



# The Role of AI in Enhancing 24/7 Library Services: Prospects and Challenges

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## **ABSTRACT**

*Artificial Intelligence (AI) in academic libraries has revolutionized the delivery of 24/7 library services, offering unprecedented opportunities to enhance user experience, streamline operations, and provide personalized support-driven technologies such as chatbots, virtual assistants, and intelligent search systems that enable students and researchers to access resources, resolve queries, and receive recommendations at any time regardless of library staff availability. These systems leverage natural language processing (NLP) and machine learning to improve accuracy and responsiveness, fostering a more inclusive and accessible learning environment. Additionally, AI facilitates efficient resource management, predictive analytics for collection development, and automated administrative tasks, reducing operational burdens on library staff. The potential of AI in ensuring 24/7 library services examines its benefits for students and researchers and addresses the limitations that academic institutions must overcome to maximize AI-driven solutions.*

## **INTRODUCTION**

Academic libraries have long been the heart of institutions of higher learning, providing access to knowledge and supporting research endeavors. The increasing demand for flexible and remote access to library resources has led to integrating AI-powered technologies in academic libraries (Naikar et al., 2023). Driven library services have the potential to revolutionize the way libraries operate and provide 24/7 support to access library resources and support services at any time and from any location. The rise of AI in academic libraries has sparked significant discussion about the evolving role of librarians in our increasingly digital world (Okoroma, 2024). With AI-driven tools taking over routine tasks, librarians

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can now dedicate their time to more complex responsibilities that leverage their expertise, creativity, and human insight. Nevertheless, this evolution comes with the need for librarians to acquire new skills and embrace a shift in their professional roles (Jha, 2023).

Integrating artificial intelligence into library services can significantly improve information availability and user experience. Large libraries, notably academic libraries, are exploring AI to enhance their operations (Jain, 2023). Huge organizations primarily use AI. Librarians provide daily technical services such as information organization (classification, cataloging, and subject determination), collection, selection, shelving, and lending activities, including circulation. AI can change library services by increasing user experiences, providing individualized recommendations, and ensuring fair access to information (Asemi et al., 2020; Barsha & Munshi, 2024; Chakala, 2024). Artificial intelligence can significantly enhance information access and user experience when integrated into library services. Major libraries, including academic institutions, are exploring the potential of AI to streamline their operations. While major organizations mostly use AI, its impact in library settings is equally significant (Indraji, Dominic, & Kothandaraman, 2024; Naikar & Indraji, 2025; Tai & Ghosh, 2025). AI can help librarians with everyday chores, including information organization, classification, cataloging, subject determination, collection, selection, shelving, and circulation. This technology can dramatically alter library services by improving user interfaces, making tailored recommendations, and ensuring equal access to information (Abayomi et al., 2021; Indraji, Dominic, & Kannan, 2024; Zondi et al., 2024).

Artificial Intelligence (AI) is changing the landscape of library operations by making information retrieval and organization much more efficient. Imagine having a digital assistant who can recommend relevant resources, guide patrons, and enhance the library experience. With the automation of tasks like book sorting and organizing, library staff can devote more time to offering personalized support. However, it is important to tackle challenges, such as maintaining user privacy and ensuring a comfortable transition to AI technologies (Cordny, 2020; Mabona et al., 2024). This exploration will highlight real-world examples demonstrating AI's positive influence on libraries. In short, AI is reshaping how libraries function, and it is vital to embrace its potential thoughtfully, aligning it with these institutions' core values and objectives. The discussion will dive into the significant effects of AI on contemporary libraries, effectively bringing these cherished establishments into the modern age (Azimi et al., 2021).

AI rapidly expands into industries like banking, transportation, healthcare, education, agriculture, and manufacturing. The term “intelligent” refers to integrating technology and artificial Intelligence (AI) to enhance previously offered services. Search integration, which is made possible by AI and related technologies like deep learning (DL), natural language processing (NLP), and machine learning (ML), is turning out to be a test-bed for the rapidly developing Intelligent Information Services (IIS) with a significant impact. In the contemporary networked world, opportunities for cross-domain and cross-organizational application integration and information services have increased due to advancements in computing and communications technologies. Other technology areas, including cloud computing analytics, the Internet of Things (IoT), virtual reality (VR), robotics, and big data, are closely related to IIS (Hussain, 2023; Kumar & Jyoti, 2024; Naikar et al., 2023; Naikar & Paul, 2025; Rahmani, 2023; Ugochukwu Francis Ikwuanusi et al., 2023).

Given the potential benefits of AI-enhanced library services, it is critical to solve specific issues to enable a seamless implementation. Data protection, technical infrastructure, the digital divide, and the vital need for human-AI collaboration are all important considerations. This article explores how AI can provide round-the-clock library services in academic institutions, stressing both the benefits and drawbacks of this advancement. AI-powered library services offer numerous advantages. For example, AI-

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