AI and the Future of Library and Information Science

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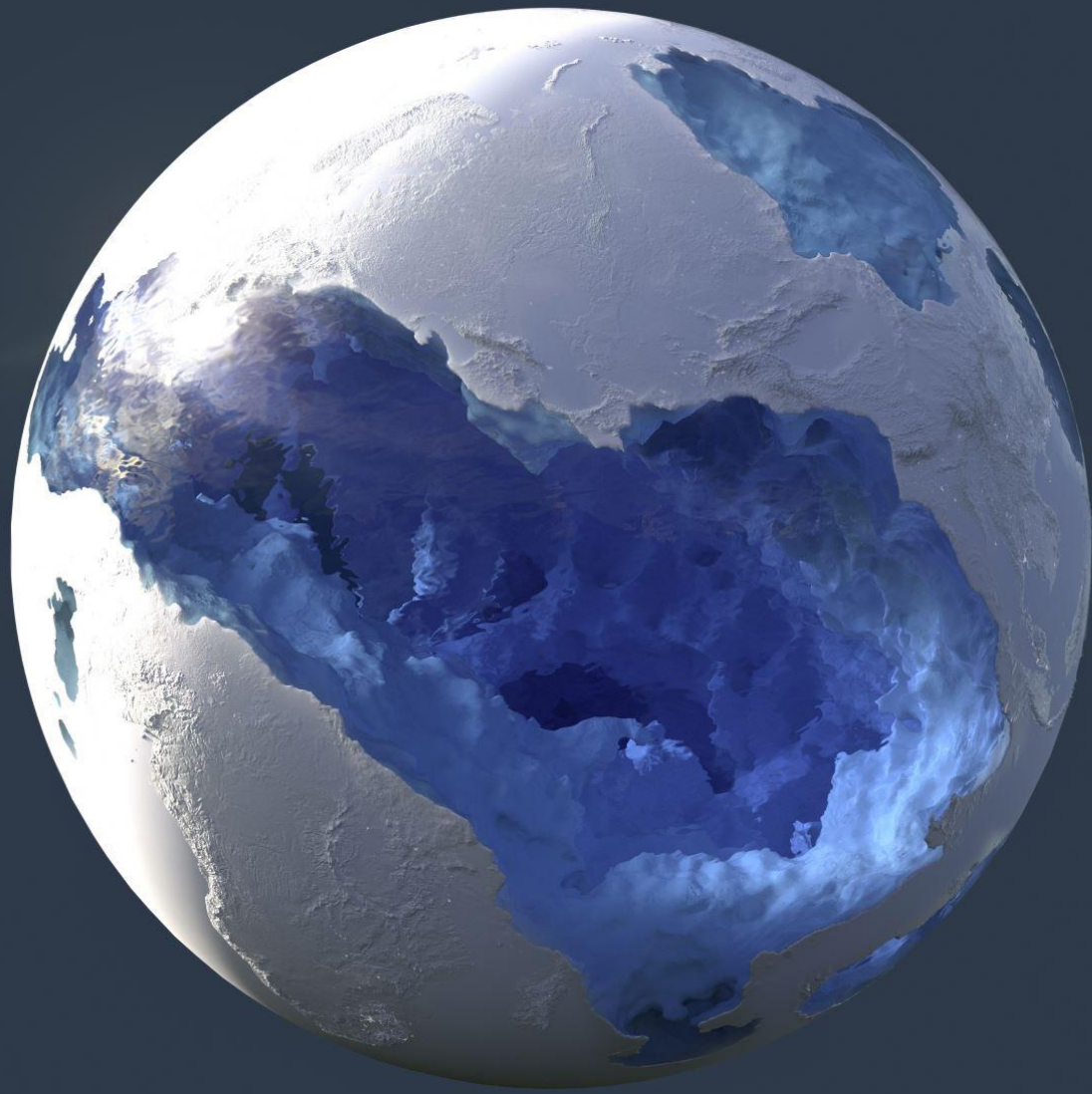
CONTEXT

- The last 40 years have seen a revolution in the way in which information and knowledge have been created, stored, disseminated, and exploited.
- Seismic shifts are set to continue, with the aftermath of COVID and climate change being but two of the most significant challenges to human existence and endeavour at the present time.
- The 21st century library offers its users unprecedented access to digital resources, from e-books and e-journals to multimedia databases.
- Artificial intelligence is already making a difference, and more sophisticated information literacy and digital skills will be important for both users and professionals as one way of responding to such a major technical innovation.



ELLIS

- The *Encyclopaedia of Libraries, Librarianship, and Information Science* (ELLIS for short) is a response to this rapidly changing landscape and its many aspects.
- From digitization to multiculturalism, open access to sustainability, libraries worldwide are navigating the many challenges facing them and their environments to remain relevant and essential in the digital age.
- This will involve a fundamental reappraisal of the core of librarianship and information science.
- ELLIS documents the past, summarizes the present, points to the future, and takes account of emergent contextual trends.

ASPECTS OF LIS

- Societal, technological, and other changes and developments have shaped all aspects of LIS provision.
- In the digital age, libraries have expanded their reach beyond physical spaces.
- Digital libraries exist primarily online, offering a vast array of e-books, digitized materials, online databases, and many other resources, accessible globally through the internet.
- The world of libraries is diverse and multifaceted, offering a multitude of services and resources that cater to the bibliographic, information, research and other cognate needs of different communities, organizations, and individuals.

AI AND DIGITAL LIBRARIES

- Creating metadata is the most time and effort-intensive activity in DL development.
- Designing DL interfaces to facilitate use by diverse types of users.
- Providing relevant results to users without requiring extensive search processes.
- Assistance with routine library activities (e.g., reference inquiries).
- Students recognize the advantages of ChatGPT, such as convenience, accessibility, and user-friendliness

SOME DEFINITIONS

Artificial intelligence (AI) is broadly defined as the ability of computers to exhibit human-like behavior and thought processes. These human intelligence characteristics include, but are not limited to, decision-making, speech, vision, reading and writing comprehension, and autonomous movement.

The outputs of AI range a spectrum of technological applications and levels of intelligence and can include such technologies as deep learning, computer vision, speech recognition, context extraction, text generation, and robotics, to name a few.

Artificial Narrow Intelligence (ANI) or Weak AI, refers to technology that is built to follow predefined tasks, such as recommender systems like a related articles feature that suggests new content based on existing information, or self-driving cars that follow a specific route and protocols.

Artificial General Intelligence (AGI) refers to a self-aware AI system that no longer needs programmed tasks as it will have the capability to determine its functions much in the same way as a human being.

ARTIFICIAL INTELLIGENCE

A significant development that is revolutionising the way libraries operate, transforming both the services offered and the ways in which users expect them to be provided and utilized.

There is evidence to suggest that AI helps to make data retrieval more efficient and accurate, generating more relevant and accurate search results, with users finding the required resources quickly and efficiently.

AI algorithms can facilitate personalization of the user experience, through the analysis and application of user preferences, browsing histories, and other aspects of the individual's 'library usage'.

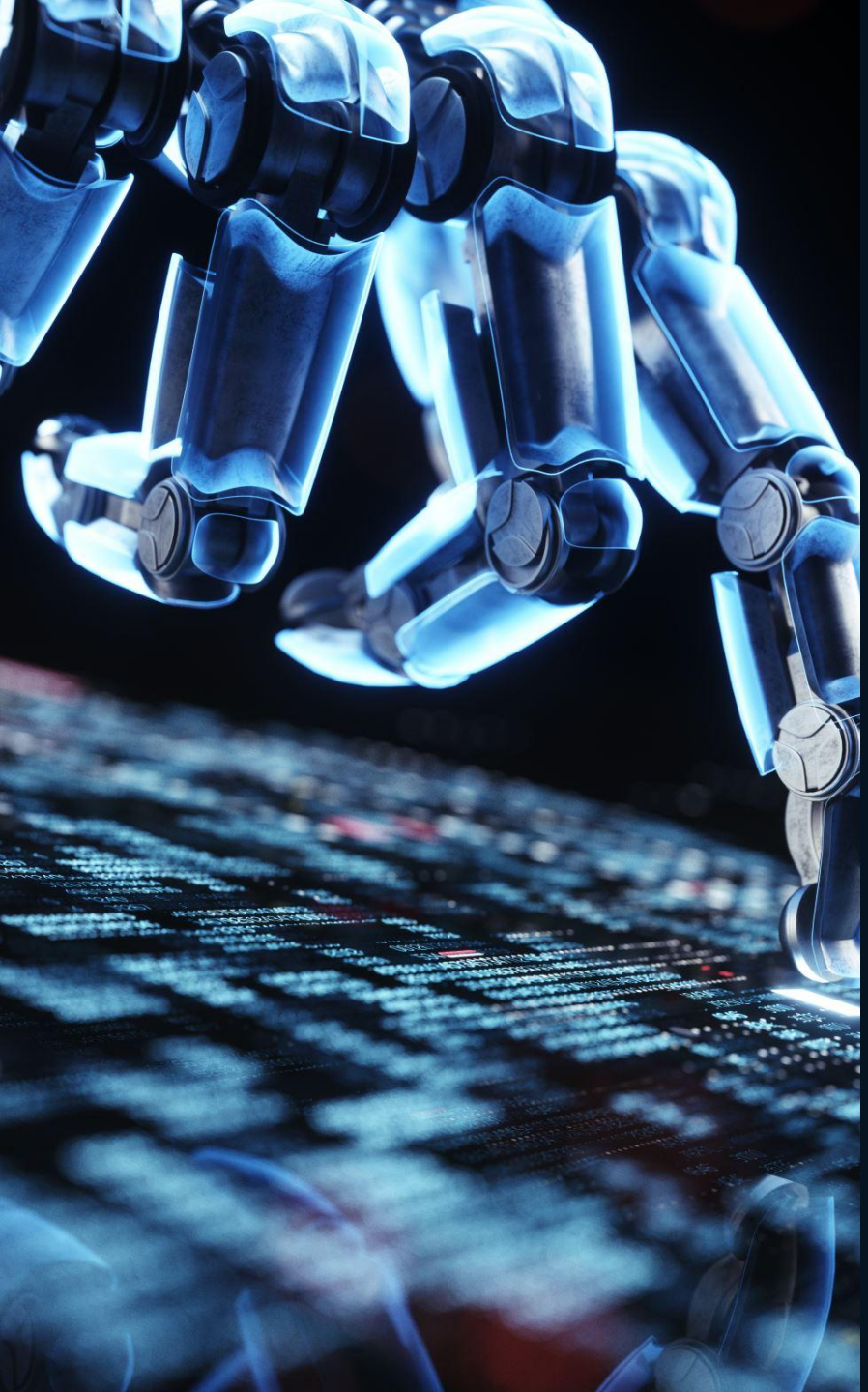
Virtual Assistants and Chatbots can offer round-the-clock support, improving users' experience through prompt assistance.

AI can recognize and categorize different types of materials and assist with its classification, especially in the case of digital resources, whose volume and diversity represents a challenge to more traditional methodologies.

AI can predict future needs and preferences based on analysis of past and present user behaviour, offering significant opportunities in terms of collection development and management and effective and efficient deployment of resources

AI: ISSUES

- Underperformance and ethical concerns in data training and responsible deployment.
- Users must understand limitations, biases, and practice critical thinking for responsible utilisation in a digital age.
- Stakeholder Perceptions:
  - Employment risk (e.g., fear of losing jobs among librarians)
  - Financial risk (e.g., limited budget for libraries)
  - Social risk (e.g., excessive social isolation)
  - Privacy risk (e.g., privacy concerns over personal data)
  - Functional risk (e.g., functional limitations of chatbots)



FUTURE TRENDS

- **Advancements in Natural Language Processing (NLP):** More sophisticated chatbots, translation services, and content creation tools.
- **Explainable AI (XAI):** AI systems that provide understandable and transparent explanations for their decision-making processes.
- **AI Ethics and Regulation**: AI ethics research and the establishment of regulations.
- **Personalized AI Experiences**: AI systems that adapt to individual user preferences and behaviours.
- **Responsible AI Education:** A greater emphasis on educating users about responsible AI practices.