

EDITORIAL

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The Emergence of AI, LLMs, and GPT: Implications for Nature and Social Ethics

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ABSTRACT

The rapid proliferation of Artificial Intelligence (AI), Large Language Models (LLMs), and Generative Pre-trained Transformers (GPT) presents unprecedented opportunities and profound ethical challenges for societies worldwide. In the Indian context — where vast linguistic diversity, socioeconomic stratification, digital divides, and postcolonial histories converge — the deployment of these technologies demands careful scrutiny. This editorial examines the implications of AI emergence for environmental sustainability, social justice, epistemic equity, cultural preservation, and democratic governance in India, calling for a culturally grounded, ecologically responsible, and ethically reflexive framework for AI development and regulation.

Keywords: *Artificial Intelligence; Large Language Models; Environmental Ethics; Algorithmic Bias; Epistemic Justice; AI Governance; India*

1. Introduction

We stand at a remarkable inflection point in human history. The emergence of Artificial Intelligence — and in particular, Large Language Models (LLMs) such as OpenAI's GPT series, Google's Gemini, and Meta's LLaMA — is reshaping how knowledge is produced, distributed, and consumed across the globe. From clinical diagnostics to creative writing, from judicial decision-making to agricultural advisories, AI systems are increasingly embedded in the fabric of social life. In India, a nation of 1.4 billion people speaking over 22 scheduled languages and thousands of dialects, the stakes of this transformation are extraordinarily high.

The promise of AI in India is not imaginary. The government's National AI Strategy and the NITI Aayog's framework, "AI for All," envisions AI as a tool for inclusive growth — improving healthcare delivery in rural areas, enhancing educational outcomes, and powering the digital economy (NITI Aayog, 2018). Yet beneath this optimism lie troubling questions about environmental cost, social exclusion, epistemic imperialism, and the erosion of democratic accountability. This editorial argues that the uncritical celebration of AI masks deep

structural risks, and that India must develop its own ethically grounded, ecologically conscious, and socially just approach to AI governance.

2. The Environmental Footprint of AI: Nature Under Strain

Before any social or ethical analysis, we must confront the material reality: AI is not a disembodied intelligence floating in the cloud. It is a deeply physical technology with a significant ecological footprint. Training large language models requires enormous computational resources, which in turn demand vast quantities of electricity and water. Crawford (2021) has argued convincingly that AI is fundamentally an extractive industry — drawing on rare earth minerals, fossil fuels, and freshwater in quantities that have alarming environmental consequences.

For India, a country already grappling with acute water scarcity, extreme heat events, and a power grid that remains heavily dependent on coal, the expansion of data center infrastructure to support AI workloads poses serious environmental risks. Strubell et al. (2019) estimated that training a single large NLP model can emit as much carbon dioxide as five cars over their lifetimes. As India positions itself to become a global hub for AI development, policymakers must reckon with these ecological costs and ensure that the AI industry operates within planetary boundaries. The principle of environmental justice demands that the communities most vulnerable to climate change — India's coastal populations, its farmers, its urban poor — are not sacrificed to power the aspirations of the AI industry.

3. Social Ethics and the Question of Bias

LLMs are trained on vast corpora of text that, despite their apparent diversity, reflect the ideological and demographic biases of their sources. The internet — the primary training ground for models like GPT — is disproportionately English-language, Western-centric, and shaped by the perspectives of educated, urban, and economically privileged individuals. Bender et al. (2021), in their influential critique of large language models, warned of the dangers of what they call "stochastic parrots": systems that reproduce the biases embedded in their training data without understanding or accountability.

In the Indian context, this raises urgent concerns about caste, gender, and religious bias. Studies have shown that AI systems trained on common internet data replicate casteist and patriarchal stereotypes present in that data. When such systems are deployed in consequential domains — hiring, credit scoring, healthcare triage — they risk institutionalizing discrimination at algorithmic scale. Sambasivan et al. (2021) documented how AI systems deployed in India frequently fail to account for local social contexts, linguistic nuances, and the lived realities of marginalized communities, often exacerbating existing inequalities rather than ameliorating them.

The social ethics of AI in India cannot be separated from the country's constitutional commitments to equality, dignity, and non-discrimination. A truly just AI must be one that is actively designed to challenge, not reinforce, the hierarchies of caste, class, gender, and religion that have historically shaped Indian society.

4. Language, Epistemic Justice, and Cultural Preservation

Language is not merely a medium of communication; it is the carrier of culture, memory, and identity. India's extraordinary linguistic diversity — from Tamil and Telugu to Maithili, Santali, and Bodo — represents an irreplaceable repository of human knowledge and ways of being in the world. The dominance of English-language AI systems poses a profound threat to this diversity. When LLMs perform poorly in regional languages, when their knowledge of local traditions is shallow or distorted, when their reasoning structures implicitly privilege Western epistemological frameworks, they contribute to what philosophers' call "epistemic injustice" — the systematic exclusion of certain knowers and knowledge systems.

Joshi et al. (2020) have mapped the stark inequality of NLP resources across the world's languages, demonstrating that the vast majority of the world's 7,000 languages — including many Indian languages — receive negligible attention in AI research. This "linguistic digital divide" risks rendering hundreds of millions of Indian speakers invisible to the AI-mediated information economy. Initiatives such as the AI4Bharat project at IIT Madras represent important correctives, building language models and datasets for Indian languages (Kakwani et al., 2020). However, these efforts remain underfunded relative to the scale of the challenge.

5. AI, Democracy, and the Governance Challenge

The deployment of AI in governance presents a double-edged challenge. On one hand, AI-powered tools can improve the delivery of public services, enhance tax compliance, and reduce corruption. On the other, they can enable surveillance at unprecedented scale, manipulate public opinion through synthetic media, and erode the deliberative foundations of democratic life. India's experience with Aadhaar — the world's largest biometric identification system — illustrates both the promise and the peril of algorithmic governance. While Aadhaar has facilitated direct benefit transfers to millions of beneficiaries, it has also been implicated in exclusion errors that denied welfare entitlements to the most vulnerable (Khera, 2019).

The rise of deepfakes and AI-generated disinformation poses an existential risk to democratic discourse in a country as diverse and politically charged as India. As Chesney and Citron (2019) have argued, synthetic media technologies threaten to make it impossible for citizens to distinguish authentic political speech from fabrication, with potentially catastrophic consequences for electoral integrity and inter-community relations. India's regulatory frameworks for AI remain nascent. The Draft Digital Personal Data Protection Act and

ongoing discussions around an AI regulatory framework signal growing governmental awareness, but regulatory capacity lags far behind technological development.

6. Towards an Indian Framework for Ethical AI

What might an ethically grounded, culturally rooted, and ecologically responsible AI look like for India? We suggest that any such framework must be built on several foundational commitments. First, it must be participatory: the communities most affected by AI systems — rural populations, Dalit and Adivasi communities, women, linguistic minorities — must have a meaningful voice in the design, deployment, and governance of these systems. Second, it must be ecologically bounded: the development of AI infrastructure must be subject to rigorous environmental impact assessment and must be powered, wherever possible, by renewable energy.

Third, it must be epistemically pluralist: India's AI must make genuine efforts to incorporate diverse knowledge traditions — indigenous ecological knowledge, Ayurvedic medical systems, oral literary traditions — rather than defaulting to Western scientific paradigms as the sole measure of validity. Fourth, it must be accountable: AI systems deployed in consequential public domains must be subject to independent audit, algorithmic impact assessment, and meaningful redress mechanisms for those harmed by algorithmic decisions. Russell (2019) has proposed that AI systems must be designed from the ground up to be aligned with human values — a principle that in the Indian context must be interpreted to include the full plurality of India's value traditions.

7. Conclusion

The emergence of AI, LLMs, and GPT is not merely a technological event — it is a civilizational transformation whose consequences will be felt across every dimension of human life and the natural world. In India, where the promise of technology as a force for emancipation has repeatedly collided with realities of social inequality and ecological fragility, the stakes are especially high. As scholars, educators, and citizens, it is our responsibility to ensure that the discourse around AI is not captured by techno-optimist narratives that serve the interests of a small global elite, but is instead shaped by a commitment to justice, sustainability, and human dignity.

This journal invites contributions that interrogate AI from the perspectives of linguistics, sociology, education, environmental studies, law, and philosophy — particularly those grounded in Indian contexts and epistemologies. The conversation must be broad, the participants diverse, and the commitment to ethical reflection unwavering. The future of AI in India will be determined not by algorithms alone, but by the quality of the social and ethical imagination we bring to bear on them.

References

- Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? In *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* (pp. 610–623). ACM. <https://doi.org/10.1145/3442188.3445922>
- Chesney, R., & Citron, D. (2019). Deep fakes: A looming challenge for privacy, democracy, and national security. *California Law Review*, 107(6), 1753–1819. <https://doi.org/10.15779/Z38RV0D15J>
- Crawford, K. (2021). *Atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. Yale University Press.
- Joshi, P., Santy, S., Budhiraja, A., Bali, K., & Choudhury, M. (2020). The state and fate of linguistic diversity and inclusion in the NLP world. In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics* (pp. 6282–6293). ACL. <https://doi.org/10.18653/v1/2020.acl-main.560>
- Kakwani, D., Kunchukuttan, A., Golla, S., Gokul, N. C., Bhatt, A., Khapra, M. M., & Kumar, P. (2020). IndicNLP Suite: Monolingual corpora, evaluation benchmarks and pre-trained multilingual language models for Indian languages. In *Findings of EMNLP 2020* (pp. 4948–4961). ACL. <https://doi.org/10.18653/v1/2020.findings-emnlp.445>
- Khera, R. (2019). *Dissent on Aadhaar: Big data meets big brother*. Orient BlackSwan.
- NITI Aayog. (2018). National strategy for artificial intelligence #AIForAll. Government of India. <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>
- Russell, S. (2019). *Human compatible: Artificial intelligence and the problem of control*. Viking.
- Sambasivan, N., Arnesen, E., Hutchinson, B., Doshi, T., & Prabhakaran, V. (2021). Re-imagining algorithmic fairness in India and beyond. In *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* (pp. 315–328). ACM. <https://doi.org/10.1145/3442188.3445896>
- Strubell, E., Ganesh, A., & McCallum, A. (2019). Energy and policy considerations for deep learning in NLP. In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics* (pp. 3645–3650). ACL. <https://doi.org/10.18653/v1/P19-1355>