ARTIFICIAL INTELLIGENCE (AI) POWERED ROBOTICS FOR ACADEMIC LIBRARIES: THE IMPACT OF ROBOTIC SYSTEMS IN INDO – AFRICA

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ABSTRACT

The robots engage in activities such as scrambling, rolling, soaring and climbing. These robots have an impact on libraries and the larger information (and social) environment in which we all live. Libraries have recently begun to provide access to robots and robot-related science technology, engineering, and mathematics (STEM) education programs. Westport (Conn.) Library, for example, offers training for its two programmable humanoid small humanoid robots (NAO) robots, and the Chicago Public Library lends small, mobile Finch robots. The University of Rhode Island Libraries' AI Lab hosts weekly "robot hours", during which students learn to control and program robots. Some aspects of library work are more likely than others to benefit from robots. According to Kim (2017), libraries can use humanoid robots to greet visitors and provide directions. Libby, a robot at the University of Pretoria Libraries in South Africa, already performs such tasks. Prior research has suggested the value of and the need to provide consistent research on Artificial intelligence. However, there is a lack of good instructors that are tailored to the academic libraries and library and information science disciplines. Interviewees identified the impacts of AI-powered robotics on search resource discovery, scholarly publishing, and on learning. Challenges included libraries being left outside the focus of development, ethical concerns, the intelligibility of decisions, and data quality. Some threat to jobs was perceived. A number of potential roles for academic libraries were identified such as data acquisition and curation, AI and robotic tool acquisition, and infrastructure building aiding user navigation and data literacy. Originality/value (mandatory) This is one of the first papers to examine current expectations around the impact of AI on academic libraries. The authors propose the paradigm of the intelligent library to capture the potential impact of AI on robots of Indo – African libraries. Tella (2020) noted that AI in humanoid robots is already available in libraries in both developed and developing countries, which is no longer news.

Keynote:

Artificial Intelligence (AI) Impact of Robotic System (IRS) Academic Library (AC)

BACKGROUND OF THE STUDY

Artificial Intelligence and Robotic attempt to replace human power with machines was the creation of the first industrial revolution. The impact of artificial intelligence and robotic system on the nature of future libraries will be enormous, and the quality differences will be different from what our current work expects. Most library-oriented artificial intelligence applications developed until today or currently under development are basic business aids of the runtime because they are built today. Potential applications include systems that help perform the different tasks for the library such as people, budget, collection development, scheduling, etc. These applications include systems for enhancing user services, such as ready references and information storage & retrieval. The word robotics was derived from the word robot, introduced to the public by Czech writer Karel Capek in his play R.U.R. (Rossum's Universal Robots), published in 1920. The word robot comes from the Slavic word robota, which means work/job. The play begins in a factory that makes artificial people called *robots*, creatures who can be mistaken for humans – very similar to the modern ideas of androids. Karel Capek himself did not coin the word. He wrote a short letter in reference to etymology in the Oxford English Dictionary in which he named his brother Josef Capek as its actual originator.

ARTIFICIAL INTELLIGENCE POWERED ROBOTIC IN ACADEMIC LIBRARIES (AIPRCL)

Some scholars' views were made in the different seminars, conferences, and textbooks on artificial intelligence-powered robotic

Courtesy of Google pictures

Figure 1 Robots, Shelving materials in library

AI, coming up with some definitions and providing unique definitions that give different perspectives toward the art and science of creating a system that can make intelligent decisions. Cox, Pinfield, and Rutter (2019) give a definition from Tredinnick: (AI is) "a cluster of technologies and approaches to computing focused on the ability of computers to make flexible rational decisions in response to unpredictable environmental conditions. A functional definition for this study is gleaned from the work of AI researchers Keith Frankish and William Ramsey (2012) in the Cambridge Handbook of Artificial Intelligence: which says "Artificial intelligence is a cross-disciplinary approach to understanding, modeling, and replicating intelligence and cognitive processes by invoking various computational, mathematical, logical, mechanical, and even biological principles and devices," often from a pragmatic (smart systems design) perspective.
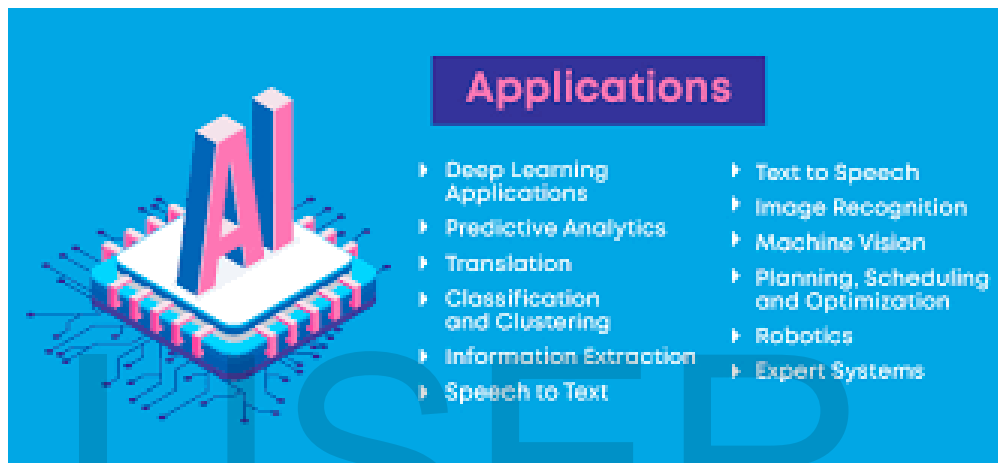
Courtesy: Google pictures

Figure 2 Application of AI-powered robotics in Library Work

In an academic library and information center, the use of AI-powered robotics might include creating a program that offers automated reference services or scans the text of books to identify appropriate subject categories. On the design side, artificial intelligence requires highly complex programming logic and an understanding of statistical and computing principles; however, on the practical side (as would be used by libraries), what is most needed is simply a change in thought about what library technology is and can become. Artificial intelligence and robotic is arguably the next frontier in an evolution of computing technology that has seen the development of mobile computing and ultra-fast processors. The multitude of possible uses for AI and robots (affecting virtually all aspects of our lives, just as with the innovations of the internet, personal computers, and mobile phones) has led to the creation of a multibillion-dollar industry, which could easily become a multitrillion-dollar industry before all is said and done. It is important for academic libraries to investigate artificial intelligence and robotic system AI&RS technologies as they develop and integrate them as appropriate.

STATEMENT OF PROBLEM (SoM)

The sound of the term artificial intelligence often conjures images of robot systems or computers that talk. Artificial intelligence will be an aspect of academic library and information work that will focus on how library and information retrieval and certified by the client, furthermore, it encapsulates speech recognition, speech production, understanding, and use of library and information resources in the libraries (Natural Language Processing), and Expert System which continues to gain more attention. Furthermore, artificial intelligence is the programming and development of computers to perform human-required-intelligence tasks that will enhance the library and information work, such as collection development, decision-making, and visual perception, artificial intelligence is the technology that enables machines to be to have the ability to plan, learn, reason, solve problems, move, and be creative to some extent. With this main focus on artificial intelligence and robotics, it will surely have an impact on academic libraries in Indo – Africa on its perception, reasoning, and action. The fundamental in intelligence information gathering and maintained that artificial intelligence and robotics is a subfield of computer science focused on understanding the nature of academic libraries and constructing computer systems with the ability to make intelligent behavior in the library. Moreover, it is primarily concerned with representations of knowledge and heuristic methods of reasoning using common assumptions and rules of thumb. Artificial intelligence includes creating machines with human thinking and solving the human problem, Artificial intelligence and robotics are concerned with the concepts and methods of symbolic inferences and the representation of knowledge by machines. It is aimed at performing intelligent tasks such as logical thinking, learning new abilities, and adapting to new situations and problems. Academic libraries have always found ways in which information will be retrieved easily for clientele with the using Artificial intelligence and Robotic Systems in libraries and information centers will be more relevant and paramount these are why because the library is the heart of the institution the authors wish to find out the impact of Artificial Intelligence powered robotics in academic libraries in Indo – Africa. Finally decided to take over the title of the journal as "Artificial Intelligence powered robotic Its Impact on Indo-Africa Academic Libraries

SYSTEMATIC LITERATURE REVIEW (SLR)

Systematic Literature Review discussed of artificial intelligence in library and information science so much literature has existed for many years. Pei Wang & Ben Goertzel (2012), reviewed the literature on artificial intelligence to identify potential applications in libraries. Most of these works, however, were largely theoretical rather than examining practical applications. Library technology pioneer F.W. Lancaster (2013) continued to investigate the use of AI in library systems for several decades. Keith Frankish & William M. Ramsey (2014 described artificial intelligence as a technology with the potential to "eventually handle the work of an entire (library) department." Library technology pioneer F.W. Lancaster took interest in the topic in (2008) · and continued to investigate the use of AI in library systems for several

decades. Tom Suprenant, & Donnie Darko (2001). described artificial intelligence as a technology with the potential to "eventually handle the work of an entire (library) department." Linda Smith (2006) reviewed the literature on artificial intelligence to identify potential applications in libraries. Most of these works, however, were largely theoretical rather than examining practical applications. From a practical standpoint, the use of artificial intelligence in libraries is new and not understood well. Some of the efforts to integrate AI started from the earlier ideas of the late 1980s/1990s, but are just now on the verge of becoming a reality. Several libraries have recently found compelling uses of AI, such as to support library systems for the benefit of Perceptions toward Artificial. Their study focused heavily on the use of Supercomputers (like IBM's Watson) in libraries, asking respondents to identify what areas of the library this technology might be implemented in and how soon they would expect that implementation. Intelligence 867 library patrons and employees in Iran, as well as the use of AI in assisted information literacy instruction. In 2019, Finley described how a library has prepared patrons for a shift to a greater role for AI in everyday life as well as in libraries, using a diversity of programming and maker kits that incorporate AI activities. Wood and Evans (2012) investigated librarians' perceptions of artificial intelligence in 2018. There are several avenues for future investigation, based on their work. Their study focused heavily on the use of Supercomputers (like IBM's Watson) in libraries, asking respondents to identify what areas of the library this technology might be implemented in and how soon they would expect that implementation. Intelligence 867 library patrons and employees in Iran, as well as the use of AI in assisted information literacy instruction. From articles like Garcia-Febo's, (2022) it is clear that AI has become a topic of interest, confusion, and possibly concern among many in the field of library and information science. The interviewees, in general, expressed optimism about the future of artificial intelligence in libraries in such roles as support within information discovery tools and machine-readable collections, assistance in research production and scholarly communication, and support for teaching and learning

METHOD OF THE STUDY (MoS)

Methods An electronic survey was created used and distributed via the official email the some selected university libraries' Information Technology and Academic and Research Libraries. The population for the survey was academic librarians in public service roles. AI, and outlook/optimism toward computer/internet technologies and the monopolies and conglomerates that produce these technologies. The purpose of asking this variety of questions is to cover the breadth of the two research questions for this study. The researchers sought to identify any impact of artificial intelligence (AI) based on an outlook toward artificial intelligence and Robotic system AI&RS. Distinct methods were used for the analysis of the survey findings for each research question. For the research question. These regressions examine whether the responses to questions pertaining to knowledge, interest, and outlook toward artificial intelligence and Robotic system have a significant relationship with the category of the adopter. Such an

analysis has theoretical value as well as practical value (identification of variables that may assist in speeding up the diffusion process).

RESEARCH DESIGN (RD)

Research Questions The following research questions were developed to address topics of the impact of Artificial Intelligence AI use in libraries and the theoretical framework used for the study:

❖ What is the level of readiness for the use of Artificial intelligence on academic librarians in Indo – Africa Libraries?

❖ Would the robotic system be friendly in terms of using It in Indo -African academic libraries for the librarians?

MAJORS TO BE TAKEN (MT)

Academic libraries and librarians should take advantage of the technological advancement in the library task to enable librarianship more paramount and encourage the library in promoting library activities the academic librarian should use Artificial intelligence to develop reasoning and problem-solving skills. Some of the major takings are as follows: -

a. With Artificial intelligence knowledge representation has become easy. Knowledge representation is representing information that a machine or computer can understand.

b. Artificial planning helps agents sequence actions to perform to achieve goals.

c. Artificial intelligence's main goal is to develop intelligent machines that could learn on their own. No more human intervention for feeding data to machines.

d. With artificial intelligence one can develop machines that can read and understand human languages known as Natural learning processing. Thanks to natural learning and processing acquisition of knowledge became easy.

e. Artificial Intelligence helps to develop that could act on sensors (take input from sensors) and react accordingly.

f. Robotics has transformed thanks to artificial intelligence, which help robots acquire intelligence and perform task smartly.

g. Develop systems that can recognize, interpret, process and simulate human effects. All these can be achieved when intelligent systems can predict their motive and emotions. Quality of interpreting human effect could help in better decision making

FINDINGS OF THE STUDY (FoS)

The author found that artificial intelligence powering robotics in an academic library is a new technological advancement and there is a need to adopt the new technology so as to enable the academic library and information work more effectively in carrying out all the library tasks. Moreso after life changes every here and then, there is a need for the academic librarian to embrace the new technological advancement in improving themselves in promoting the for users to participate in the library

RECOMMENDATION OF THE STUDY (RoS)

Having known and agreed that the artificial intelligence-powered robotic system in the academic library is a good development. The author is hereby recommended the following: -

1. There is a need for financial backup specifically for artificial intelligence equipment and maintenance either from the government or non – governmental organizations in purchasing the artificial intelligence-powered robotic equipment for the academic libraries

2. There is a need to hire professionals who are well qualified in using robotic machinery to start using them in the academic libraries for the staff to learn.

3. There is a need for special courses introduced in the university for the use of artificial intelligence and robotic system for library staff enhancement and good task

2. There is a need for the university to organize training and retrain the staff on the usage of the robotic system and artificial intelligence in academic libraries.

5. There is also a need for the welfare and development of the library staff especially academic librarians who put the effort into making sure research and development move ahead.

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