

## Original Article

# Artificial Intelligence in Libraries: Emerging Challenges and Role and Functions of Librarians

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### Abstract

For the last ten years, Artificial Intelligence has been slightly in the world of libraries. And now becoming an integral part of the automation of library services and its housekeeping operation. Academic libraries, public libraries, and special libraries all aim to use AI tools to improve services. Many librarians find that AI can help in cataloguing, reference service, resource discovery, and user engagement. But at the same time, AI brings many challenges, such as a lack of skills, fear of job loss, ethical concerns, data privacy issues, and cost concerns. This review discusses how AI is being used in libraries, what role librarians play, and what challenges are emerging, especially in the Indian library context. Real examples and research from past years are used to show both benefits and difficulties.

**Key Words:** Artificial Intelligence, College Library, Librarian, Digital Library,

### Introduction

The library used to be a place of quiet reading and a manual card catalogue. Today, libraries are becoming increasingly technology-driven. One big technology that is talked about everywhere is Artificial Intelligence (AI). AI refers to machines and computer systems that can perform tasks that normally require human intelligence, such as learning, reasoning, language understanding, and decision-making (Russell & Norvig, 2021). AI now enters many fields, including banking, health care, education, industry, and libraries.

In India, academic libraries in cities adopt some AI tools, but many small college libraries are still at an early stage. Librarians are worried and excited at the same time. They see a great opportunity to improve services, but also fear a lack of training and resources. This paper examines what AI is doing in libraries, the role librarians play, and the challenges ahead.

### Overview of Artificial Intelligence

Artificial Intelligence is not new idea. It started in 1950s when pioneers like Alan Turing asked if machines can think. Later, many computer scientists worked on AI and different branches emerged such as machine learning, natural language processing (NLP), expert systems, robotics, and neural networks (Russell & Norvig, 2021). Today we talk about AI in everyday life: voice assistants like Siri and Alexa, recommendation systems in e-commerce, automatic translation in Google Translate, and chatbots for customer support.

AI primarily learns from data. Machine learning models are trained on large amount of information to recognize patterns and make predictions. For example, if library system is trained on user borrowing history, it can recommend books that another student may like. Libraries have rich data, so AI can use that for improving services.

### Challenges and Limitations in the Use of Artificial Intelligence in the Library:

Though there are enormous benefits in the use of AI for the library, there are some challenges and limitations that hinder the implementation of AI in libraries.

**1. Implementation Cost:** Breeding (2018) observed that the initial implementation cost of an AI system is very high. It requires computers, software, and related hardware, which are very costly and often unaffordable for academic libraries. It is sometimes very high compared to other resources, such as books, journals, and newspapers, in academic libraries.

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**2. Unskilled Library Staff:** Successful implementation of AI in academic libraries requires skilled personnel. However, most library staff do not have the capacity to handle the critical situation in the use of AI in libraries. The study by Cox, Pinfield, and Rutter (2019) revealed that the effective use of AI tools is not possible because library staff's skills do not meet the required standard.

**3. Inappropriate Data:** AI needs sufficient and correct data to analyse and make a process on it for the proper result. Unfortunately, some academic libraries do not adequately maintain their data, which directly affects the results obtained from AI-enabled tools (Borgman, 2015).

**4. Violation of Personal Freedom:** AI analytics can analyse the user's reading behaviour. Reading habits and reading culture are known from this analysis of any reader. But it is a direct violation of one's personal freedom. According to IFLA (2018), Confidentiality and intellectual freedom can be violated if we analyse a user's search behaviour and movements in a library without prior permission.

**5. Less Human Interaction:** If libraries excessively use Artificial Intelligence, then human interaction will be stopped or become significantly lower. This over-dependence on technology undermines emotional intelligence and ethical reasoning, and it will hamper services such as reference services in libraries. Russell and Norvig (2021) stated that if libraries largely depend on automation and artificial intelligence, they will lose the human-centric nature of library services.

**6. Financial Limitation:** Developing an AI infrastructure needs substantial financial support; a small institution does not have the resources to afford this. Internet connectivity, uninterrupted electricity, and digital infrastructure are the basic requirements for AI applications in libraries.

### **Role of Librarian in the Use of Artificial Intelligence in Libraries**

The role of a librarian in libraries that use or are going to use AI is not obsolete; it will expand the previous role and add a new dimension to their duties and responsibilities in the library. The use of AI in libraries can strengthen the professional role of librarians. Implementation of Artificial Intelligence in libraries requires proper selection of AI tools, and once selected, proper implementation is necessary, so librarians need to learn all those things: AI-based library management systems, chatbots, etc., new things librarians need to learn. Cox, Pinfield, & Rutter, (2019) stated it is needed to understand the proper AI tools should be selected so that it should as per the need and requirement of that institution. When institutions use AI tools in their libraries, it is expected that correct and

relevant data and other results should be obtained. This can be possible when a librarian can produce correct, standardized data because the effectiveness of the AI is dependent on this data. IFLA (2020) cautioned against using information or data produced by AI tools blindly or in an unethical manner. So, here the role of the librarian is expanded to encompass AI literacy. IFLA (2018) stated that in the AI environment of the library, librarians should be the custodians of ethics. The privacy of users and intellectual freedom should be maintained when using AI analytics and user surveillance. Russell and Norvig (2021) observed that AI alone cannot do all things, so professional judgements should be maintained by the librarian while using AI-powered plagiarism detection tools, advanced literature searches, etc. When the library decides to adopt the AI-based tools, it is the responsibility of the librarian to train the library staff and prepare them for accepting new advanced technologies and using them in their daily library work, so that they can easily shift from traditional mode to AI-based services. AI needs the expertise of IT personnel and software developers, and their coordination with the education administrator should be maintained. The overall coordination of all these things should be done by the librarian for the efficient and successful implementation of AI in libraries.

### **Functions of a Librarian in the Implementation of AI in Libraries**

#### **1. AI Implementer and Supervisor**

Librarians need to know how AI tools work and how to choose the right system for their library. They must supervise AI systems to check the accuracy of answers & recommendations. AI can make mistakes, and a librarian's judgment is needed to correct errors and manage exceptions.

#### **2. Trainer and Guide for Users**

Even if the library uses AI chatbots or recommendation systems, many users still need help. Librarians must train users – students and faculty – how to use these tools. For example, not all students know how to use AI-assisted search properly; librarians must teach search strategies and digital literacy.

#### **3. Data Steward and Ethical Guardian**

AI uses user data for learning and predictions. Librarians must protect user privacy and ensure ethical use of data. They must develop policies on what data is collected, how it is stored, and where it is used. Privacy protection is very important because library data can reveal sensitive interests of users (IFLA, 2020).

#### **4. Collaborator with IT and Faculty**

Librarians now work with IT department, computer science faculty, and system

administrators to implement AI systems. They are no longer working alone in book stacks; they need to be part of cross-functional teams.

### 5. Knowledge Curator and Research Supporter

AI can suggest resources, but it cannot decide value of knowledge for context. Librarians still have human understanding and domain awareness to guide users to best information for their research, check quality of sources, and help in citation management and research workflows.

### Conclusion

Some challenges and limitations are also seen, such as financial arrangements for initial implementation and its maintenance, unskilled library staff, violations of personal freedom, and inappropriate data. These challenges and limitations can be overcome with the special arrangement of funds and by providing proper training and education to librarians and library staff. Furthermore, in the future, as AI becomes more advanced, its cost will decrease, and it will become more familiar to use. With minimal training and very brief instruction, library staff can use the library's AI tools.

Scarcity in technological skill, infrastructure, and financial barriers, these challenges and inappropriate data, violation of personal freedom, and less human interaction, like these challenges and limitations, may occur when libraries entirely use AI in their regular functions. The role of a librarian is also discussed in the article. The successful implementation of AI in a library depends entirely on the librarian's role and functions in that implementation.

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### Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper

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