



# Predatory Journals in the Era of Digital Technology: the Impact of Artificial Intelligence (AI) on Identification

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**Abstract:** Predatory journals pose a serious risk to academic integrity in today's digital landscape, exploiting open-access publishing models to mislead researchers and spread low-quality or fraudulent research. These journals often lack adequate peer review, editorial supervision, and transparency, which undermine the trustworthiness of scientific literature. The swift increase in predatory publishing has created a demand for sophisticated detection methods, and Artificial Intelligence (AI) has become crucial in recognizing and addressing these misleading practices. AI-based approaches, such as machine learning algorithms, natural language processing (NLP), and automated credibility evaluations, are increasingly being utilized to assess journal characteristics, uncover fraudulent editorial boards, and spot fictitious impact factors. These technologies can effectively differentiate between legitimate and predatory journals by analyzing important aspects like indexing claims, peer-review transparency, and publication trends. Moreover, AI-enabled tools can streamline the large-scale screening of journals, offering researchers and institutions dependable ways to verify the authenticity of journals. Although advancements in AI-based detection have been made, challenges persist, including the adaptability of predatory journals, the emergence of new fraudulent methods, and the necessity for ongoing model training. Collaborative initiatives among researchers, publishers, and AI developers are vital to improve detection accuracy and uphold the integrity of academic publishing. This paper investigates the role of AI in identifying predatory journals, evaluates the effectiveness of existing detection techniques, and considers the future possibilities of AI-driven solutions in protecting scholarly research.

**Key words:** Predatory Publications, Artificial Intelligence, Machine Learning, Scholarly Publishing, Open Access, Journal Identification

**Introduction:** The swift growth of digital publishing has transformed the way academic communication occurs, making research more reachable than it has ever been. Nonetheless, this change has also led to the emergence of predatory journals—dishonest or subpar publications that take advantage of the open-access model for profit while failing to maintain strict peer-review and editorial standards. These misleading journals represent a serious risk to academic integrity, resulting in misinformation, wasted resources, and harm to researchers' reputations. Artificial Intelligence (AI) has become a significant asset in identifying and addressing predatory journals. By utilizing sophisticated machine learning techniques, natural language processing (NLP), and data analytics, AI can evaluate the legitimacy of journals by examining a range of factors, such as citation trends, the credibility of editorial boards, peer-review processes, and linguistic quality. AI-based detection systems can assist researchers, institutions, and publishers in distinguishing between credible and predatory sources, thereby preserving the integrity of academic publishing. This paper delves into the traits of predatory journals, the difficulties they present in the digital era, and the innovative function of AI in identifying and reducing their effects. By harnessing AI technologies, the academic community can establish stronger defenses against misleading publishing practices and promote a more transparent and trustworthy research landscape.

The rise of digital publishing has greatly altered the academic field, making research more accessible and widely shared. However, this transition to digital has also led to the emergence of predatory journals—publications that take advantage of the open-access model for profit while neglecting proper peer-review practices and editorial quality. These journals mislead researchers, undermine the credibility of academic literature, and facilitate the spread of misinformation. In light of the growing number of predatory journals, there is an immediate need for effective methods to detect and reduce their impact. Artificial Intelligence (AI) has surfaced as an essential resource in the identification and prevention of these fraudulent activities. Through the use of machine learning, natural language processing (NLP), and data analysis, AI-driven tools can evaluate various indicators to distinguish between authentic and predatory journals.

**Predatory Journals:** Predatory journals are misleading or subpar academic publications that take advantage of the open-access model for profit while neglecting proper editorial and peer-review practices. They often guarantee fast publication in return for hefty fees but do not offer the thorough quality evaluations that are expected from genuine scholarly journals. A predatory journal is an outlet that capitalizes on the academic publishing system by charging authors substantial fees without delivering authentic peer review, editorial control, or quality assurance.

These journals frequently misrepresent their impact, lack clarity, and prioritize financial gain over academic ethics. Predatory journals often demonstrate the following traits:

1. Absence of thorough peer review or editorial management.
2. Persistent solicitation of manuscripts from researchers.
3. Deceptive or inaccurate claims regarding impact factors and indexing.
4. Inclusion of unqualified or fictitious members on their editorial boards.
5. Elevated article processing charges (APCs) without providing effective publication services.

These journals frequently target novice researchers, especially in underdeveloped areas, offering swift publication but ultimately harming their academic reputation.

**Recognizing Predatory Journals:** It is essential to identify predatory journals to uphold academic integrity and ensure that researchers publish in trustworthy venues.

Here are important strategies to differentiate predatory journals from credible ones:

### 1. Analyzing Journal Attributes

- Predatory journals frequently assert that they perform peer reviews but may accept submissions within days without providing substantial feedback.
- They might inaccurately promote inflated impact factors or claim inclusion in reputable databases such as Scopus or Web of Science.
- Certain journals may feature editorial board members who are unqualified, unknown, or even fabricated.
- Genuine journals explicitly outline their peer-review methodology, editorial criteria, and indexing details, while predatory journals tend to offer unclear or deceptive information.

### 2. Evaluating the Journal's Website and Contact Details

- Numerous predatory journals possess unprofessional websites characterized by broken links, absent policies, and poorly composed content.
- Trustworthy journals typically use institutional or publisher-specific email addresses (e.g., editor@reputablejournal.com), while predatory journals often rely on generic email services like Gmail or Yahoo.

### 3. Verifying Indexing and Accreditation

- Confirm in Authoritative Databases: Cross-verify whether the journal appears in Scopus, Web of Science, PubMed, DOAJ, or other esteemed platforms.
- Check for Affiliation with Recognized Bodies: Reliable journals are often linked with organizations such as the Committee on Publication Ethics (COPE).

#### 4. Evaluating Publication Fees and Solicitation Methods

- Unreasonable or Concealed Article Processing Charges (APCs): Predatory journals often require exorbitant fees without delivering adequate editorial services.
- Persistent Email Solicitations: They frequently send unsolicited requests for manuscript submissions, often accompanied by inflated promises of rapid publication.

#### 5. Leveraging AI and Online Resources

- Think.Check.Submit: A verification checklist for journals prior to submission.
- Cabell's Blacklist: A subscription-based database that lists predatory journals.
- AI-Powered Detection Tools: Systems that utilize machine learning and NLP to assess journals for predatory practices.

#### The function of Artificial Intelligence (AI) in identifying Predatory Journals:

Artificial Intelligence (AI) is vital for recognizing predatory journals by examining patterns, spotting fraudulent activities, and helping researchers differentiate between credible journals and those that are misleading. AI-driven systems provide a scalable and impartial alternative to traditional detection techniques. Prominent AI-based methods for pinpointing predatory journals include:

#### Applications of Artificial Intelligence (AI) in Identifying Predatory Journals

##### 1. Analysis of Text and Language

- AI-driven Natural Language Processing (NLP) can examine journal websites, correspondence, and published works to identify poor grammar, plagiarism, or deceptive claims.
- Detects standard phrases or vague descriptions that are often used by predatory publishers.

##### 2. Journal Indexing and Verification of Authenticity

- AI can verify a journal's indexing assertions (e.g., whether it is genuinely included in Scopus, Web of Science, DOAJ).
- Assists in confirming the legitimacy of impact factors by cross-referencing data from credible databases.

##### 3. Recognition of Patterns in Editorial Boards

- AI can evaluate the qualifications of editorial board members and uncover fraudulent or nonexistent scholars.
- Detects duplicate or counterfeit journal titles that imitate established legitimate journals.

#### 4. Machine Learning for Detection of Fraud

- AI systems can be trained to distinguish between legitimate and predatory journals based on various characteristics (e.g., peer review claims, publication fees, response times).
- Identifies dubious citation practices (e.g., excessive self-citations, citation cartels).

#### 5. Analysis of Emails and Solicitation

- AI has the capability to flag unsolicited or overly aggressive solicitation emails from predatory publishers.
- Evaluates the sender's reputation and the structure of the email for indicators of scams.

#### 6. AI-Driven Resources for Identifying Predatory Journals

- Cabell's Blacklist – Incorporates AI and expert evaluation to compile a list of predatory journals.
- Beall's List (updated with AI) – Certain tools utilize AI to sustain and refresh Jeffrey Beall's initial list.
- Retraction Watch Database – AI assists in pinpointing trends in retractions associated with fraudulent publishers.

AI greatly improves the detection of predatory journals by automating the identification of fraud, verifying authenticity, and offering data-informed insights for researchers and academic institutions. Nevertheless, human oversight remains essential to enhance AI models and guarantee precision in spotting deceptive practices.

#### Implications and Future Directions:

Incorporating AI into the battle against predatory journals can greatly improve academic integrity. Nevertheless, challenges persist, particularly the necessity for ongoing updates to models to match the changing strategies of predatory journals. Joint efforts among AI developers, academic institutions, and publishing entities are crucial in fine-tuning detection algorithms and establishing worldwide standards for evaluating journals. How to Steer Clear of Predatory Journals

#### 1. Confirm the Journal's Indexing and Credibility

- ✓ Review Reliable Databases:
  - Scopus (Scopus Journal Finder)
  - Web of Science
  - Directory of Open Access Journals (DOAJ) (doaj.org)
- ✓ Check Cabell's Blacklist: Cabell's International offers a subscription-based list of predatory journals.
- ✓ Utilize Beall's List (Unofficial but Useful): Although no longer updated officially, new versions can be found online.

## 2. Evaluate the Journal's Website & Claims:

- Look for fake or misleading impact factors (Confirm through Journal Citation Reports or Scopus).
- A poorly constructed website with language errors.
- Absence of a well-defined peer-review process or unreasonably quick publication (such as acceptance within days).
- An overly broad scope of the journal that encompasses unrelated fields.

**3. Review the Editorial Board:** Research editorial board members via Google Scholar or university sites. If the names seem suspicious or unknown, it is a warning sign. Feel free to reach out to editors directly to confirm their participation.

**4. Evaluate the Peer Review Process:** Approach journals that rapidly accept papers without proper review with skepticism and verify clear peer review procedures stated on the website.

**5. Be Wary of Article Processing Charges (APCs):** Legitimate open-access journals list fees transparently, while predatory journals may require payment after acceptance or obscure their charges.

**6. Investigate the Publisher:** Cross-check publisher information with COPE (Committee on Publication Ethics), OASPA (Open Access Scholarly Publishers Association), or DOAJ. Steer clear of publishers known for spamming authors.

**7. Consult with Colleagues or Supervisors:** Inquire with mentors or experienced researchers about their familiarity with the journal and look into academic discussions on platforms like ResearchGate or PubPeer.

**8. Rely on Your Intuition:** If something seems off, verify again

- If a journal persistently invites you to submit, that's a cautionary signal.
- Always perform due diligence before submitting your research.
- Use the "Think. Check. Submit." framework ([www.thinkchecksubmit.org](http://www.thinkchecksubmit.org)) to assess journals prior to submission.

## Conclusion:

In today's digital landscape, predatory journals represent a serious challenge to academic integrity, misleading researchers and compromising the quality of scholarly publishing. These unscrupulous publishers take advantage of open-access models, imposing hefty fees while skipping vital peer review and editorial protocols. Artificial Intelligence (AI) has surfaced as a robust tool in the fight against predatory journals, offering automated identification, pattern analysis, and credibility assessment. AI-based systems can scrutinize journal websites, editorial teams, indexing claims, and solicitation emails to pinpoint fraudulent activities. Machine learning techniques improve fraud detection by differentiating between legitimate and predatory journals based on various factors such as peer review clarity, citation trends, and article processing charges (APCs). Although AI has made

strides in spotting predatory journals, human expertise is still crucial for refining detection techniques and ensuring precision. By integrating AI-driven resources with researcher education, institutional policies, and reliable indexing databases, the academic community can reduce the threats posed by predatory publishing and maintain the integrity of scholarly research. Looking ahead, the fusion of AI with academic publishing standards will be essential for upholding ethical publishing practices, protecting researchers, and nurturing a credible scholarly environment.

## References:

1. Alshahrani, A., & Ali, A. (2023). An open automation system for predatory journal detection. *Scientific Reports*, 13(1), 1-12. <https://doi.org/10.1038/s41598-023-30176-z>
2. Bianchi, F., & Lai, W. (2023). Can AI detect predatory journals? The case of FT50 journals. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4391108>
3. Bostrom, N. (2014). *Superintelligence: Paths, dangers, strategies*. Oxford University Press. Bostrom examines the potential trajectories of AI development, focusing on the existential risks associated with superintelligent systems and strategies to mitigate them.
4. Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W.W. Norton & Company. The authors analyze how digital technologies, including AI, are transforming the economy and the nature of work, highlighting both opportunities and challenges.
5. Cabanac, G., & Labbe, C. (2022). The 'Problematic Paper Screener' automatically selects suspect publications for post-publication (re)assessment. *arXiv Preprint*. <https://arxiv.org/abs/2210.04895>
6. Domingos, P. (2015). *The master algorithm: How the quest for the ultimate learning machine will remake our world*. Basic Books. Domingos delves into the five major schools of machine learning, discussing how the development of a "master algorithm" could revolutionize various industries.
7. Econtent Pro. (2023). Combating predatory publishing by leveraging AI. *Econtent Pro Blog*. <https://www.econtentpro.com/blog/combating-predatory-publishing-by-leveraging-ai/391>
8. Floridi, L. (2014). *The fourth revolution: How the infosphere is reshaping human reality*. Oxford University Press. Floridi explores the profound changes brought about by information technologies, including AI, and their implications for human self-understanding and society.
9. Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press. This authoritative resource covers the foundations and advancements in deep learning, a subset of AI that has significantly impacted the digital landscape.
10. Harari, Y. N. (2018). *21 lessons for the 21st century*. Spiegel & Grau. Harari addresses contemporary issues, including the rise of AI, and their impact on politics, society, and individual lives in the digital age.

11. Kurzweil, R. (1990). *The age of intelligent machines*. MIT Press. This seminal book explores the development of artificial intelligence and its potential impact on society, providing a comprehensive overview of AI's evolution up to the 1990s.
12. Marr, B. (2020). *Artificial intelligence in practice: How 50 successful companies used AI and machine learning to solve problems*. Wiley. Marr presents case studies of organizations implementing AI solutions, illustrating practical applications and benefits in the digital era.
13. Mushtaq, M., Farooq, R. K., & Siddiqi, H. M. (2024). Can ChatGPT identify predatory biomedical and dental journals? *Journal of Forensic and Legal Medicine*, 95, 102548. <https://doi.org/10.1016/j.jflm.2024.102548>
14. Russell, S., & Norvig, P. (2020). *Artificial intelligence: A modern approach* (4th ed.). Pearson. This textbook offers a comprehensive introduction to AI, covering fundamental concepts, techniques, and applications in the modern digital age.
15. Smolčić, J. Š. (2023). The diagnostic accuracy of AI-based predatory journal detectors. *Journal of Medical Ethics*, 49(6), 405-411. <https://doi.org/10.1136/medethics-2023-108753>
16. Thakur, A., & Sharma, R. (2022). Predatory medicine: Exploring and measuring the vulnerability of medical AI to predatory science. *arXiv Preprint*. <https://arxiv.org/abs/2203.06245>
17. Tegmark, M. (2017). *Life 3.0: Being human in the age of artificial intelligence*. Knopf. Tegmark discusses the future implications of AI, contemplating scenarios where machines surpass human intelligence and the ethical considerations that arise.

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