



EFFECTIVE USE OF AI TOOLS IN LIBRARY SERVICES

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Abstract:

Just as invention of the wheel ushered in the mechanical age in human life, it would not be wrong to say that the invention of the computer ushered in digitization at a faster rate. In all living creatures, human beings have the natural gift of independent thinking. Humans have made many new inventions with the force of independent thinking. The invention of computer is an example of them. Artificial Intelligence is the most important stage in which human being has brought drastic changes in computers with the help of their intelligence. Artificial Intelligence is a branch of computer science that focuses on creating computers that think like humans. Artificial Intelligence has started to be used in almost all the places where computers are used. Mainly in the fields of Science, Health, Automobile, Engineering, Climates, Business, Pharmaceutical along with Academic Library, the need for this increasing day by day. The use of AI in Library Services as well as in technical matters is necessary in libraries. Due to the use of AI, speed and accuracy will be brought in the work in the library and also it will be convenient for the libraries to provide maximum library services with less manpower.

Keywords:

Artificial Intelligence, NEP 2020, AI Tools, Need of AI Tools, Applications, SMART Libraries, Role of Librarian

Introduction:

In the current dynamic computer era, human beings have unconsciously turned towards Smart Work. Humans tend to do maximum work by spending minimum time and effort. By using technology effectively, human beings have started doing the things they want sitting at one place without any time limit. Small and large companies, various types of organizations and various departments are also seeing the use of technology to promote and spread their goods. If we look at the goods we have and who exactly needs those goods, AI technology may have emerged with the thought of unnecessary time and human resources. Almost all academic libraries in the country seem to be computerized at present. Books are exchanged using various software, thus saving both the time and labor of the library. Nowadays, it is important for the academic library to recognize the needs of the readers and provide reading materials according to their needs. The larger the library, the larger its readership, at that time, it takes a lot of time and manpower to meet the needs of a large readership. The use of AI in the Academic Library will be beneficial to save the labor and time of the Academic Library to provide reading materials according to their needs to the maximum number of readers and also to implement various services in the library more effectively.

"A library is more important than university because library can function without a university whereas university cannot do without library." **Dr. Shankar Dayal Sharma's** quote shows the importance of Academic Library from earlier. NEP 2020 has also given importance to books. Libraries should be strengthened and digitized to develop reading culture and availability of Books in Indian languages in libraries has been promoted to strengthen libraries.

National Education Policy 2020 is a student centric policy. This is a policy that gives everyone the freedom to choose the subject of their choice. NEP 2020 aims to double a higher education enrollment rate from 26% to 52%. According to NEP 2020, 15 thousand large Autonomous Institutions will be created in the country by

merging universities and colleges. The Policy of freedom of choice of subjects of interest to the students poses major challenges to the libraries. The use of AI tool will be equally important to meet the challenges faced by the academic library with a large readership. Due to the use of AI Tools, libraries can speed up library work along with manpower, labor and time.

Artificial Intelligence Tools:

Artificial Intelligence is an area of computer science that emphasizes the creation of intelligent machines that work and reacts like humans. Different types of AI Tools are used in Academic Library according to user needs. Automated cataloging can analyze and categorize large amounts of data, saving time and effort for librarians and library staff. By recognizing the patterns of the received data and classifying it, it is possible to exchange information accordingly.

Tensor Flow:

Tensor Flow is an open-source machine learning library developed by Google. Primarily used for research and production-level deployments.

PyTorch:

PyTorch is a machine learning library developed by the widely popular Facebook's AI Research Experiment School.

Scikit-learn:

A simple and efficient tool for data mining and data analysis built on NumPy, SciPy and matplotlib, it supports various supervised and unsupervised learning algorithms.

Keras:

An open-source neural network library written in Python, Keras is known for its user-friendliness and seamless integration with Tensor Flow and other backend.

OPENCv:

Open CV (Open Source Computer Vision Library) is a library of programming functions aimed primarily at real-time computer vision, useful for tasks such as image processing and object detection.

NLTK (Natural Language Toolkit):

NLTK is a leading platform for creating Python programs for working with human language data, particularly in natural language processing (NLP).

SpaCy:

An open-source library for advanced natural language processing tasks, SpaCy is known for its efficiency and ease of use in tasks such as named entity recognition and dependency parsing.

GENSIM:

GENSIM is a Python library for topic modeling, document indexing, and similarity retrieval with large corpora. It is often used for tasks such as document similarity analysis and keyword extraction.

HUGGING FACE TRANSFORMERS:

This library provides sophisticated natural language processing pipelines and pre-trained models for various NLP tasks including text classification, language translation and text generation.

CAFFE:

Developed by the Berkeley Vision and Learning Center (BVLC), CAFFE is a deep learning framework designed for speed, modularity, and expressiveness. It is commonly used for image classification and segmentation tasks.

Need & Applications of AI Tools:

Artificial intelligence (AI) tools can revolutionize library operations by various ways:

Digital Preservation and Access:

With the help of this tool, it is convenient to convert the rare written materials in the libraries into digital text format with the help of Optical Character Recognition (OCR). By studying the classification of books available in the library, the number of users statistically, AI tools guide the libraries for future strategic planning. Therefore, the available budget can be properly utilized. Digital Preservation converts books into digital data that can be used by many people at the same time, without taking up as much space as books. A large amount of digital data can be stored on a computer's hard disk. It is a very useful and important component for libraries in small spaces.

Enhanced Accessibility:

This AI tool eliminates the difficulties of disabled users. A list of materials in audio format is made available for visually impaired users. The text is read out for the dyslexic users so that the user can listen to the readable information anytime and anywhere with the use of Headphone, there is no limit of time and time.

Content Curation and Collection Development:

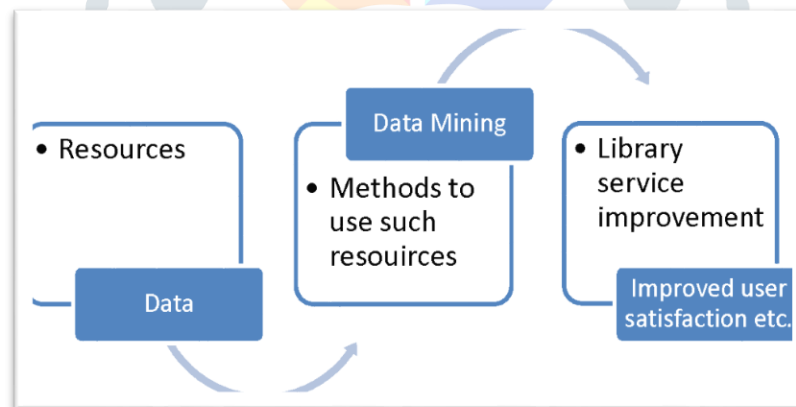
With the help of Content Curation and Collection Development, it is convenient to take the feedback of the readers and analyze what their interest and need are and to know what material is lacking in the Academic Library and take decisions in order to make the libraries more capable.

Data Mining:

Data mining in academic libraries is done in six stages: identifying research topics and trends, classifying, clustering, analyzing, predicting and presenting. By collecting a large number of meaningful patterns and trends from a specific group, the information is analyzed in detail by knowing the opinions and feelings of the group. Data mining helps libraries improve their quality. Data mining is prevalent in many commercial places but it does not seem to have spread enough in academic libraries. Due to Data Mining, information about other reading material available in the library is provided to the respective user by knowing the interest of the reader by using various tools.

Robotic Technology:

Robotic technology has a great impact on the various services offered by academic libraries, such as library security using robotics, searching for required materials, providing virtual reference services, and providing customized library services. This will facilitate the work of libraries. Doing any work continuously causes physical and mental fatigue to a human, so the speed and accuracy of the work can decrease. By using advanced robotic technology, it is possible to continue working without getting tired. It helps to keep the pace of work regular. The use of robotic technology is essential for the continuity of various services in the library.



System Experts:

System Experts is a popular computer system based mainly on knowledge and rules. This system has been successful in increasing the quality, accuracy and speed of work in libraries. An AI system has been developed that is useful for library users in Acquisition, Indexing, reference, cataloguing, classification, information retrieval, Current Awareness Service (CAS), Selective Dissemination Information (SDI), online searching and Archiving etc.

Natural Language Processing Toolkit:

Natural Language Processing Toolkit converts human language into computer language. Humans express their feelings through their language or actions. Python is useful for converting human language into computer language. Based on the browsing history of the library users, their doubts are provided accordingly and accurate information is provided to them so that the user can be guided to get the required information and resolve his doubts.

Smart Cataloguing & Classification:

Libraries can automate the process of classifying and cataloging Library Resources with the help of AI tools and Metadata. By using Natural Language Processing (NLP) techniques to discover content in documents, the process of organizing and retrieving resources can be made simple and streamlined.

Personalized Recommendations:

The use of AI algorithms to analyze the borrower's borrowing history can be beneficial. The use of AI algorithm helps in getting the knowledge of the reader's interest by finding out what exactly is the reader's reading interest and need and suggesting the relevant resources.

Smart Search:

Using this AI tool helps improve the accuracy and relevance of search results. Machine learning models facilitate decision-making on how best to use the service provider's performance based on interactions between users and their feedback.

Virtual Assistants and Chatbots:

Virtual Assistant and Chatbots is such a toolkit of AI that allows the reader to ask his queries without any time constraint. Through the classification of Frequently Asked Questions (FAQ), the reader's doubts are instantly resolved by finding out which question is related to the question. As it is not bound by time and place, the user can solve his doubts anytime and anywhere and enhance his experience.

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Predictive Analytics for Collection Development:

With the help of this resource, libraries can predict trends and future needs by analyzing reader feedback. As libraries get a vision of the future, they can track and plan accordingly. The use of Predictive Analytics for Collection Development enables libraries to develop collections according to the needs of the readers along with proper cost planning.

Automation of Repetitive Tasks:

All the tasks that librarians have to do frequently such as Circulation Management, Interlibrary loan processing, inventory management and overdue notifications can be automated with the help of AI. Due to Automation of Repetitive Tasks, this tool controls the user's exchange and if the exchange is not done within a certain period, the user receives the appropriate notification through an automatic system, which frees the librarians from complex work as well as free time. The time saved by the library staff can be classified in other development of the library.

Automated Metadata Generation:

With the help of AI, Metadata of library resources can be created without any human effort, reducing the manual effort required for Metadata. This helps to increase the accuracy and consistency of Metadata in the library.

Smart Space Management:

AI can monitor the use of library resources by making proper use of sensors and library space. Experience gained can enable library management to make sound predictions for improving layout and design.

Security and Fraud Detection:

The use of AI algorithms makes it possible to identify users with anomalous behavior based on their movements. By identifying authorized and unauthorized users with the help of appropriate techniques like biometric systems, RFID systems, libraries can be protected against future threats in time. By effective use of AI tools, traditional libraries can be developed into SMART libraries capable of providing digital services that change according to user needs and time.

Role of Librarian in accordance with AI Tools:

Librarians play a crucial role in utilizing AI tools in several ways. Librarians play an important role in developing traditional libraries into SMART libraries. The more a librarian can use AI tools effectively, the more SMART libraries can be made. GE06035_536605_164_168

Information Retrieval:

Librarians use this tool to improve information retrieval systems. It helps to find resources quickly and efficiently by making the right decisions about how the interaction between the library and the user can be improved.

Content Creation:

AI Tool is used to create summaries, abstracts or index of documents. This saves the time and effort of manual processing. With the help of AI tools, librarians will be able to provide services in a better manner and speed. Implementation of AI tools in the libraries will remain on the path of regular progress.

Overall, Librarians' involvement in utilizing AI tools ensures efficient information management, enhanced user experiences, and better utilization of library resources.

Conclusion:

Applications of AI are growing day by day. AI has the potential to greatly impact library work. It can be used to improve services, such as speeding up the process of finding information and making recommendations for relevant library materials. AI tools can be used in libraries for various purposes such as classification and cataloguing, library management, library services, and information literacy. Librarians need to understand the value and pitfalls of AI tools to stay relevant and provide quality services to patrons. Digital Reading is the new craze & its challenge for the libraries to fulfill the required needs of users. Many of the readers read books online & they don't need to buy books. As a result, the number of digital readers is increasing day by day. In order to fulfill the needs of digital readers, libraries should provide best services to the readers which can be achieved through the proper utilization of artificial intelligence tools. Artificial Intelligence can help libraries improve the services they provide to stakeholders by identifying users' reading habits & interests so that libraries can provide users with more appropriate resources according to readers preferences. One application is the use of artificial intelligence text generators (AITGs) to streamline library operations, enhance services, and make collections more accessible. By leveraging AI tools effectively, libraries can streamline operations, enhance services, and better meet the evolving needs of their users in the digital age.

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