

AI-DRIVEN ACADEMIC RESEARCH: LEGAL AND ETHICAL CHALLENGES IN THE DIGITAL ERA

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ABSTRACT

The use of Artificial Intelligence (AI) in academic research has grown rapidly in recent years, changing the way researchers conduct and present their work. AI tools can assist with tasks such as analyzing large datasets, reviewing literature, and identifying patterns, making research more efficient and accessible. However, the increasing reliance on AI also raises several legal and ethical concerns. Issues relating to authorship, intellectual property rights, data privacy, algorithmic bias, and research integrity have become important areas of discussion. At present, there is no comprehensive legal framework that specifically regulates the use of AI in academic research, leading to challenges in ensuring accountability and transparency. This paper examines these concerns through an analytical and comparative study of existing laws and emerging international approaches. It argues that effective governance mechanisms are necessary to promote responsible innovation while safeguarding academic integrity, fairness, and respect for human values.

Keywords: Artificial Intelligence, Academic Research, Intellectual Property, Research Integrity, Data Privacy.

1. INTRODUCTION:

Academic research stands at a pivotal juncture. Artificial Intelligence, once confined to narrow computational tasks, now permeates virtually every stage of scholarly inquiry from the automated survey of existing literature to the statistical modelling of experimental outcomes and the generation of research drafts. This transformation is particularly visible in scientific, medical, and legal research, where AI tools are capable of processing datasets and case-law repositories that would take human researcher years to analyse.

The legal order, however, has not kept pace with this technological shift. Foundational statutes such as the Copyright Act, 1957,¹ the Patents Act, 1970,² and the Information Technology Act, 2000³ were drafted in an era that contemplated human authorship and

¹The Copyright Act, 1957 (Act 14 of 1957).

²The Patents Act, 1970 (Act 39 of 1970).

³The Information Technology Act, 2000 (Act 21 of 2000).

human agency as the sole objects of legal regulation. Similarly, norms of academic ethics authorship declaration, peer review, citation practice presuppose that the intellectual contribution being acknowledged flows from identifiable human minds.

The growing deployment of AI in research thus produces a governance vacuum. Questions of who owns the copyright in an AI-assisted paper, who bears liability for errors in AI-generated analysis, and what constitutes research misconduct when a machine produces the text of a scholarly article remain largely unanswered in Indian law. The present paper investigates these questions, maps the emerging international regulatory landscape, and proposes concrete recommendations for Indian legal and institutional reform.

2. RESEARCH QUESTIONS:

The present study is guided by the following research questions:

- How is Artificial Intelligence affecting the way academic research is being done and disseminated, and what are some of the primary uses of AI in legal and scientific research?
- What unique issues with regard to copyright laws, privacy protection, and liability can crop up with the implementation of AI in academic research?
- What unique ethical issues with respect to authorship, plagiarism, and data manipulation come with the use of AI in academic research?
- Is the current legal framework in India sufficient to regulate such matters involving AI in academia, or do changes need to be implemented?

3. RESEARCH METHODOLOGY:

This study utilizes a doctrinal and analytical research methodology to investigate the legal and ethical issues with the use of Artificial Intelligence in the academic research sector. This study relies on, primarily, secondary sources, with a considerable amount of focus dedicated to statutes, judicial decisions, articles, books, and reports, including government and policy reports, as well as international AI governance guidelines. A comparative method was also adopted in this study to analyze the regulatory and best practices frameworks in India, the European Union, the United Kingdom, and the United States. This study also examines issues relating to authorship and IPR, the privacy of research

data, bias in research and AI, the transparency of research, and research integrity and evaluates the existing legal frameworks' deficiencies in addressing the cited issues with the use of AI in academic research.

4. CONCEPT AND SCOPE OF AI IN ACADEMIC RESEARCH:

The term Artificial Intelligence (AI) refers to the ability of computers to complete complex tasks similar to those that humans solve using their intelligence, including learning, reasoning, problem-solving, and understanding and processing human language. Generative and large-scale language AI have the ability to draft academic papers, conduct legal research, and classify legal information and documents for researchers. AI technologies can also be used to draft research abstracts and complete literature reviews.

AI is a very important component of almost any phase in the research process. Systematic literature reviews, bibliometric studies and the processing of large volumes of text are all done using natural language processing techniques. Legal AI tools can be used to conduct case law analysis, assist in the interpretation of statutes, and be employed for research in areas of predictive analysis, experimental design, plagiarism detection, and peer reviews. Generative AI tools are also great for rapidly completing research, optimal design, and summarizing, as well as for data visualization and text generation.

The rising significance of AI in India can be seen in various policy measures including NEP 2020 and National Strategy for Artificial Intelligence by NITI Aayog (2018). Both of these policies recommend integrating AI into higher education and research. As a consequence, many universities and publicly-funded institutions of research have integrated AI technology in the form of platforms used for writing grant proposals, managing publications and assessing research output. Although this advancement has led to new avenues for enhanced productivity and quality in academia, there are several issues associated with the integration of AI into research. The primary issue is the fact that legal, ethical, and regulatory standards for the usage of AI have not advanced on par with its integration into academic research.

5. BENEFITS OF AI IN ACADEMIC RESEARCH:

Incorporating AI has provided numerous significant benefits for scholarly research. The first advantage of AI is that it saves time and effort when conducting a literature

review. Using AI, the scholar will not need to comb through thousands of books and papers in search of relevant publications. Another benefit of AI is that it helps in increasing the quality of scholarly work because AI can help identify discrepancies in the data, detect anomalies, and even locate mistakes made during analysis.

AI also promotes interdisciplinary research since it allows scientists from one subject area to gain insight into another field. For instance, a researcher in the law field will be able to utilise AI software to conduct an analysis of a vast database or examine findings from other areas, such as public health or information technology. Furthermore, the implementation of AI helps researchers from poorer countries to have better access to research tools since some countries lack adequate research facilities; an example would be India.

In the area of legal research, AI may be helpful in analyzing large amounts of case law, statutes, and legal literature from other jurisdictions, thus allowing for better comparative and doctrinal analysis. In general, there is room for using AI in order to make academic research faster, accurate, and available. Nevertheless, it should be noted that this is possible only through proper use of AI, which requires certain regulations and ethics.

6. LEGAL CHALLENGES IN AI-DRIVEN ACADEMIC RESEARCH:

A. Intellectual Property Rights

Copyright law in India vests protection in original literary works, the authorship of which must, under the general scheme of the Copyright Act, 1957, be traced to a human creator. Section 2(d) of the Act defines ‘author’ of a literary work as ‘the author of the work,’ a definition that, read in conjunction with Section 57 on moral rights, presupposes a natural person capable of exercising rights of paternity and integrity. The Delhi High Court affirmed this human-centred conception of authorship in *Anil Gupta v. Kunal Dasgupta*,⁴ holding that copyright protects the intellectual labour of an identifiable individual.

This framework fails to provide clear answers when an AI system generates a substantial portion of a research publication. The question of whether the researcher who prompted the model, the institution that licensed the tool, or the software developer who trained the model holds copyright in the output remains legally unresolved in India. The

⁴*Anil Gupta v. Kunal Dasgupta* (2002) 24 PTC 1 (Del HC).

United Kingdom has addressed an analogous problem through Section 9(3) of the Copyright, Designs and Patents Act, 1988, which vests authorship of computer-generated works in the person who makes the necessary arrangements for the work's creation. India has no equivalent provision, and legislative amendment or authoritative judicial clarification is urgently required.

B. Data Privacy and Data Protection

AI-driven research frequently involves the processing of large volumes of personal data. The Digital Personal Data Protection Act, 2023 establishes a consent-based framework and recognises 'legitimate uses' of data including research purposes, but provides limited guidance on the obligations of researchers who deploy AI tools capable of re-identifying anonymised subjects, aggregating sensitive inferences, or transferring data to foreign servers. The absence of a mandatory Research Ethics Board requirement in Indian law comparable to the Institutional Review Board system in the United States compounds this vulnerability. Researchers using globally hosted AI platforms must also navigate the extraterritorial application of the GDPR, which imposes data minimisation, purpose limitation, and data protection impact assessment requirements for automated processing of personal data of EU-based individuals, regardless of where the processing occurs.⁵

C. Liability and Accountability

When AI-generated research outputs contain errors, fabricated citations a documented phenomenon termed 'hallucination' in large language models or methodological flaws, the question of legal liability becomes pressing. Neither the IT Act, 2000 nor any other Indian statute specifically addresses the liability of AI developers, deployers, or users for inaccuracies in AI-generated research. Academic publishers and institutional policies provide only partial solutions: they may require authors to attest to the accuracy of their work, but such attestation does not resolve the underlying question of liability distribution between the human researcher and the AI system's developer.

7. ETHICAL CHALLENGES IN AI-DRIVEN ACADEMIC RESEARCH

A. Authorship and Attribution

⁵GDPR (n 7), Arts. 5, 9, 35.

The ethics of academic authorship rest on the premise that contributors to a published work may be identified, held responsible for its contents, and credited for their intellectual contribution. Major publishers and the International Committee of Medical Journal Editors (ICMJE) have affirmed that AI tools do not qualify as authors because they cannot assume accountability for a work, cannot consent to publication, and cannot be held responsible for errors.⁶ However, the failure to disclose significant AI contributions in a manuscript constitutes a form of misrepresentation that undermines the trust upon which scholarly communication depends.

Indian universities and the University Grants Commission (UGC) have not yet issued binding policies on AI disclosure in academic submissions. In the absence of such regulation, researchers face ambiguity about the extent to which AI use must be declared an ambiguity that some may exploit and others may navigate with unnecessary caution.

B. Algorithmic Bias and Fairness

AI systems trained on existing scholarly corpora inherit and may amplify the biases embedded in those corpora. A literature synthesis tool trained predominantly on English-language publications from North American and European journals will systematically underrepresent scholarship from the Global South, including the rich body of Indian legal and social science research. This algorithmic bias does not merely distort individual research outputs; over time, it can entrench structural inequalities in the global production and recognition of knowledge.

Algorithmic bias also affects the application of AI in peer review and grant assessment. If AI screening tools favour certain methodological approaches, theoretical frameworks, or institutional affiliations, they may suppress heterodox scholarship and disadvantage early-career researchers from less prominent institutions outcomes that are antithetical to the norms of merit and academic freedom.

C. Research Integrity and Academic Misconduct

The opacity of many AI models their inability to reliably explain the reasoning behind their outputs poses a fundamental challenge to the reproducibility requirement of scientific research. A researcher who relies on AI to generate statistical analyses or legal conclusions but cannot independently verify or explain those outputs is, in effect,

⁶ICMJE, Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (updated May 2023), s. II.A.

publishing work whose epistemic foundations are not fully understood. This opacity is incompatible with the transparency norms that give academic knowledge its authority. Furthermore, the ease with which AI tools generate plausible-sounding but factually incorrect citations and case references a problem well-documented in legal practice⁷ creates specific risks in legal scholarship. Fabricated or inaccurate citations, if undetected, can corrupt the doctrinal foundations upon which subsequent scholarship and even judicial reasoning may rely.

8. INTERNATIONAL PERSPECTIVES AND REGULATORY APPROACHES:

The international response to AI governance has evolved rapidly. The UNESCO Recommendation on the Ethics of Artificial Intelligence (2021), adopted by all 193 Member States, articulates principles of transparency, accountability, privacy, and non-discrimination as foundational norms for AI governance, and calls upon States to develop national legal frameworks consistent with these principles. The OECD AI Principles (2019) similarly emphasise explainability, robustness, and accountability in AI system design and deployment.

The European Union's AI Act (2024) represents the most comprehensive binding regulatory instrument to date. It classifies AI systems according to risk levels unacceptable, high, limited, and minimal and imposes conformity obligations, transparency requirements, and human oversight mandates on high-risk systems, including those deployed in education and scientific research.⁸ The Council of Europe's Framework Convention on Artificial Intelligence (2024), the first binding international treaty on AI, requires State Parties to ensure that AI systems respect human rights, democracy, and the rule of law.⁹

In India, NITI Aayog's Responsible AI for All document (2021) and the Ministry of Electronics and Information Technology's draft AI governance framework provide voluntary principles but lack binding legal force.¹⁰ No sector-specific regulation addresses

⁷Mata v. Avianca Inc., 22-cv-1461 (SDNY 2023) (US District Court sanctioning counsel for submitting AI-generated fictitious citations).

⁸EU AI Act (n 8), Arts. 9–15.

⁹Council of Europe Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law (CETS No. 225, 2024).

¹⁰NITI Aayog, Responsible AI for All: Approach Document for India (Ministry of Electronics and Information Technology, 2021).

AI use in academic research. The contrast with the EU's binding framework highlights the urgency of Indian legislative action.

9. FINDINGS AND ANALYSIS:

Firstly, it emerges that there is no provision in the Indian intellectual property law relating to the authorship and ownership of the AI-generated research papers and articles. This means that there is no legal basis for determining ownership rights on the AI-generated research products, exposing them to problems such as inadequate protection as well as excessive claims of protection where researchers claim copyright over the work that was done by the AI but not by themselves.

Secondly, the Indian personal data privacy regulations provided by the DPDPA 2023, although offering the basic principles that may help regulate AI-assisted research, do not provide an adequate legal framework for addressing the special risks that may arise during the use of such technology during the processing of research data, for example, re-identifying research participants, cross-border transmission of research data, and automatic inference creation from such data.

Thirdly, there are no statutes in India that can help determine who should be liable for errors and mistakes in the AI-generated research output including the fabrication of sources and incorrect analyses of the research data.

Fourthly, the ethical standards surrounding the use of AI for authoring and peer review are not unified or consistently enforced in Indian universities. In the absence of binding UGC guidelines, universities' responses have been from outright prohibition of AI usage to total permissiveness in its use, neither of which is helpful in improving the quality of research in any way.

Fifth, India's voluntary AI governance mechanisms fall far behind binding international agreements such as the EU AI Act and the Council of Europe Framework Convention on AI. Such a difference not only leaves Indian research organizations susceptible to regulatory challenges during collaboration with other nations, but also misses out on opportunities in shaping international AI ethics norms from an Indian point of view.

10. SUGGESTIONS AND RECOMMENDATIONS:

On the basis of the preceding analysis, the following recommendations are advanced:

- **Amending the Act through a Legislation for the Copyright Act, 1957:** The legislature needs to amend the provisions of the Act to make specific reference to AI assisted works with an acknowledgment that the copyright for AI assisted work belongs to the human researcher, who directs and evaluates the AI contribution. Such amendment can be initiated by considering Section 9(3) of the UK Copyright, Designs and Patents Act, 1988.
- **Research Specific Guidelines under the DPDPA 2023:** The Central Government needs to invoke its powers under the Digital Personal Data Protection Act, 2023 to formulate research specific data protection guidelines, including mandatory DPIAs in AI mediated research processes, anonymization norms, and cross border transfer prohibition on research datasets.
- **UGC Regulations for Use of AI in Academic Research:** There should be regulations from the University Grants Commission which would apply to all universities affiliated to it and deemed universities which require (a) disclosure of AI tool use in academic submissions; (b) ban on naming AI as an author; (c) declaration of researcher's critical supervision of AI tool; and (d) formation of AI ethics committees which can investigate AI-related academic misconduct.
- **National Framework for Governance of AI in Academic Research:** It is important that there should be a national framework for governance of AI in academic research involving the Ministry of Education, Ministry of Electronics & Information Technology and other research funding councils working under the purview of these ministries which can govern the use of AI in academic research according to the UNESCO/OECD principles.
- **Capacity Building for Critical AI Literacy:** Research funding agencies like DST, DBT and ICSSR must make it compulsory for research scholars to undergo AI literacy training as a requirement for receiving grants.

11. CONCLUSION:

AI is changing the process of creating, testing, and sharing academic knowledge, and is no longer a developing technology in the field of academic research. With the increasing presence of AI in research, the laws and regulations surrounding research will have to

adapt as well. As mentioned in this paper, the current Indian laws fail to adequately provide solutions to the intellectual property, data protection, and the legal responsibilities of AI and research. Combined, these issues create very real problems for those who want to ensure that AI and research are used responsibly and ethically.

The answer to these new legal puzzles is not to completely negate the use of AI in research, but rather to create a new framework in which the use of AI in research upholds the values of research such as dignity, rigor, and fairness. In the case of Justice K.S. Puttaswamy v. Union of India,¹¹ the Supreme Court of India recognized the right to privacy as a fundamental right, and the right of every person to dignity and autonomy. This upholds the dignity of the research subject, and should be used to regulate AI and research in the Indian legal framework. Following the rapid development of AI and the ways in which it is used in research, both innovations and ethics must develop simultaneously.

¹¹ Justice K.S. Puttaswamy (Retd.) v. Union of India (2017) 10 SCC 1.

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