

Chapter 2

AI in Academic Libraries: Success, Pitfalls, Perceptions, and Why We Need AI Literacy

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ABSTRACT

This chapter discusses the implementation of artificial intelligence (AI) in academic libraries and the impact of AI related technologies on various library services. AI impacts research and educational activities in academic institutions so they can provide adequate operations and collaborative technologies in order to support diverse curricula and research. The complexity of research workflows and their variability couples with increasing demand for effective personalized education, so it acts as a driving force for application of AI related technologies. AI assisted library services demand reimagining traditional libraries' roles, so that librarians would become not only users of AI technologies but also co-creators and experts capable of conceptualizing AI driven services to library patrons. That requires librarians to promote AI literacy as a framework encompassing research literacy and data literacy, and understood as a necessary skill set for effectively communicating in an AI driven medium.

INTRODUCTION

Artificial intelligence (AI) is defined as intelligent performance expressed by artificial body. Typically, the AI is associated with some brainy behavior demonstrated by a “system”, where the latter is normally a computer program. From libraries’

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perspective AI is a technological implementation of the synergy between computing and psychology which can be used to increase librarians' productivity by providing techniques to conduct tasks quicker and in better way; to improve quality of library services; to enhance the quality of information yields and to advance the communication with patrons. Successful adoption of AI is still debatable due to the fact that there are many requirements to be met (Harisanty et al., 2023). AI in libraries is focused on improvements of reference services, cataloging, classification of data, indexing, document delivery and communication with users, but is used in a way that preserves "human centric" entity of the library – namely intuitiveness, cultural sensitivity and emotions. For the libraries the human centric context together with need to improve effectiveness on various levels define the subset of AI technologies applicable to library operations. All implementations fall under the umbrella of human-centered AI (HCAI), but use various technologies most suitable for libraries' services. That include rule based and fuzzy logic-based systems, natural language processing systems (NLP), machine learning (ML), pattern recognition and robotics. It is important to mention that other AI associated with perceptual tasks or theorem proving etc., are of little use for academic libraries. The above mentioned AI technologies are current in a systems associated with library automation such as library robots and with systems allied with core library services such as reference, collection development, scholarly communication, cataloging and indexing, and information retrieval. The latter services are the focus of this text.

DEFINITIONS AND TYPES OF AI

The term "artificial intelligence" (AI) is both an opaque and yet powerful expression which startles many librarians. The definition given by John McCarthy in 1956, at the first ever AI conference, describes AI as "the science and engineering of making intelligent machines". That characterization, however, diverges significantly from modern understanding of the entity of AI. The confusion comes from the fact that the term has at the same time scientific, technical, and social designations. Consequently, there are formal and informal AI definitions which exist in parallel. The informal definitions are associated with humanistic perspective of AI and thus typically counterpoint machine-based AI to native human intelligence. This designation seeks to answer the fundamental question "Can machines think?", formulated in the late 1950s by Alan Turing. He invented a test named after him (Turing test) to determine machine's "intelligent behavior" by looking at whether or not "the system acts like a human". Per this test the intelligence assessment of the machine is based on the computer's ability to produce responses indistinguishable from the ones generated by a human in a course of human-computer interaction. The humanistic approach

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