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Research Article

A Study On Artificial Intelligence Media Library In India

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ABSTRACT

Artificial intelligence is the simulation of human intelligence processes by machines. It is one of the emerging trends and applications of computing in libraries. AI is simply a component of the technology, such as machine learning. AI requires a foundation of specialized hardware and software for writing and training machine learning algorithms. The purpose of Artificial Intelligence based system is to replace or complement services in different sector like education, manufacturing, Agriculture, communication etc. The ultimate promise of artificial intelligence in libraries is to develop computer systems or machines that think, behave, and in fact rival human intelligence, and this clearly has major implications on librarianship. The application of artificial intelligence in the library has become pervasive. They include expert systems for reference services, book reading and shelf-reading robots, virtual reality for immersive learning among others. This paper will discuss about the media library and its digital storage thorough different software and advance computer technology. The paper will also discuss about the positive and negative aspect of artificial intelligence specialized media library and future scope of the media data storage.

Keywords: Artificial intelligence, machine learning, shelf-reading robots**,** AI media library

INTRODUCTION:

Intelligence is the ability to think and learn facts and skills and also apply them when necessary. The prospect of developing computers or machines that perceive, learn, reason and behave like human beings has fascinated many people. Humans are born with an innate ability to perceive, reason/think and act, which develops and improves over time as a result of so many factors. Intelligence in humans is measured by the Intelligence Quotient (IQ) obtained through series of aptitude test focusing on different aspects of intellectual functioning. Similarly, developing intelligent computers that perceive, think and behave like humans is the crux of Artificial Intelligence. Intelligence in computers or machines depicts their ability to accomplish specific task in the presence of variability and monitor its environment and appropriately adjust its actions based on what it has sensed as prerequisites for intelligence. Intelligences in machines is an anthropomorphism in that intelligence is defined by the criterion that the actions would appear intelligent if a person were to do it (McGraw-Hill Encyclopedia of Science and Technology, 2007). According to Ex Libr is (2019), intelligence in machines not only gives such devices the ability to learn but they are also configured to improve with use to perform functions better without being explicitly programmed because they are built to recognize and imbibe patterns efficiently on much higher scales than humans. Artificial intelligence already touches many of our daily computing activities, most of the computer systems and mobile phones being developed today have artificial intelligence features and we have probably used them not knowing that they are intelligent machines. Examples of Artificial intelligence in computers are speech recognition, natural language processing, self-driving or autonomous cars, machine learning, deep leaning and robotics. Artificial intelligence works based on perceptual recognition unlike human beings that operate on deep cognition. The power and advantage of Artificial intelligence lies in the fact that computers can recognize patterns efficiently at a scale and speed that human beings cannot. The development of societies in recent times has been facilitated by the growing demand of access to information, and libraries are the prime source in providing this access. The paradigm shift in the format and dynamics of information and knowledge as a result of the rapid advancement in computer technology and software applications especially artificial intelligence, have shifted libraries to a demand of the commensurate supply of the same technologies. Unless libraries begin to exploit the new technologies and innovate their information and services delivery, they may face

obsolescence in this era. Artificial intelligence is used in many areas such as medicine, military, business, education, gaming, libraries etc. The idea of creating artificial intelligence systems in libraries dates back to 1990. These intelligent library systems provide knowledge-libraries based services to both the library staff and patrons (Asemi & Asemi, 2018).Application of artificial intelligence in library system encompasses descriptive cataloguing, subject indexing, reference services, technical services, shelf reading, collection development, information retrieval system etc. These have gone beyond Natural Language Processing (NLP), and knowledge-based services. With the advancement in artificial intelligence programming, creating a smart library is not only a possibility but a matter of time. Corroborating this assertion, Corke (2013) reported that researchers and experts in the field of artificial intelligence are creating intelligent systems which can think and behave like librarians – library robots.

CONCEPT OF ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) refers to the simulation of human intelligence by software-coded heuristics. Nowadays this code is prevalent in everything from cloud-based, enterprise applications to consumer apps and even embedded firmware.

The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal. A subset of artificial intelligence is machine learning (ML), which refers to the concept that computer programs can automatically learn from and adapt to new data without being assisted by humans. Deep learning techniques enable this automatic learning through the absorption of huge amounts of unstructured data such as text, images, or video. In today's world, technology is growing very fast, and we are getting in touch with different new technologies day by day.

Here, one of the booming technologies of computer science is Artificial Intelligence which is ready to create a new revolution in the world by making intelligent machines. The Artificial Intelligence is now all around us. It is currently working with a variety of subfields, ranging from general to specific, such as self-driving cars, playing chess, proving theorems, playing music, Painting, etc.AI is one of the fascinating and universal fields of Computer science which has a great scope in future. AI holds a tendency to cause a machine to work as a human. Thus AI is

"It is a branch of computer science by which we can create intelligent machines which can behave like a human, think like humans, and able to make decisions.".

MEDIA LIBRARY AND AI IN INDIA

The Indian government has recognized the potential of AI in libraries and has taken measures to incorporate it into the library system. The Ministry of Culture launched the National Digital Library of India (NDLI) in 2019, which is a digital platform providing access to millions of e-books, e-journals, and other digital resources to users throughout the country.

The emergence of AI-powered search engines has revolutionized the way people search for information in libraries. With advanced Natural Language Processing algorithms, search engines can now comprehend complex queries, providing users with accurate and relevant results. In India, where there are more than 54,000 public libraries, the use of AI in search and discovery can significantly improve patrons' access to information.AI-powered recommendation systems have also enhanced the discovery of resources in libraries by analyzing a user's search history and providing personalized suggestions for books, articles, or other relevant resources. Overall, the integration of AI in libraries has the potential to make information access more efficient and effective.

Personalized Learning

AI integration in libraries offers personalized learning opportunities for patrons through customized learning paths. By analyzing a patron's reading history, AI-powered systems can create personalized reading lists based on their interests. According to a report by the Ministry of Human Resource Development, Government of India, there are over 993 universities and 39,931 colleges in India, and AI-powered personalized learning systems can greatly benefit students in accessing educational resources effectively. AI can also assist with language learning by providing real-time feedback on pronunciation, facilitating faster and more effective language skill improvement for patrons.

Digitization & Preservation

The preservation and conservation of cultural heritage are being revolutionized by AI. AI algorithms can find the best preservation methods to stop the deterioration and damage of physical items like books, manuscripts, and artwork because of their capacity to analyze enormous amounts of data rapidly and precisely. Additionally, with the aid of this technology, it is possible to create digital archives that can be accessed by scholars and enthusiasts everywhere, preserving and disseminating knowledge for future generations. AI can also assist in identifying possible threats to cultural heritage, such as theft or natural catastrophes, allowing authorities to take preventative action. AI can help make preservation and

conservation activities more effective, efficient, and long-lasting, protecting our cultural heritage for years to come.

Improved Accessibility

AI is also improving accessibility for patrons. For example, AI-powered systems can provide text-to-speech functionality for visually impaired patrons. AI can also help with translation services, allowing patrons to access information in their native language.

Remote Access

AI is driving the shift towards digital libraries in India. Digital libraries have many advantages over physical libraries, including increased accessibility, flexibility, and scalability. With digital libraries, patrons can access information from anywhere at any time. According to the Ministry of Culture, Government of India, the National Digital Library of India currently has over 4.4 million books and documents available online and is constantly adding to its collection. With the help of AI-driven innovations and advancements, digital libraries can become an even more essential resource for education, research, and learning in the country.

AI can enrich media library in multiple ways. These not only help to save time and reduce human error, but to make the most of your existing data and get projects to market faster.

1. Automatic speech-to-text output

Manual transcription is fortunately a thing of the past. But even the best modern text-to-speech algorithms aren't perfect, forcing some level of human oversight, editing and sign-off. That said, by augmenting speech to text tools with AI, the matching success rate can be enormously improved, reducing the human input required.

The accuracy of AI today can also be invaluable in situations where distortion or background noise makes more traditional transcription tools so error prone as to be almost useless. This can help bring to life legacy footage that was simply too onerous to transcribe manually, as well as create new content associations within the DAM.

2. Automated facial recognition

Even more so than with speech, automated face recognition is an essential tool in the armory of enterprise video management. Especially in situations where large numbers of individuals are involved, automated face recognition and tagging can save thousands of man-hours, as well as ensure that even short clips are correctly tagged.

Applying AI to sporting media

Using AI for sports can automate key functions that include:

- Identifying players and coaches
- Reporting on sponsor coverage
- Integrating player biogs and stats
- Isolating highlights
- Tracking people and objects
- Transcribing game commentary

For more information about how AI can automate sport, media and enterprise workflows, download Imagen's AI Services Factsheet.

3. Sentiment analysis and speaker identification

Similarly, speaker identification is essential for audio-only files, whether gleaned from presentations or conference calls. Event video can also be usefully mined for speaker data, bringing in the speaker's biographical and/or employment data (in the case of a corporate video presentation), or career successes in the case of artists or sports stars, for example.

4. Smart object recognition and tracking

Identifying and labelling everyday objects in video footage can be useful, especially paired with object tracking functionality. This - when powered by AI - can track and tag the movement of multiple objects. The result is that content owners can search for digital media assets more efficiently.

5. Automatic logo recognition

The value of logo tracking from a marketing function perspective, is considerable. But before automation, it wasn't always practical from a workflow perspective. While relatively static logo tagging (for example, during a pre-prepared presentation) presents fewer challenges, more dynamic and complex environments create a substantial overhead for manual processing.

AI tools however can track relatively fleeting logo visibility in an otherwise lengthy clip - for example, a static sponsor logo in the stands at a football match, or trackside in motorsport. These moments are likely to add

considerable value for a sponsor, making them a necessity for larger rights holders and events - a necessity that can now be largely AI-automated.

6. Automatic shot detection

Automatically detecting scene breaks is a crucial element in video management, but it presents more of a challenge than many might expect. However, with AI trained to recognise cuts, fades, dissolves, and camera motion, shot detection is finally within reach for all sizes of business.

7. Automated tag management

The ability to use AI to manage tags is an enormous benefit to any organization with an extensive library of media assets. From legacy tagging systems and auto-generated tags to accidental manual duplicates, there is a universe of simple tweaks that a good AI tool will immediately analyze and present for approval. Once tags have been culled, edited and managed appropriately, entirely new content opportunities can be uncovered thanks to fast and accurate semantic search across large digital media libraries using simple keywords.

Effective tag management is an investment in operational and content transparency that will have small efficiency impacts every day, as users easily find what they were looking for, and occasional significant breakthroughs where new, relevant content is discovered at precisely the right time to have maximum impact.

CONCLUSION

Intelligence, whether in humans or machines, revolves around the ability to perceive, learn, reason, and act appropriately. The development of artificial intelligence aims to emulate these human-like capabilities in machines, enabling them to accomplish tasks with variability and adapt based on environmental inputs. AI has already integrated into many aspects of daily computing, such as speech recognition, natural language processing, and machine learning, showcasing its potential to enhance various fields, including media libraries.

Media professionals usually consult sources and channels that are easily available and accessible. Most of their work assignments require information-seeking from specialized sources of information. Media professionals need good library facilities and services, as well as online data facilities. This study found that libraries and specialized collections are the main channels of information in use. AI can enrich media libraries in multiple ways, most importantly by saving teams time and effort and reducing human error. By enabling the addition of more varied metadata and pulling in other data sources (such as biographical data for individuals in clips), AI goes well beyond manual processing techniques and will add significant value to any business model.

Moreover, AI's capabilities extend to automatic transcription, facial recognition, sentiment analysis, speaker identification, smart object recognition, logo recognition, shot detection, and automated tag management. These advancements transform the way media assets are managed, making the process more efficient, accurate, and comprehensive.

In summary, the integration of AI into media libraries offers a multitude of benefits, ranging from enhanced efficiency and accuracy to improved decision-making and cost savings. AI's ability to automate routine tasks, generate rich metadata, and provide detailed insights transforms media asset management into a more efficient, accurate, and comprehensive process. By embracing AI, media organizations can stay ahead of industry trends, enhance user engagement, and ensure the sustainability and future-proofing of their operations. As AI continues to advance, its impact on media libraries will only grow, making it an indispensable tool for the modern media professional.

REFERENCE

1. Abram, S. (2019). Robots in libraries: Technology trends that aren't that out-thereanymore! Retrieved April 17, 2019 from: https://lucidea.com/blog/robots-in-libraries/
2. Alpert, L. I. (2016). Washington Post to cover every major race on election daywith help of artificial intelligence. Retrieved September 24, 2019 from: www.wsj.com/articles/washington-post-to-cover-every-race-on-election-day-with-the-help-of-artificial-intelligence-1476871202
3. American Library Association. (2019). Artificial Intelligence. Retrieved October12, 2019 from: http://www.ala.org/tools/future/trends/artificialintelligence/
4. Asemi, A., & Asemi, A. (2018). Artificial intelligence (AI) application in librarysystems in Iran: A taxonomy study. Library Philosophy and Practice (e-journal).Retrieved May 21, 2019 from: http://digitalcommons.unl.edu/libphilprac/1840/
5. Bailey, C. W., Jr. (1991). Intelligent library systems: artificial intelligence technologyand library automation systems. Advances in Library Automation and Networking,4. Retrieved May 17, 2017 from: http://eprints.rclis.org/4891/1/intlibs.pdf
6. Blakemore, E. (2016). High tech shelf help: Singapore's library robot. RetrievedMay 8, 2019 from: https://www.libraryjournal.com/?detailStory=high-tech-shelf-help-singapores-library-robot

7. Bourg, C. (2017). What happens to libraries and librarians when machines can readall books? Retrieved September 28, 2019 from: www.chrisbourg.wordpress.com
8. Coleman, C. N. (2017). Artificial intelligence and the library of the future revisited.Retrieved October 3, 2019 from: https://library.standford.edu/blogs/digital-library-blog/2017/11/artificial-intelligence-and-library-future-revisited/
9. Corke, P. (2013). Robotics, vision and control: Fundamental algorithms in MATLAP.Berlin: Springer.
10. Croft, B. W., Metzler, D., & Strohman, T. (2015). Search engines: informationretrieval in practice. Pearson Education, Inc. Retrieved June 16, 2019 from: http://ciir.cs.umass.edu/downloads/SEIRiP.pdf
11. Eberhart, G. M. (2019). An AI lab in a library: Why artificial intelligence matters.American Libraries. Retrieved June 27, 2019 from: https://americanlibrariesmagazine.org/blogs/the-scoop/ai-lab-library/
12. Ex Libris. (2019). How AI can enhance the value of research libraries. RetrievedOctober 4, 2019 from: www.libraryjournal.com/?detailStory=how-ai-can-enhance-the-value-of-research-libraries
13. Fine, A. (2017). Artificially intelligent math for school educators. Retrieved October3, 2019 from: https://districtadministration.com/artificially-intelligent-math-for-school-educators
14. Garcia-Febo, L. (2019). Exploring AI: How libraries are starting to apply artificialintelligence in their work. American Libraries. Retrieved August 6, 2019 fromhttps://americanlibrariesmagazine.org/2019/03/01/exploring-ai/
15. Guion, D. (2019). Artificial intelligence and libraries. Retrieved October 3, 2019from: www.allpurposeguru.com/2019/04/artificial-intelligence -and-libraries/
16. Gustavsson, J., & Hedlund, M. (2011). The art of writing & speaking. RetrievedJuly 15, 2019 from: https://www.svet.lu.se/sites/svet.lu.se.en/files/art-of-writing-speaking-2011.pdf
17. Harris, E. A. (2016). Next target for IBM's Watson? Third-Grade Math. RetrievedOctober 3, 2019 from: https://www.nytimes.com/2016/09/08/nyregion/ibm-watson-common-core.html
18. Heath, N. (2018). What is AI? Everything you need to know about artificialintelligence. Retrieved October 3, 2019 from: www.zdnet.com/article/what-is-ai-everything-you-need-to-know-about-artificial-intelligence/
19. Irizarry-Nones, A., Palepu, A., & Wallace, M. (2017). Artificial intelligence (AI).Retrieved from: www.bu.edu/lernet/artemis/years/2017/projects/FinalPresenations/A.I.%20Presentation.pdf
20. Jacknis, N. (2017). The AI- enhanced library. Retrieved October 3, 2019 from:https://medium.com/@Norman Jacknis/the-ai-enhanced-library-a34d96fffdfe
21. Jackson, B. (2015). What is virtual reality? Definition and examples. RetrievedMay 5, 2019 from: https://www.marxentlabs.com/what-is-virtual-reality-definition-and-examples/