AI SERVICES IN LIBRARIES: AN OVERVIEW

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Abstract: Libraries are changing very fast in the digital age. Earlier, libraries were only places to keep and lend books. But now, with the help of computers, the internet, and digital resources, they have become centres of online knowledge. In this change, Artificial Intelligence (AI) is playing a big role. AI helps libraries to work faster, save time, give better services, and understand the needs of users. This article gives a simple overview of how AI is used in libraries, what types of AI tools are useful, how they help in daily work, what problems libraries face while using them, and what the future of AI in libraries may look like.

Keywords : AI Services, Artificial Intelligence, AI Libraries.

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1.0 Introduction
Libraries have always been known as a storehouse of knowledge. In old days, everything was done by hand arranging books, writing catalogue cards, and helping users directly at the counter. Today, things have changed. Books, journals, and newspapers are available online. Users want information quickly from anywhere using their phones or computers.

To meet these new needs, libraries are using **Artificial Intelligence (AI)**. AI means making machines or computers act like humans to think, learn, and make decisions. When used in libraries, AI can help staff and users in many ways. It can organise books and e-resources automatically, answer user questions, and even give book recommendations. Because of AI, libraries are slowly becoming **"intelligent libraries"** smart, fast, and user-friendly.

2.0 What is Artificial Intelligence in the Library?
Artificial Intelligence means creating computer programs that can think, learn and make decisions like people. In a library, AI can:

- Classify books automatically,
- Help people find information,
- Answer questions through chatbots,
- Suggest books based on user interests,
- Protect digital collections, and
- Help in planning and decision making.

Scholars such as **Jakati and Kumar (2022)** describe AI as a way of giving "new energy" to libraries. It allows libraries to handle large amounts of data and provide better digital services. **Hasan et al. (2024)** also point out that AI tools like natural language processing, robotics, and expert systems are now being used in many modern libraries.

3.0 Main AI Technologies Used in Libraries
Different AI technologies are used in libraries for different jobs. Some of the main ones are:

3.1 Machine Learning (ML): ML helps computers learn from experience. In libraries, it is used to study what users read or borrow and then suggest similar materials automatically.

3.2 Natural Language Processing (NLP): NLP helps computers understand human language. It allows users to type questions in normal language (for example, "Books on Indian history") instead of using complex search terms. It also helps create summaries and keywords for documents.

3.3 Predictive Analytics: This helps librarians study old data and predict future trends — for example, which books will be popular next year or how many users will need a particular subject.

3.4 Chatbots and Virtual Assistants: These are computer programs that talk to users online. They can answer basic questions 24×7, like "How to renew my book?" or "Where can I find e-journals on nursing?"

3.5 Robotics and Automation: Some big libraries use robots for sorting books, shelving them, and scanning old manuscripts.

3.6 Cloud and Big Data Systems: AI needs a lot of data and storage. Cloud systems help libraries store digital books and records safely online and process them quickly.

These tools make library services faster, smarter, and more helpful.

4.0 Applications of AI in Libraries
AI can be used in almost every part of library work. Below are some of the main applications:

4.1 Cataloguing and Classification: AI can automatically read the content of books and articles and assign the correct subject headings. This saves a lot of time for librarians and reduces mistakes.

4.2 Information Search and Discovery: AI helps users find the right information even if they don't know exact keywords. It can suggest related topics, show popular materials, or give search results based on the meaning of the query.

4.3 Reference and Help Services: Virtual assistants and chatbots can help users anytime. They answer common questions, guide them to the right section or e-resources, and improve the user experience.

4.4 Personalized Recommendations: AI studies what users read or borrow and recommends similar books or journals. For example, if a user reads books on psychology, the system may suggest new psychology titles.

4.5 Digital Preservation: AI helps in preserving rare or old books and manuscripts. It can scan, read, and identify damaged parts and store them digitally for future use.

4.6 Collection Development: AI analyses which books are used most and which are not. It helps librarians to buy the right books, manage budgets, and remove unused materials.

4.7 Routine Work Automation: Tasks like sending due-date reminders, managing check-ins and check-outs, and generating reports can be done automatically by AI.

5.0 Benefits of AI in Libraries
AI provides many advantages to libraries:

1. **Saves Time:** Routine work like cataloguing and record-keeping becomes automatic.
2. **Better Service:** Users get faster responses and useful book suggestions.

3. **Smart Decision-Making:** Librarians can use data to make better plans for collection and services.
4. **User Satisfaction:** AI makes searching easy and fun, improving user experience.
5. **Accessibility:** Voice assistants and translation tools help differently-abled users and those who speak different languages.
6. **Innovation:** Using AI makes libraries modern, digital, and relevant in today's world.

6.0 Challenges and Issues
Even though AI is very useful, libraries also face some problems when using it:

a. **Data Privacy and Ethics**
   AI systems need a lot of user data. This creates privacy and security concerns. Libraries must make sure user data is protected.
b. **Bias and Fairness**
   AI can sometimes be biased, showing results that are unfair or incomplete if it is trained on poor data.
c. **Cost and Infrastructure**
   Installing AI systems needs money, strong internet, and skilled staff, which can be difficult for small libraries.
d. **d. Staff Skills**
   Library staff need training to use AI tools properly. They should learn data handling and AI basics.
e. **e. Reliability**
   AI systems can make mistakes or give wrong answers if not properly monitored. Librarians must check and verify results.
f. **f. Acceptance and Trust**
   Some users and librarians may not trust machines for library services. Proper orientation and communication are needed.

7.0 Real-World Examples and Research
Recent studies show that many libraries around the world are trying AI in their services. For example:

- **Martínez Concha et al. (2024)** found that interest in AI in libraries is growing fast since 2020.
- **D'Souza (2024)** studied libraries in Karnataka and found that librarians see AI as a support tool, not a replacement.
- **Subaveerapandiyan and Gozali (2024)** found that Indian librarians are interested in AI but need more training and awareness.

This shows that AI in libraries is still new but has great potential.

8.0 How Libraries Can Prepare for AI
To use AI successfully, libraries can follow these simple steps:

1. **Start Small:** Begin with small projects like chatbots or digital recommendations.
2. **Work with IT Experts:** Partner with technical teams or vendors.
3. **Train Librarians:** Give workshops on AI and digital literacy.
4. **Ensure Ethics and Transparency:** Inform users how AI works and protect their data.
5. **Monitor and Improve:** Check AI systems regularly and update them as needed.
6. **Keep the Human Touch:** AI can assist, but librarians should remain the main decision-makers and service providers.

9.0 Future of AI in Libraries
The future looks exciting for AI in libraries. Some possible developments are:

- **Generative AI:** Tools like ChatGPT can summarize articles or help answer complex questions.
- **Voice Search:** Users can talk to library systems instead of typing.
- **Smart Library Spaces:** Sensors and robots to guide users to shelves or manage crowding.
- **Collaborative AI Platforms:** Shared systems among universities for cataloguing and preservation.
- **Inclusive Services:** AI can translate texts, read aloud, and help disabled users.

- **Ethical and Safe AI:** Libraries can become examples of responsible and fair AI use.

10.0 Conclusion

Artificial Intelligence is changing how libraries work and serve people. From cataloguing books to helping users online, AI makes everything faster, smarter, and more accurate. At the same time, libraries must use AI carefully protecting privacy, ensuring fairness, and keeping the human element alive.

A library of the future will not only store knowledge but also **understand, connect, and deliver** it intelligently. As **Amreen and Sonkar (2024)** said, AI turns the traditional library into an **"intelligent library"** one that truly understands its users and helps them learn better.

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