

Impact Of Artificial Intelligence On Libraries And Professionals

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Abstract:

Human intelligence is quantified by the Intelligence Quotient (IQ), which is determined by taking a set of aptitude tests that cover many facets of intellectual functioning. The core of artificial intelligence is the development of intelligent machines that see, think, and act like people. When a computer or other machine exhibits intelligence, it means that it can do a certain task in an unpredictable environment, monitor its surroundings, and modify its behavior accordingly based on what it perceives to be necessary for intelligence. The library is seen by the general public as a trailblazer in the pursuit of innovation; from makerspaces to audio books, video collections, and databases, the library is perceived as a force for good. Critics of the library point to the actual stacks and the gap in socioeconomic status while asserting that everyone may access the knowledge online. It is an argument that highlights the information industry's capitalistic goals rather than arguing that the library has failed to digitize. This article examines how AI is affecting librarians and library professionals, emphasizing the ways in which AI can enhance user services, accessibility, information management, and library analytics. Additionally, it highlights how crucial AI literacy is in today's world for both patrons and librarians.

Keywords: Artificial Intelligence, Libraries, Librarians, Library Services, Analytics, Data, AI literacy.

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I. INTRODUCTION

Artificial intelligence (AI) is the emulation of human intelligence in computers that are built to comprehend, learn, and solve problems similarly to humans. Artificial Intelligence (AI) seeks to create machines that can do activities such as pattern recognition, problem solving, decision making, and natural language understanding that typically need human intelligence. Artificial Intelligence (AI) encompasses a broad range of techniques and approaches, including natural language processing, computer vision, robotics, and machine learning. Without requiring explicit programming, machine learning, a subfield of artificial intelligence, uses statistical models and algorithms to help computers get better over time at a task. By using this method, machines are able to recognize patterns in data, learn from them, and draw inferences or predictions from their knowledge. Deep learning, a subset of machine learning, uses artificial neural networks that are designed to mimic the structure and functions of the human brain. AI has been employed in one form or another by a wide range of businesses, including healthcare, banking, education, transportation, and entertainment. Typical examples include recommendation algorithms (like those used by streaming services), speech and photo recognition, driverless vehicles, virtual assistants (like Siri or Alexa), and more. While artificial intelligence (AI) presents numerous opportunities for productivity and innovation, it also raises ethical and social concerns. There is still more research and discussion to be had on topics like potential misuse of AI technologies, privacy concerns, prejudice in algorithms, and employment displacement. As AI advances, it will be important to strike a balance between harnessing its potential for good and addressing any hazards that it may pose to individuals and society as a whole.

II. ARTIFICIAL INTELLIGENCE ON LIBRARIES

Artificial Intelligence (AI) has the potential to significantly impact libraries in various ways, enhancing their efficiency, services, and user experiences. Here are several ways AI can influence libraries:

Ways AI Impact Libraries	How?
Automation of Repetitive Tasks	Automating repetitive and time-consuming chores in libraries, like book sorting, cataloging, and shelving, is possible with AI. This frees up library staff members to concentrate on more intricate and worthwhile tasks.
Enhanced Search and Discovery	Search engines and recommendation systems with AI capabilities can make library resources easier to find. Recommendations that are more precise and tailored to the user's

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	needs can help them locate pertinent content faster.
Chatbots and Virtual Assistants	Artificial intelligence (AI)-driven chatbots and virtual assistants can be used by libraries to offer users immediate support by responding to questions, assisting with research, and offering details on events and services.
Data Analysis and Decision-Making	Libraries can now analyze vast amounts of data to learn more about user behavior, preferences, and resource usage patterns thanks to artificial intelligence (AI). Decision-making procedures pertaining to the creation of collections, the procurement of resources, and service enhancements can be informed by this information.
Accessibility Services	AI technologies can be used to improve services that are accessible to customers with impairments. AI-powered text-to-speech or speech-to-text apps, for instance, can improve information accessibility for people with hearing or vision problems.
Preservation and Conservation	AI has the potential to enhance customized library instruction. Artificial intelligence (AI) systems can analyze user behavior and interests to provide tailored suggestions for workshops, courses, or educational resources.
Natural Language Processing	Using NLP capabilities can help users and library systems communicate more effectively. Natural language inquiries can be understood and responded to by chatbots and voice-activated interfaces enabled by natural language processing (NLP), improving user experience.
Security and Fraud Detection	Libraries can utilize AI to enhance security protocols by monitoring for unusual activity or identifying potential fraud in the borrowing and returning of resources.
Data Archiving and Curation	Artificial Intelligence (AI) can assist in managing and curating digital collections, ensuring that materials are appropriately labeled, categorized, and preserved for posterity.

Even though AI has many advantages, libraries must take into account concerns about prejudice, user privacy, and ethical considerations when putting these technologies into practice. To guarantee that libraries maintain their status as important community resources, it is imperative to strike a balance in the integration of AI and human expertise.

III. ARTIFICIAL INTELLIGENCE AND LIBRARIANS (LIS PROFESSIONALS)

Librarians play a crucial role in navigating the integration of Artificial Intelligence (AI) into library services. Here are some ways LIS Professionals (librarians) can deal with AI:

The Ways AI for Professionals	How?
Education and Training	Keep up with the most recent advancements, trends, and best practices in artificial intelligence for librarians. Ongoing education and training are essential to ensure that librarians possess the knowledge and skills required to properly incorporate and manage AI technologies within the library setting.
User Education	Librarians can teach library users about the benefits of artificial intelligence in improving resources and services. Attending workshops, tutorials, or training events can help users gain a better grasp of how to use AI technology for research, resource discovery, and general library experiences.
Ethical Considerations	Librarians should take an active role in discussions on the ethical application of AI in libraries. This means addressing issues like discrimination, confidentiality, and transparency. It is within the power of librarians to ensure that AI technologies align with the values and tenets of libraries and to encourage responsible AI practices.
User Privacy Protection	When utilizing AI technologies, librarians must exercise caution to protect user privacy. Librarians should advocate for openness in the way AI systems use and store user data, as well as the establishment of explicit policies and procedures to safeguard it.
Collaboration with IT Peoples	To create, manage, and debug AI systems, librarians and information technology (IT) experts should collaborate. Working together with subject matter specialists ensures that libraries are effectively utilizing AI to solve technical problems.
Customization with Library Needs	Librarians should work with vendors or developers of AI software to customize AI solutions to the particular needs and goals of the library. When AI technologies are tailored to the specific requirements of the library context, they become more pertinent and useful.
User Feedback and Engagement	Librarians should actively seek out customer feedback regarding their experiences with AI-powered services. Librarians can use this information to plan ahead for future AI deployments, assess the impact of AI on user satisfaction, and identify areas for progress.
Advocacy for Inclusivity	Librarians are among the proponents of AI systems that are inclusive and available to a range of user groups. Part of this involves ensuring AI technology consider the demands of clients with disabilities and people from diverse backgrounds.
Monitoring and Evaluation	In order to ensure that AI systems align with the library's goals, librarians should regularly evaluate and track their effectiveness. This means assessing the correctness of the recommendations, addressing any potential biases, and making any required adjustments.
Strategic Planning	Librarians should be actively involved in the process of planning strategically for the use of AI in libraries. This means figuring out how AI could enhance library services, setting realistic goals, and developing a strategy for the slow incorporation of AI technologies.

By actively interacting with these tools, librarians may ensure that AI technologies are used in ways that enhance library services while respecting user privacy, inclusivity, and ethical norms. AI seems to have a plethora of potential applications in the library sector, and librarians who adopt this technology and apply it in their work will be in a position to encourage innovation. "The codification of knowledge and the process of enhancing human learning will be the cornerstones of the next phase of human history," Ray Kurzweil, the futurist, prophesied. In the second industrial revolution, a nation's level of power and prosperity will be determined by its capacity to create and distribute knowledge, not by its physical resources. In light of this, the librarian appears to be an obvious leader for the new information era.

IV. AI TOOLS FOR LIBRARY AND LIBRARIANS

A range of AI technologies can be used by libraries and librarians to improve user experiences, expedite processes, and enhance services. Here are some AI tools and applications that can be beneficial for libraries:

- ✦ Analytics Platforms
- ✦ Chatbots and Virtual Assistants
- ✦ Digital Preservation Tools
- ✦ Discovery Platforms
- ✦ Integrated Library System (ILS) with AI
- ✦ Recommendation Systems
- ✦ RFID and Automated Checkout Systems
- ✦ Security and Fraud Detection Tools
- ✦ Space Utilization Tools
- ✦ Text Mining and Natural Language Processing (NLP)

Libraries should carefully consider their unique requirements, user demographics, and institutional objectives when evaluating and customizing AI systems. Additionally, user consent, privacy, and the ethical usage of AI should all be considered during the deployment phase. Regular training and collaboration between AI practitioners and librarians can further improve the successful incorporation of these tools into library services.

V. ARTIFICIAL INTELLIGENCE (AI) LITERACY TO ALL

AI literacy is the capacity of individuals to understand, utilize, and engage with concepts and technologies related to artificial intelligence (AI). It encompasses the skills and knowledge needed to operate in an increasingly AI-driven world and make rational decisions about the applications of AI and their impact on society. AI literacy is crucial for encouraging an ethical and inclusive approach to the integration of AI technology in all areas of life. Key components of AI literacy include:

Awareness of AI Applications: Numerous sectors, including healthcare, banking, education, and entertainment, use artificial intelligence (AI). Knowing how new and existing applications in the real world might impact various businesses and everyday life is essential to becoming literate in artificial intelligence.

Communication Skills: Another facet of AI literacy is the ability to communicate about AI concepts and applications in an effective manner. This means being able to discuss AI ideas with people, participate in discussions about how AI affects society, and advocate for moral AI procedures.

Continuous Learning: Given the rapidly evolving nature of AI technology, maintaining up to date on new developments, advancements, and discussions within the field is essential to become proficient in AI.

Critical Thinking and Evaluation: Individuals who are knowledgeable about artificial intelligence (AI) are urged to critically assess assertions regarding the capabilities, constraints, and moral ramifications of AI. It involves questioning assumptions, understanding biases, and evaluating the reliability of AI systems.

Data Literacy: Since AI heavily relies on data, one must be data literate in order to be AI literate. This means understanding the importance of objective, high-quality data as well as the collection, processing, and application of this data in AI algorithms.

Ethical Considerations: One of the most important aspects of AI literacy is comprehending the ethical implications of AI technologies. These entails considering concerns like transparency, accountability, privacy, equity, and openness in addition to the potential social implications of AI systems.

Hands-On Experience: Improving one's knowledge of AI tools and platforms through hands-on experience is a popular strategy for doing so. This could mean learning the basics of programming, experimenting with AI models, or implementing user-friendly AI programs that don't always involve coding.

Understanding AI Concepts: To become AI literate, one must comprehend the fundamental concepts of machine learning, neural networks, algorithms, and the underlying theories of AI systems. By having this understanding, people may be able to comprehend how AI collects and evaluates data, forms opinions, and gains knowledge from it.

Regardless of one's background or line of work, promoting AI literacy is essential to enabling individuals to participate meaningfully in discussions about AI, help create ethical and responsible AI practices, and make well-informed judgments regarding its application. To increase AI literacy, a variety of resources, workshops, and awareness-raising initiatives are often employed.

VI.CONCLUSION

Traditionally, libraries have been slow to adopt new technology, but in the case of artificial intelligence, they are increasingly becoming proactive and assertive. A number of stakeholders, including associations for libraries, boards of trustees, professionals, and users, are involved in ensuring AI is integrated into the operations and services of the library in a way that complements and is morally good. When integrating AI with libraries, there are further challenges and considerations. It is essential to give important factors including privacy problems, ethical dilemmas, and the need to ensure fair access to information careful thought. Libraries must find a balance between the benefits of AI technology and the upholding of human-centric values in order to guarantee that AI augments and enriches librarians' work rather than replacing it. By looking at these ways AI influences libraries, this article has brought to light some potential links between AI's existing uses and future ones.

Conflict of interest

There is no conflict to disclose.

REFERENCES

- [1]. A, Subaveerapandiyan, "Application of Artificial Intelligence (AI) In Libraries and Its Impact on Library Operations Review" (2023). *Library Philosophy and Practice* (e-journal). 7828. <https://digitalcommons.unl.edu/libphilprac/7828>.
- [2]. Cox, A. (2023). How artificial intelligence might change academic library work: Applying the competencies literature and the theory of the professions. *Journal of the Association for Information Science and Technology*, 74(3), 367–380. <https://doi.org/10.1002/asi.24635>.
- [3]. Garcia-Febo, L. (2019). Exploring AI: How libraries are starting to apply artificial intelligence in their work. *American Libraries*. Retrieved August 6, 2023 from <https://americanlibrariesmagazine.org/2019/03/01/exploring-ai/>
- [4]. Li, J., & Wang, H. (2021). Application of Artificial Intelligence in Libraries. 2021 3rd International Conference on Artificial Intelligence and Advanced Manufacture (AIAM), 323–329. <https://doi.org/10.1109/AIAM54119.2021.00072>.
- [5]. Oname, I. M. & Alex-Nmecha, J. C. (2020). Artificial Intelligence in Libraries. In N. Osuigwe (Ed.), *Managing and Adapting Library Information Services for Future Users* (pp. 120-144). IGI Global. <https://doi.org/10.4018/978-1-7998-1116-9.ch008>.
- [6]. Mirza R, Seale M (2017) Who killed the world? White masculinity and the technocratic library of the future. In: Schlesselman-Tarango G (ed.) *Topographies of Whiteness: Mapping Whiteness in Library and Information Science*. Sacramento, CA: Library Juice Press, pp.171–197.
- [7]. Ridley M, Pawlick-Potts D (2021) Algorithmic literacy and the role for libraries. *Information Technology and Libraries* 40(2): 1–15.
- [8]. S. Berman, Classism in the stacks: Libraries and poverty, *Journal of Information Ethics* ((2007) 103–110, <https://search.proquest.com/openview/5d2383c5ab79e11cea77e2d32fc9ea6c/1?pq-origsite=gscholar&cbl=2035668>, accessed August 28, 2023.
- [9]. Tait, E., & Pierson, C. M. (2022). Artificial Intelligence and Robots in Libraries: Opportunities in LIS Curriculum for Preparing the Librarians of Tomorrow. *Journal of the Australian Library and Information Association*, 71(3), 256–274. <https://doi.org/10.1080/24750158.2022.2081111>.
- [10]. Talley, N. B. (2016). Imagining the Use of Intelligent Agents and Artificial Intelligence in Academic Law Libraries. *Law Library Journal*, 108, 383.