

NIGERIAN LIBRARIES IN THE AGE OF ARTIFICIAL INTELLIGENCE ENHANCING COMPETENCIES AND SAFEGUARDING ETHICS

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Abstract

Artificial Intelligence (AI) is the area of computer science focusing on creating machines that can engage in behaviour that humans consider intelligent. These intelligent developments rely on deep learning, machine learning and natural language processing that help computers accomplish specific tasks by processing large amounts of training data to help the system recognize patterns, input data to drive predictions and feedback data for improving accuracy over time. Given that computers and internet deeply affect the library and information service field, asking a machine for answer is quickly becoming a normal everyday activity. Nigerian libraries are also working with machine learning technologies, to enhance classification schemes, indexing, information retrieval, reference and improve search and recall precision. This paper is an effort to identify possible ways libraries in Nigeria can build expertise and enhance the moral principles that govern the actions of these artificially intelligent machines to ensure that they behave in a way that would fit the ethical framework for librarians and explore the various possible applications of artificial intelligence in their operations.

Keywords: Artificial Intelligence, Ethics, Libraries, Machine Learning, Nigerian Libraries

Introduction

Artificial Intelligence (AI) in the area of computer science focuses on creating machines that can engage in behaviours that humans consider intelligent. AI is acknowledged as a transformative, if disruptive game changer and is being used today in the practice of law in areas of contract review, billing, and jury selections. In the field of medicine, AI's ability to crunch massive datasets has allowed it to surpass humans in diagnostic capabilities. Educators in law and medicine have also acknowledged that AI is changing the way professionals are trained and it will ultimately reduce the number of lawyers and doctors needed in the workforce of the future. Capability for machine learning, natural language processing and massive computing power are the three aspects of AI that impact the professions of law and medicine. These will likewise impact the profession of librarianship. Librarians in many parts of the world including Nigeria are making serious efforts to adopt AI in their libraries recently the University of Lagos library in 2020, received a donation of AI robot which is a commendable effort to Nigerian libraries. This is just the beginning and a lot needs to be done to apply these technologies in our libraries. Librarians in developing countries like Nigeria are still lagging behind discussions and

implementations of AI as compared to those in other climes and professions (Asefeh am Adeleh 2018)

According to the Internet Society (2017), Intelligence today continues to fundamentally change the with people use and interact with the comment internet deeply affecting the library and infection service fields, it is important for libraries to “stay ahead of time digital curve”, to the table to continue the uphold their values and offer services which meet society's heels, Just as it was in the early days of the electronic revolution, librarians are only beginning to grasp how completely this new technology will their daily lives, Nearly, all of today's emerging technologies are built on the foundation of increasingly sophisticated machine learning. Every major technology company is betting on machine learning, hoping to be a player in the coming revolution developing proprietary machine intelligence to perform tasks that used to require human intelligence.

However, AI will fear the institution of librarianship as no technology has before. Libraries are valued because they keep people informed and connected people read to enrich their lives and make informed decisions. Bit happens when that decision-making process is fundamentally changed? Machines us becoming skilled at learning, speaking, recognizing patterns, and making decisions. As a result, asking a machine for answers is a normal activity. As AI becomes better at understanding our information needs and delivering relevant answers, it seems likely we will come to rely on it more. Over time, these interactions will the less naval and more essential.

Competencies and AI Literacy for Librarians

Data information and knowledge are initial to the proper functioning of modern libraries in today's technologically driven world, hence effective management of information will help libraries to prosper and grow Librarians regardless of their job title and professional label, are information professionals, connected by their focus on acquiring, managing and applying the data, information, and knowledge required for research, teaching and learning (Rifaudeen, 2015) They therefore expected to develop competencies in AI which they can use to accomplish their work.

Die Federal Library and Information Center Committee (FLICC), (2011) defines competencies as the knowledge, skills, and abilities that define and contribute to performance in a particular profession. Competencies he described as patterns of skills, Knowledge, abilities behaviours and other characteristics (intrinsic acquired) that an individual needs to perform work, roles or occupational functions successfully. These competencies create a common bond of understanding a common language for defining professional standards.

At an organizational level, competencies can provide benefits to the library in the areas of strategic planning and budget exertion, recruiting and hiring, performance feedback and management, training and development, career development, succession management and alignment with the library's mission and strategic goals.

From an individual's perspective, understanding and using competencies can help to determine continuing education needs, set goals for advancement, discuss performance, career aspirations, and development needs with management or create a professional development plan.

At any given time, librarians can be in different stages in their competencies. This can be house, advanced or expert competencies.

- i. **Basic:** Librarians at this stage have basic knowledge, skills, and abilities for professional growth they focus on developing and improving knowledge, skills, and abilities in AI competencies.
- ii. **Intermediate:** Librarians at this stage have significant knowledge, skills, and abilities. At this stage, they understand and can explain and apply more than the basic techniques and technologies and may develop specialized skills in particular AI areas.
- iii. **Advanced/Expert:** Librarians at this stage have extensive knowledge, skills and abilities within certain functional areas. They may make strategic decisions, partner with organizational management, and provide enterprise direction to library programs and we may be experts in a specific: AI They may establish best practices and advanced techniques and technology.

These Competencies can be used to design and develop postings, descriptions, training and education programmes and performance evaluation programmes (FLICC 2011). Librarians are also connected by the competencies they use to accomplish their work. Naturally, many of them are specializations, and they do not all possess each competency to the same degree.

The notion of literacy has more recently been applied as defining will sets in a variety of disciplines that have the one to enable expression, communication, and access to knowledge. Some examples include digital literacy i.e. competencies needed to use computational devices as stated by Bawden (2008), scientific literacy according to Langsch (2000) is an appreciation of nature, suns, and general limitations of science, coupled with some understanding of the more important scientific ideas and data literacy the ability to read, work with analyze and argue with data as part of a broader process of inquiry into the world (D' Ignazio, 2017).

AI Literacy begins with y haste understanding of what AI the language is surrounding the technological and social aspects of AI, how AI works and how currently a role plays in our daily lives. AI literacy can therefore be described as a set of competencies which enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online in home, and in the workplace. Digital literacy is a prerequisite for AI literature, as individuals need to understand how to use computers to make some of AI Computational literacy, however, is not necessarily a prerequisite for AI literacy, Understanding how to program can inform and aid librarians in making sense of AI and is certainly necessary for AI developers.

While libraries will certainly be cured by the AI revolution and ways we can't imagine, it seems unlikely that they will cease to exist altogether, indeed, libraries and universities do not yet have a critical role to play in the AI revolution. Today's mainstream AIs are dominated by

proprietary software Apple, Malt Google, Facebook, and other major tech players all have their AIs. These companies have invested heavily in research and development, and they have guarded their Intellectual property closely. The algorithms that we use to machine learning are mostly kept secret and the code that results from machine learning is often so complex that even human developers don't understand how the code works. So even if you wanted to know what AI was thinking, you would be out of luck. But if AI is a black box for which we have no key, libraries can play an important role in providing open-source AI solutions that would allow for more transparency and control.

LIBRARIES, SOCIETY AND AI

AI is rapidly changing the ways libraries operate to plan for the future, make long-tail policy decisions, and evaluate potential important for libraries in Nigeria to consider not just what AI can do in the present, but also what AI could do in the future. Consumer polls indicate that people's trust in AI is heavily task-dependent (Art. 2020). Libraries being able to proffer accurate information about AI's ability different types of tasks can therefore help people make more informed decisions about how to use and when to trust AI. While AI may be good in detecting patterns in large amounts of data, doing repetitive tasks, and making decisions in controlled environments, humans currently remain better at most tasks requiring creativity, emotion, knowledge transfer, and social interaction. Some of the things libraries can do for a society living with AI are:

- **Anonymous Data Collection by AI:** Today like ever before, Nigerian libraries are under pressure to deliver maximum value and justify their public funding that is why it can be tempting for libraries to turn to AI, hoping to libraries to be informed maximize efficiency. However, libraries need to be informed about potential ethical issues of some AI use cases and make ethical choices to safeguard public trust. For example the 2019 Mozilla Internet Health Report thermal sensors as an alternative to cameras for collecting crowd and visitor data (Mozilla, 2019). This solution achieves the same goal without compromising the privacy concerns of library users and shows a commitment to ethical standards.
- **Ethical AI Research Support:** As the use of AI grows, many governments and NGOs are looking for better data for AI training models and improved data collection practices, IPTA (2013), opined that libraries can play a major role in this by supplying a wealth of high-quality datasets for machine learning. Academic libraries particular have large repositories of data from quantitative studies, coded and labelled according to high scientific standards. Subject specialized librarians can also be trained to actively assist the ethical AI research, offer their data literacy expertise and promote ethical data handling and collection methods, especially in local contexts.
- **Encourage Public Debate Around AI:** In addition, libraries can use their role as community hubs to encourage debate and citizen participation to discuss the functions of AI in their localities. Because of the many ways AI can change society, broad public and private consultation on the use of AI become paramount. This requires the public to be informed and proactive, and libraries can provide both a physical forum and unbiased information to initiate such a debate: For example, libraries can set up AI initiatives which

bring together AI developers and problem owners and encourage residents to communicate their problems to this Initiative four possible solutions.

- **Expand Their Efforts to Support Literacy:** In the last few decades, many libraries have started providing digital literacy training; today algorithmic literacy (i.e. the ability to use code to express, explore and communicate ideas) becoming particularly important. This form of literacy includes recognizing when you interact with AI, understanding how it determines which Information you find online, and knowing how your private data is collected. AI algorithms. Libraries can include the skills in their digital literacy programmes. Librarians can use the insights provided by state-of-the-art research, and organize clues to help their patrons develop these skills.

Artificial Intelligence that is fair and Ethical

Artificial intelligence (AI has enormous potential is a chance for developmental efforts in Nigerian Libraries, but be developed and used by and librarians fairly. The prospect that progress in AI will help libraries confront some of its most urgent challenges is exciting, but legitimate worries are still there with any new and rapidly evolving technology, a steep learning curve means that mistakes and miscalculations will be made and that both unanticipated and harmed impacts will inevitably occur. AIs are no exception.

AI ethics is a set of values, principles, and techniques that employ wide standards of right and wrong to guide moral conduct in the development and use of AI technologies.

The arrival of artificial intelligence has raised concern over computerized decisions to a new level Powerful AIs me proliferating in society, through hanks legal firms and businesses, into health care and their problematic popularity is whether they ram and can be held accountable. Bad intentions are not needed to make bad AI. A library might use AI to search for reputable book vendors after staining it on information about these vendors and their area of speciality and those who are considered top of the list if the rates intelligent systems, then AI might well spot provoking publishers, but it not, it might suggest vendors for the library who know nothing of the subject matter in focus. Researchers have documented along the AIs that make decisions either because of coding mistakes or biases ingrained in the data they are trained on.

At libraries embracing the profitable opportunities of AI also needs to be where biases and unethical behaviours come in. There is often an assumption that technology is neutral, but the reality is far from it Machine learning algorithms we created by people, who all have biases and are not fair in their approach to issues, They are never fully objective rather they reflect the d view of those who build them and the data they're fed.

An important step to cure such excesses in the library is the establishment of policies related to them. AI can inform and guide libraries in all of its areas of work with AI. In addition to setting guidelines for the library, there are also opportunities for librarians to provide leadership and guidance in developing local, national and international policies for AI technology, giving the early state of implementation that currently exists around AI in Nigeria.

All libraries considering AI should start with a holistic view of both data and AI models. In such a view, governance is a key component. To avoid discrimination or bias in outcomes, libraries should consider validating their data by implementing an AI Platform. This platform will also provide validated fairness and transparency because it is one thing to say that an AI practice is far from ethical, and another to prove it. Careful consideration should be given to AI practitioners to enable libraries to produce models and workflows that by design take care of possible discrimination (fairness), are explainable to the library user with a high degree of clarity (interpretability) and are reproducible through the whole AI model workflow (transparency). These workflows will fully validate and document model processes to ensure fairness and meet the library's code of ethics requirements under AI regulations.

Conclusion

Libraries have continued to provide sets of principles that have helped guide intellectual growth for the past century and in this era of AI those principles are more relevant than ever. Given that AI will certainly affect the way individuals search for information, a natural fit for the library would be to position itself at the forefront of AI instruction. Libraries have always prided themselves on their involvement in information literacy, however, almost all initiatives have focused on developing competencies for educating patrons on AI (ACRL, 2015). Whether this is voice assistants or search algorithms managed by AI, it is clear that this field will have a deep impact on the search process. There have also been little or no updates to current library standards in relation to concerns brought on by artificial intelligence including ethical bias considerations.

Way Forward

1. Libraries are not the centre of the information world anymore, and the new players don't always share our values and ethical considerations. As machine learning proliferates, libraries and librarians should take steps to ensure that the values of librarianship are incorporated into AI systems.
2. Advocacy should be directed not at maintaining traditional librarianship, but in influencing the development of the emerging information system that may come to replace it by developing competencies to make true advances in the application of AI in libraries.
3. Current library standards should be updated about concerns brought on by artificial intelligence initiatives.

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