index=0}](https://www.brookings.edu/articles/the-impact-of-generative-ai-in-a-global-election-year&#8203;;:contentReference[oaicite:0]{index=0}).
- [10] Lee K. The Role of Twitter in Voter Sentiment Analysis. *Social Media Politics Journal*; 2020.
- [11] Ghosh D., Scott B. Trump 2016 Digital Campaign and the Role of Cambridge Analytica. *Harvard Kennedy School Review*, 2018.
- [12] Isaak J., Hanna M.J. User Data and Targeted Advertising: The Role of AI in Modern Political Campaigns. *Journal of Digital Politics*, 2019.
- [13] Persily N, Tucker J. The Impact of Microtargeting in U.S. Elections. Cambridge University Press, 2019.
- [14] Kreiss D. Microtargeting and Political Campaigns: The Data Revolution in 2016. *Journal of Political Research*, 2017.
- [15] Kaye BK. Microtargeting in U.S. Politics: The Trump Campaign. *Digital Democracy Quarterly*; 2018. <https://digitaldemocracyquarterly.com>
- [16] Floridi L, Cows J. AI and Ethics: A New Frontier in Political Campaigns. *AI & Society*; 2020. <https://link.springer.com>

- [17] Sample I. Deepfakes: Technology that Threatens Democracy. The Guardian, 2020.
- [18] Goodman E. The Disinformation Age: Can Democracy Survive Deepfakes? Brookings Institute, 2020. <https://www.brookings.edu>