

“Artificial Intelligence and Electoral Management in India: Promises, Challenges, And Ethical Dilemmas an Analytical Study”

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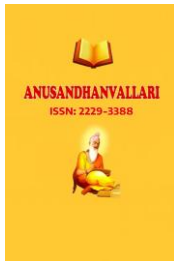
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Abstract

One billion voters shape India’s democratic landscape, where artificial intelligence now plays a growing role. Not just tools but shifts - how votes are managed, campaigns unfold, and people receive information. Behind the scenes, the Election Commission uses smart systems to clean voter lists, match faces, track rules, move goods efficiently, reach speakers of many languages, stop fake duplicates. During the 2024 national vote, seen as a key moment worldwide, political groups turned up the volume on new tech tricks. Messages shaped by algorithms, cloned voices speaking regional dialects, videos made from data - all spread fast. Languages once left out found space through instant translations powered by machines. Monitoring broken rules happened faster thanks to pattern-spotting software scanning social feeds. Even delivery routes for election gear got smarter using predictive models. Yet every gain arrives with questions close behind. Decisions driven by code can hide biases; synthetic speech blurs truth; targeted ads split public attention. While access improves for some, others face confusion when reality feels altered. The balance leans neither fully good nor bad - it simply moves, adapts, evolves. What stands clear is change already underway, not coming soon. Systems learn constantly, so do voters, officials, strategists alike. No pause button exists in this flow. Still, those very abilities bring tough problems. Deepfakes spread false stories. Targeted lies reach people based on hidden data trails. Machines make choices without showing how. Personal information leaks easily. Voter lists get mistakes that silence vulnerable groups. These issues turn into real moral questions. Openness matters. So does blame when things go wrong. Privacy cannot be ignored. Voters must decide freely. Fair treatment is essential - especially where digital skills are scarce. Guidance from the ECI keeps shifting. Rules now demand labels on computer-made images. Broader laws like the IT Act and the 2023 Data Protection law set boundaries too. Together, they shape what oversight looks like today. But gaps remain. What exists falls short. A smarter system built around human rights could help. Laws need teeth. Code needs inspection. The election body must grow stronger inside. Online platforms ought to answer for harm. Millions need clear lessons about voting and tech. Without mixing all these pieces, trust erodes. Democracy risks breaking down. With them? It might just hold.

Keywords: Artificial Intelligence; Election Commission of India; Electoral Management; Deepfakes; Disinformation; Algorithmic Governance; Data Protection; Democratic Integrity.



1. Introduction

Voting pulses through the core of elected government, especially in India where it unfolds bigger than any place else. Handling ballots for nearly a billion people, scattered among countless tongues, landscapes, and reading abilities, demands huge organization - a task given to the Election Commission of India. In recent years, smarter machines have quietly changed how things work; think pattern-spotting software, voice decoding tools, image scanning systems, even programs that write or mimic speech. These shifts touch everything: cleaning voter lists, shaping speeches, spreading messages, watching rallies. Not loud, not flashy - just woven into the process, step by step.

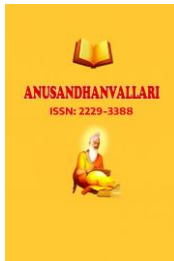
Out of nowhere, the 2024 vote for India's 18th Lok Sabha shifted something. Stretching across seven rounds from April into June, it reached over 968 million eligible voters - more than any before. Almost every big party leaned on artificial intelligence, not quietly but everywhere visible. Spending likely hit tens of millions just to fuel machine-made messages tailored to individuals. Instead of simple ads, campaigns ran fake videos, copied politicians' voices, and auto-translated speeches into many local languages at once. Because so much depended on digital mimicry, observers worldwide took notice. This wasn't only India's moment - it joined nearly sixty national votes that year, drawing scrutiny from groups like the UNDP about how tech reshapes trust in voting.

One moment, AI helps things run smoother and brings people in. Then again, it can nudge opinions quietly, stirring doubt. That tension shapes what this paper digs into. Looking closely, the research traces how AI shows up at every stage of voting seasons in India. Each step gets examined for effects on honesty, openness, how much voters trust results. Three thoughts steer the journey through evidence. First, where could smart systems actually improve election work here? Second, what stumbles might follow their spread? Third, who ends up affected when machines start deciding. Free and fair elections face new challenges when technology shapes voter choices. How should people casting ballots think about their role in this shift. Political groups adapt in different ways, some more carefully than others. Oversight bodies issue warnings, yet enforcement often lags behind change. Constitutional ideals demand balance between innovation and fairness. Recent guidance from election authorities shows concern but not always clear direction. Laws exist, though they do not cover every emerging situation. The country's approach reveals effort, also gaps where rules fail to keep pace. Moments like this test how well systems protect democratic spirit.

2. Mapping Artificial Intelligence across the Electoral Cycle

Looking at how artificial intelligence shows up in elections means splitting things into three parts. Inside the first part - official work - the election body uses tools like software to handle voter lists, check identities, spread staff and gear around, keep track on rules. Then there's the race itself: parties, hopefuls, advisors lean on smart algorithms to shape messages meant to sway people, aim them carefully, send them out fast. The third space floats beyond direct control: online spots, chats, feeds full of posts shaped by machines, shifting what voters notice, believe, react to. None of these exist sealed off - one leaks into another, campaign noise spills into open networks, that spill pushes back on the system trying to run things fairly.

Right now, across its daily operations, the Election Commission keeps turning key tasks digital. One setup called ERONet acts like a shared hub where people update voter lists in many languages, sorting out new entries, fixes, and removing duplicates for more than 900 million registered voters. Lately, a newer move known as ECI Net pulls together what used to be scattered tools - rolling them into one access point useful both for citizens and staff who manage elections. Instead of making choices on their own, these platforms help election officers see data clearly before deciding. Officials have also mentioned testing smart photo checks powered by artificial



intelligence when they clean up voter records, mainly to catch cases where someone appears twice or uses another person's image.

Lately, artificial intelligence shows up more and more in political messaging. Speeches made just for certain crowds pop up fast through smart software. Posters appear quickly too, along with catchy tunes and brief video clips. A person's speaking voice gets copied into different tongues using special cloning tech. Platforms feed voters specific content based on what they like - thanks to behind-the-scenes algorithms shaping who sees what. Yet those very tools also build fake videos that look real. Some pretend famous people said things they never did. Others bring back voices of past leaders long gone. Truth mixes uneasily with trickery these days when messages spread online.

3. The Promises of Artificial Intelligence in Electoral Management

What keeps AI hopeful for India's elections lies mostly in how it might speed things up, bring more people in, leave fewer mistakes behind. Instead of just ticking boxes, machines that learn can spot double names on voting lists, catch odd patterns, guide staff through checks. Since records across regions often repeat names - thanks to old paper methods - a smart way to weed out duplicates, match ID numbers right, makes the final count feel fairer. When data guides decisions, election teams could see ahead: where ballots run short, which areas need extra guards, spots where few show up to vote, places information drives must reach harder.

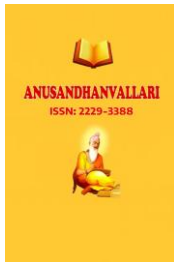
Another hope sits in how people speak and connect. Not one but many tongues shape India's voice - twenty-plus official ones, plus countless local ways of talking. Through smarter software, election details like sign-up steps or voting day alerts travel fast into familiar words. Political groups meet ears where hearts already are, using native sounds instead of distant scripts. Handled with care, these systems ease confusion for village dwellers, those new to reading, and youth marking ballots for the first time. They breathe life into a founding idea: real voting access for every grown citizen, not just on paper but in daily truth.

Watching how elections are run is another key point. When machines keep an eye on spending, online posts, or rule breaking, it gives the Commission tools to handle floods of reports across long voting periods. Spotting harmful speech or false stories fast - provided checks are clear and fair - means problems get dealt with before they spiral past what people alone could manage. Sometimes mood tracking or automated helpers for public concerns make election bodies react quicker when voters reach out.

Now think how machines help politicians talk to people. Messages shaped for different languages reach more voters, spark interest, pull folks into voting, cut expenses for small groups without big budgets. Maybe - just maybe - this makes elections fairer, deepens debate during races. So yes, artificial intelligence brings something solid here, nothing fake. Trouble comes because each benefit hides a twin danger lurking nearby, which the next part begins to untangle.

4. Challenges and Risks

What stands out most is how fast fake videos and audio have spread. In the run-up to the 2024 votes, teams backing candidates shared clips made by machines showing politicians speaking words they never uttered - staged scenes of famous people in heated political moments, even bringing dead leaders back through animation to appear to support living ones. Though nothing fully collapsed as some had predicted, artificial intelligence boosted old habits: tricking people, mocking opponents, pushing slanted stories - while cutting costs to make false material



and hiding its tracks better. It isn't just one lie fooling someone once; it's knowing lies can exist at all that wears down belief in anything seen or heard - an effect called the "liar's dividend," where real proof gets tossed aside as just another forgery.

One tough issue involves highly focused false information. Thanks to vast collections of voter data, insights into how people act, along with automated message creation, political efforts can send customised emotional appeals to very specific groups - usually via private chat systems where few outsiders look. These tactics may deepen divisions tied to community, background, or location while spreading assertions that never face public pushback. Since most of this takes place behind digital doors, oversight bodies, reporters, even competing teams struggle to see what happens - or respond effectively.

Errors happen when governments use artificial intelligence. Systems meant to match faces or remove duplicates aren't perfect. When they make mistakes, real voters might get marked for removal by accident. Migrant workers, low-income people, and those on society's edges often suffer most - many don't have papers ready or know how to fight back online. Some election databases already faced legal fights because of repeated ID numbers. Doubts about whether the tech actually works right have sparked public disputes too. Hidden code inside voting systems can break trust fast. Instead of making things clearer, it sometimes makes everything murkier.

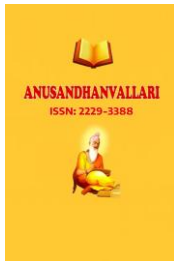
Worries grow when personal information piles up in one place. Think photos, home locations, phone numbers - tied to every eligible voter. This collection isn't just stored; it feeds tools like face-scanning systems, sparking unease. Reports have surfaced about data passing to local authorities or commercial players without clear limits. Once shared that way, tracking how it's used becomes nearly impossible. Over time, what starts as election planning might stretch into unseen monitoring roles. If safeguards are weak - or ignored - the system opens doors. Hackers might break in, sure, but people within the system could also abuse access. Either path puts anonymity at risk, including the fundamental right to a private vote. Security flaws aren't theoretical here - they're ticking issues waiting on response.

One last issue stands out - uneven access. Costly AI systems tend to favor those already equipped with money and expertise, often big firms or established groups. This tilt might stretch the distance between influential players and smaller voices in politics. Even though technology could close gaps, it may widen them instead. When only some gain from new tools, the rest risk falling further behind. Those left outside digital spaces bear the brunt when things go wrong.

5. Ethical Dilemmas

What stands out most isn't just difficulty - it's moral uncertainty that tech fixes can't settle. One core issue ties to openness, also how people casting votes deserve clarity. If messages meant to sway opinion are made or changed using artificial intelligence, telling real from fake grows hard. Clear rules might demand tags showing what AI produced, giving space for personal judgment. Yet tagging systems run into trouble - they get bypassed when markers vanish, go unnoticed, or fail inside walled digital spaces. Even knowing something was manipulated won't erase its impact after it has already shaped views.

Now picture this: freedom to think for yourself runs into trouble when messages are built to pull at your emotions without you noticing. People need space to decide politics on their own terms - calmly, clearly. But tailored content, designed using hidden tricks, chips away at that independence. Instead of conversation, there's pressure - quiet, sharp, aimed right at weak spots in how minds work. Telling fair influence apart from underhanded control? Not simple. Still, trust in voting hangs on getting it right.



Who takes blame when an algorithm decides someone gets removed from voter rolls? Decisions shaped by artificial intelligence blur lines of duty. A government worker follows a suggestion - yet maybe the tech company pulling strings matters more. Then again, what about the online space hosting speech, quietly filtering posts? Hidden formulas owned privately stop people seeing how choices took form. Without clear sight into reasoning, holding anyone answerable slips away.

Here lies a problem about personal space and permission. When voting systems start using face scans along with mass data tracking, they bump into a legal shield - the kind upheld by the nation's top court. People are not truly agreeing when their election records get reused, whether for checking identities, building profiles, or handed off elsewhere. Without strong rules in place, something ordinary like signing up to cast a ballot turns quietly into being watched.

Wrong turns in tech often hit quiet voices first. When systems misfire, people already pushed aside bear the weight - those with little money, newcomers without strong roots, speakers of less common tongues, communities long denied fair standing. A tool built to treat everyone the same can still deepen old rifts where gaps run deep. Fairness demands we watch who stumbles when machines decide. How it shakes out for the weakest matters just as much as how fast it runs.

6. The Regulatory and Governance Landscape

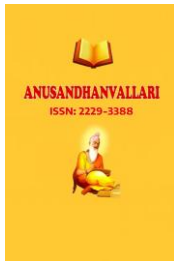
Slow steps mark how India handles AI in voting seasons. The IT Act from 2000 sets wide boundaries for online spaces, along with rules for digital middlemen. When campaigns heat up, the ECI watches speech closely thanks to an informal rulebook that kicks in. Ahead of votes in 2024, warnings went out - no fake videos shaped by machines, no twisted messages built with smart software. Still, much depended on companies policing themselves via loose moral pledges. Punishment? Rare. Many who crossed lines faced little pushback.

Over time, the Commission shifted its stance to favor rules built around public disclosure. Ahead of later state polls, election authorities told political groups, nominees, and supporters they must clearly mark fake images, voice clips, or videos made using artificial intelligence - calling them "AI-Generated," "Digitally Enhanced," or "Synthetic Content" - with certain guidance requiring these tags take up at least part of what viewers see on screen. Such labeling puts India alongside countries adopting similar steps, showing an understanding that openness matters - even if it alone won't stop misuse. From another angle, privacy gets attention through the Digital Personal Data Protection Act passed in 2023, which sets legal ground for handling private information and will shape how voter-related data can be gathered, handled, or distributed when the system runs at full strength.

Still, big holes stay wide open. While rules on AI in voting exist, they carry no legal weight in India. Guidance already issued often goes unenforced. Catching fake digital content during polls stretches the election body's skills thin. Decisions about automated tools inside election systems rarely face outside review. Put another way - systems meant to manage tech shifts lag far behind those very shifts.

7. Towards Responsible Artificial Intelligence in Elections

Building trust in how AI shapes Indian elections means weaving together strong, connected supports. Not just suggestions, but laws must back rules about labeling and behavior - turning advice into clear duties with real consequences, so everyone knows where they stand. Instead of vague promises, there are checks: outside experts should review the ECI's tech, especially programs that match faces or remove duplicates. These systems need



known levels of precision, not guesswork. People must stay involved when decisions affect voter status - no automatic removals without oversight. Each person left off the list by a silent algorithm risk being erased unseen - unless paths exist to challenge errors quickly, fairly. Clarity, fairness, correction - these hold the process steady.

To start, online services need clearer rules they actually have to follow, like showing who pays for political ads, using methods to verify where content comes from, while taking down clearly fake material fast, working alongside the Commission. Next up, the election body needs ongoing backing to build strong teams, use smart detection systems, prepare experts who can track artificial content and how data moves during complex nationwide voting stages. Near the end, strict privacy measures should control access to voter records, limit how that data gets used, block improper transfers, keep personal identity details safe from leaks or mission drift.

People must understand how things work. Without that knowledge, tools or rules alone won't help. Programs teaching voting basics and online skills need to reach villages, using local speech patterns. These efforts should speak directly to those left behind. Groups working on justice, truth verification, research bodies, together with news outlets - each holds a piece of responsibility. One without the others leaves gaps. Trust grows only when many kinds of voices stay active.

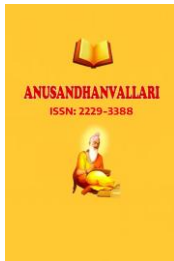
8. Conclusion

Right now, artificial intelligence shapes how India runs its elections - and that grip grows tighter every year. Not good by nature, not bad either: what AI does depends entirely on who controls it and why. Better speed in operations? Support for more languages? Closer watch on processes? Deeper public involvement? These benefits actually exist. They match long-held goals written into the nation's founding vision - elections open to all, run fairly, shaped by people themselves. Yet fake videos spread fast, hidden messages target narrow groups, behind-the-scenes tech stays unclear, personal information leaks easily, gaps in access widen - all these dangers are just as true. Together they shake something vital: belief in the system itself.

Tricky questions about openness, freedom, who answers for what, personal space, fairness - these won't vanish just because we invent smarter tools. Solving them takes real choices made by people in power, updated systems, rules built around human rights. What India has done so far creeps forward slowly, guided by suggestions rather than strong decisions - a start, yes, yet too sluggish given how fast things shift. Moving ahead means shaping careful structures: using AI to deepen democracy, at the same time blocking its ability to weaken trust. Success here shapes more than election honesty within one country; it bends how democracies everywhere survive amid rising machine intelligence.

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