

Application of Artificial Intelligence in Library Services

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Abstract

Artificial intelligence (AI) is one of the emerging technologies of this time. It has been associated with several trades like business, defense, health and education, but its role in library services will foster intelligent decisions. AI is a widely used technology in library services that can transform the best services in the age of information technology. This paper aims to highlight the use of AI in library operations. Several research have been undertaken on this subject, but that only address a few applications. This paper highlights the pros and cons of AI in library services. AI and libraries have a substantial nexus; nevertheless, the use and awareness of AI in library services are still creating question marks addressed in this paper.

Key Words: *Library services, Artificial Intelligence, Academic Libraries, AI and Libraries*

Artificial intelligence-based expert system in library services

Activities in the library include books, patrons and employees. The application of AI-based expert systems where there is interaction between staff and users and between users and databases is promising. The librarian will benefit from this system and it will increase the productivity. Quality will also increase with well-designed AI-based expert systems. This expert system may be applied in below listed library services:

- *Reference service*

Any library's primary function is to provide reference services, and the expert system will take the place of reference librarians in this regard. AI conversational assistant can provide virtual reference services. In the age of AI, librarians are referred to as virtual storytellers or reader advisory humans. AI can also help patrons examine falsehoods, privacy and ethics.

- *Cataloging*

AI can be used in cataloging in one of two ways: human-machine interfaces, where the intermediate and the support system divide the intellectual effort and a professional system with complete cataloging features connected to electronic publishing systems. The cataloging text is written online, enabling knowledge-based systems without any intellectual input.

- *Classification*

This is the fundamental function of a knowledge organization. It is hence prevalent in all knowledge organization systems in libraries. Coal SORT, EP-X and BIOSIS are examples of expert systems used in the classification of libraries.

- *Periodical indexing*

To increase indexing uniformity and quality, the intellectual components of indexing must be automated. The systems can determine acceptable preferred terms automatically to assign pertinent subdivisions based on the data provided by the indexer. The AI-based system is capable of drawing conclusions and acting appropriately in response to those conclusions.

- *Acquisition*

The development of the library's collection depends heavily on its patrons. For the procurement of these resources, several systems have been implemented. Building library collections also includes the innovative use of this cutting-edge technology, Monograph Selection Adviser. Namely, the

task modeled is the item-by-item selection of monographic that a subject bibliographer makes. AI-based expert system can easily do this job.

- *Natural language processing (NLP) in library services*

Libraries are one area where NLP has been applied. Indexing is the foundation of document retrieval when used in the field of library, more specifically when searching databases and OPAC.

1. Machine learning in library services

The enhancement of library metadata creation is one open challenge. Libraries collect thousands of bits of metadata about the print and digital materials that are made available to their library patrons from a variety of sources. AI-based machine learning offers a variety of potential tools to assist libraries in producing metadata for digital resources.

Services using robotics in library services

Libraries still buy a lot of printed materials despite offering a wider range of services and resources for digital libraries. Many libraries, particularly academic and research libraries are facing severe space crunch as per demand to offer both printed and electronic resources and services. Building a customized AI-based robotic scanning system, comprehensive approach to printed material, enables real-time browsing of imprints via the Web interface.

Intelligent interfaces to online databases

Online databases are still difficult to explore by many potential users. The user may need to be conversant with a number of search strategies, database file structures, communication protocols and terminological terms. AI will ensure that it can perform exactly as effectively as an online search system. In addition to this, AI-based system can be used in other library-related fields, like digital storage and tracking, academic publication and peer-to-peer lending and for inter library loan (ILL), user to user loan services: a community-based repository for sharing objects, tools and services; ILL; and information literacy.

AI Tools for academic and research Libraries

Research Rabbit

Librarians can use Research Rabbit to uncover the latest and greatest ideas that will truly transform our libraries! Stay on the cutting edge of innovations in library science so we can provide patrons with the best possible resources and services.

Puzzle Labs

Curating knowledge is at the heart of what librarians do. PuzzleLabs can help us organize information into treasure troves of wisdom that will inspire curiosity and learning for our patrons of all ages.

Scite

Facts are friends to librarians! Scite ensures we always have trustworthy citations to back up the information we share. This helps us provide accurate, credible answers that patrons can depend on.

Open Read

AI text analysis tools allow librarians to gain new insights into literary works and reading materials. These insights can be used to develop novel programs, discussions, and activities that enrich patrons' reading experiences.

Cohesive

Cohesive is an AI editor that lets you create, refine, edit, and publish high quality content without worrying too much about prompts. You can create scripts for YouTube videos, Instagram captions, content rephrasing, Facebook posts, story generation, and so much more.

Consensus

Consensus helps librarians provide patrons with information backed by peer-reviewed research. This ensures the accuracy and credibility of the knowledge sharing, building trust in the library as an authoritative source.

Lateral

Lateral allows librarians to collaborate and share knowledge with other information professionals. This fosters a community-driven approach that enhances research capabilities and keeps libraries innovative.

End Note

EndNote automates citation management for librarians, saving time and effort when researching programs, grants, and other projects. Accurate citations also ensure information shared is properly attributed.

AI Tools to enhance patron experiences**Botsonic**

Chatbots allow librarians to be in two places at once! By training a bot with our library's knowledge, we extend our personal assistance beyond the front desk. Patrons can get quick answers around the clock to basic questions, freeing up librarians to tackle more complex research needs.

QuickChat

A library chatbot can handle basic inquiries, freeing up librarians to focus on in-depth research and personalized assistance. AI chatbots provide patrons with around-the-clock access to information, improving the self-service experience.

Copyscape

Librarians can use Copyscape to ensure library materials are original and do not contain plagiarized content. This protects the library's integrity and sets a good example for patrons.

AI Tools to accelerate productivity for librarians**MEM**

An AI assistant can be a librarian's secret weapon! With MEM's help, we can juggle a million tasks, remember every detail, and make the most of each precious minute. This means we have more time to devote to helping patrons directly.

Dante

An AI editor can help librarians eliminate typos, inconsistencies, and other errors before they make it to print. With Dante's help, we can create library communications that are polished, professional, and mistake-free - projecting a positive image for our institutions.

Andi Search

An intelligent search assistant can help librarians efficiently navigate the vast amount of information needed to answer complex patron questions. AI-guided research expedites the discovery of relevant resources and knowledge.

ChatPDF

ChatPDF allows librarians to quickly summarize lengthy research papers without reading them in full. This saves time and helps provide patrons with concise, relevant information to support their work.

Perplexity AI

Perplexity AI can assist librarians in staying up to date with the latest research trends. This ensures library resources incorporate current knowledge and information to meet patrons' evolving needs.

AudioPen

AudioPen can transcribe audio recordings for librarians, saving time and effort. This makes spoken content like interviews, lectures, and oral histories searchable and accessible for patrons.

Cataloging.ai

Cataloging.ai can generate metadata for library items, saving librarians from the tedious task of manual data entry. This frees up time for more valuable tasks that directly serve patrons.

Flixier

Flixier can transcribe audio/video materials for librarians, making the content searchable, shareable, and accessible. This allows spoken content to reach and benefit a wider audience.

Quillbot

Librarians are only as good as the words we put on the page. Quillbot helps ensure our writing is clear, concise, and correct - whether it's for signage, newsletters, or grant proposals. Well-crafted communications help us effectively engage and inform our patrons.

Grammarly

Librarians spend their days writing for patrons. Grammarly helps make sure that writing is polished and professional. By eliminating embarrassing mistakes, we build trust that patrons can rely on the information we provide.

AI Tools to aid marketing and promotions for librarians

Fable Fiesta

Storytelling is magic, and Fable Fiesta can help librarians weave spells that cast imagination on our youngest patrons. With AI assistance, we can create captivating characters and worlds that will spark children's creativity and love of reading.

Copy AI

AI content tools allow librarians to spend less time writing from scratch and more time curating and customizing generated text. This means we can create more marketing materials, instruction guides, and handouts - all of which help patrons make the most of our resources and services.

Canva AI

Librarians can use Canva's AI features to quickly design eye-catching visuals for marketing library events, programs, and services. Beautiful graphics and images help attract patrons and increase engagement.

Craiyon

Craiyon allows librarians to transform abstract concepts into vivid illustrations that bring library collections, stories, and themes to life. AI-generated images can enhance newsletters, handouts, and signage.

AnyWord

AnyWord can help librarians write catchy headlines, compelling social media posts, and engaging descriptions that attract more patrons. AI-assisted copywriting ensures library communications stand out and motivate action.

Midjourney

Librarians can use Midjourney to create interactive experiences that immerse patrons in the world of library collections. AI-generated art and visuals can enhance storytimes, book discussions, and exhibits - sparking imagination and learning.

Lexica - AI

AI art tools allow librarians to explore new ways of visualizing and representing library collections. AI-generated images inspired by library materials can add aesthetic appeal to communications and spark creative thinking.

Chatsonic - AI

An AI tool like Chat GPT but enhanced to stay on top of current and recent events. Aids in easy access of information and inspiration for librarians aiming on incorporating creative strategies in promoting their library services.

Tableau

Data visualization tools help librarians transform complex statistics into easy-to-understand graphics and dashboards. This allows library stakeholders to make more informed decisions based on data, leading to improved services, operations, and outcomes.

Parting Thoughts

AI tools for librarians hold great promise but also pose risks if not developed ethically and inclusively. As information professionals, we must advocate for AI that empowers all patrons and leaves no one behind. We must ensure these emerging technologies augment, rather than replace, the human element so vital to the heart of any library.

Ultimately, the future of libraries rests not in the capabilities of machine learning alone, but in our shared humanity and the human connections we foster through knowledge sharing. These technologies should enhance the roles of librarians, not replace them, enabling us to better serve our communities for generations to come.

Application of Artificial Intelligence in Libraries

Artificial intelligence is the modern technology which is used to manage the digital library

Some fields of artificial intelligence that are used in library management system include: Natural Language Processing (NLP), Expert Systems (ES), Pattern Recognition, Robotics etc

- Reference service: Any library's primary function is to provide reference services, and the expert system will take the place of reference librarians in this regard. AI conversational assistant can provide virtual reference services. In the age of AI, librarians are referred to as virtual storytellers or reader advisory humans. AI can also help patrons examine falsehoods, privacy and ethics.
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Conclusion

Overall, while the use of AI and ML presents both opportunities and challenges, it is important for libraries and information centers to proactively address the ethical considerations associated with these technologies to ensure that they are used in a way that aligns with their mission and values, and serves the best interests of their users and society as a whole.

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