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ROLE OF ARTIFICIAL INTELIGENCE IN DIGITAL LIBRARY MANAGEMENT

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ABSTRACT:
Artificial Intelligence is a broad, complex area of study, which can be difficult for non specialists to understand. Yet, its ultimate promise is to create computer systems that rival human intelligence, and this clearly has major implications for librarianship. If we are make progress in the area of intelligent systems, we must have an well-developed understanding of AI technologies, a historical perspective on accomplishments to date, and a realistic perspective of AI as a tool with appropriate and inappropriate uses in light of current constraints. Many authors have previously provided in-depth overviews of AI technologies. The interested reader should consult either a basic or a more challenging introductory work for a detailed treatment of AI. There have also been several good reviews of research and development efforts relevant to librarianship.

Key words: - *Nature of Intelligence, Common Sense Reasoning, Level of Effort, Technical Expertise, and Expense, Promising AI Tools and Techniques*

The Nature of Intelligence:

"intelligent" systems, we must first attempt to understand the nature of intelligence. Theories of human intelligence abound, but there is no consensus about what constitutes intelligence.10 This lack of a widely accepted definition of intelligence is an obstacle for AI researchers.

1. Acquisition: the ability to acquire new knowledge.
2. Automatization: the ability to refine procedures for dealing with a novel situation into an efficient functional form.
3. Comprehension: the ability to know, understand, cognize and deal with novel problems.
4. Memory management: the ability to represent knowledge in memory, to map knowledge on to that memory representation, and to access the knowledge in memory.
5. Metacontrol: the ability to control various processes in intelligent behavior.
6. Numeric ability: the ability to perform arithmetic operations.
7. Reasoning: the ability to use problem-solving knowledge.
8. Social competence: the ability to interact with and understand other people, machines or programs. 9. Verbal perception: the ability to recognize natural language.
10. Visual perception: the ability to recognize visual images.

Barriers to Intelligent Systems

Although there are a few exceptions, intelligent systems are generally not in operational use today in libraries. After at least ten years of research and development, why is that we have so few production systems? Several critical problems will be discussed here.

Common Sense Reasoning

Common sense is simply "general knowledge that every human being supposedly has about the world," and, consequently, common sense reasoning is the use of this knowledge to make inferences about everyday objects and events. If

we can build specialized medical expert systems to diagnose diseases, why is common sense reasoning about what humans view as simple problems so difficult.

Natural Language Processing

Natural language processing systems could be utilized for a variety of purposes, including "natural language interfaces to databases and expert systems, text understanding, text generation, and machine translation.

Knowledge Acquisition,

Representation, and Maintenance Ideally, there would be two primary ways of creating and updating knowledge bases in intelligent systems:

(1) intelligent systems would distill new knowledge from full-text and other electronic information sources; and

(2) human experts would add their unique insights to this knowledge base by unrestricted natural language dialogues with intelligent systems.

Unfortunately, current methods of knowledge base creation and maintenance are typically fairly tedious. Human experts must be interviewed in detail to try to record their knowledge. Knowledge must be encoded into a knowledge structure, which requires that the "knowledge engineer" have some understanding of artificial intelligence techniques to structure knowledge appropriately. Raw knowledge must be structured within a meaningful and consistent framework to be represented in the computer in a useful way. The correct knowledge representation scheme to use (e.g., rules, frames, scripts, or semantic networks) for a particular kind of knowledge is not always readily apparent. Moreover, different types of knowledge may be encoded in different knowledge representation schemes, and there must be thought given to how these different types of knowledge relate to one another and how they will function together in the overall context of the intelligent system. Once knowledge is encoded, it must be entered manually by keyboarding. The time investment to determine, represent, and enter knowledge can be significant.

Level of Effort, Technical Expertise, and Expense

The level and calibre of effort that must be expended to create an intelligent system is directly related to the power and complexity of that system. The more "intelligent" the system is, the greater the effort that must be expended to create it and the greater the degree of expertise that is needed to do so. The need for skilled personnel combined with expensive development tools (e.g., advanced expert system shells) or techniques (e.g., original programming in logic or procedural languages) makes the creation of sophisticated intelligent systems a potentially costly venture. Librarians and library automation vendors are already engaged in an accelerating effort to provide library patrons with access to a diversity of new computer systems.39-40 Assuming that the needed expertise was present to create intelligent systems, what priority will libraries and vendors give to developing these systems? The reality is that staff resources, especially computer specialists, are a precious and finite commodity. It will take more staff with greater skill levels to create a complex intelligent system than a simple one, and this will inevitably affect decisions about what types of intelligent systems to build.

Strategies for Future Progress

By recognizing the limitations of contemporary artificial intelligence techniques, we can establish realistic goals for intelligent library systems and devise appropriate system development strategies. This section discusses some promising approaches to the application of artificial intelligence techniques in library automation systems.

Targeted Development Efforts

Artificial intelligence is a means to an end. Like any tool, it has strengths and limitations. Our

true goal is not to create systems based on artificial intelligence technologies--it is to create the most powerful, flexible, and easy-to-use systems possible for our ourselves and our patrons. AI is one tool in the toolbox, which should be employed when the characteristics of the task at hand indicate that an AI solution that is called for.

Promising AI Tools and Techniques

Given the breadth and diversity of AI, there are a number of technological tools and techniques that may be valuable in constructing intelligent library systems. Some, such as neural networks,75 are too immature to assess their usefulness. The following list briefly summarizes selected AI tools and techniques that I currently feel hold special promise. It is by no means a comprehensive list of potentially useful tools and techniques.

Frames

Typically, a frame represents a particular person, object, or event in the world. Since we normally view these things as occurring in groups with common stereotyped characteristics (e.g., patrons), frames are usually grouped in classes, with the frames in a particular class having a common structure. Each characteristic of the thing described by the frame is represented by a slot. Each slot normally contains a value, and this can be a default value. In addition to containing values, slots can contain procedural attachments, executable procedures that are invoked under specified circumstances. Frames of a particular class can be organized into a hierarchy, with lower-level frames inheriting the characteristics of their antecedents. Frames are particularly well suited to representing knowledge in intelligent library systems. For example, consider how easily a subject heading scheme like MeSH could be represented in a frame structure.

CONCLUSION :

Through the application of artificial intelligence technologies, numerous prototype intelligent library systems have been created for cataloging, indexing, information retrieval, reference, and other purposes; however, relatively few of these systems have evolved into production systems that are used in the day-to-day operations of libraries. Fox reminds us that: "While AI research has been underway for more than three decades, it is only in the past six years that AI's impact has been measurable.

REFERENCES :

Chandrakar, R., & Arora, J. (2010). Copy cataloguing in India: a point-of-view. The Electronic Library, 28(3), 432–437.

Cholin, V. S. (2005). Study of the application of information technology for effective access to resources in Indian university libraries.

Fischer, G. (2012). Context-aware Systems: The “Right” Information, at the “Right” Time, in the “Right” Place, in the “Right” Way, to the “Right” Person. In Proceedings of the International Working Conference on Advanced Visual Interfaces (pp. 287–294

Ghuloum, H. (2012). The utilisation of new ICT services in academic libraries in the state of Kuwait: An interpretive case study (phd). Salford : University of Salford. Retrieved from

Haneefa, Mohamed. (2007). Application of information and communication technologies in special libraries in Kerala (India).