



## A Glimpse into the Past and a Look Towards the Future with Artificial Intelligence

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### Abstract

The Iranian Journal of Archaeological Studies, volume 13, number 2, year 2023 welcomes you! Explore a variety of archaeological landscapes from the Palaeolithic to the modern era as we go on an intriguing voyage through time and space in this issue.

### Articles in this Issue

The articles in this issue demonstrate our renowned authors' unwavering dedication and skill:

-**Frank Hole** investigates the fascinating topic of animal husbandry and nomadism in Tepe Tula'i.

-**Roberto Dan, Andrea Cesaretti and Davide Salaris** conduct a thorough analysis of the patterns of settlement in the Salmas Plain of Iran.

-While travelling to the East, **Abdul Adil Paray and Manoj Kumar** look into and explore the undiscovered Megalithic and Neolithic monuments in the Indian Kashmir valley.

-In the Bijar region, **Ali Behnia, Mohammad Ebrahim Zarei, and Maryam Mohammadi** look into the intriguing significance these enormous constructions had in forming the commerce routes of mediaeval Islam.

-Through his intriguing research of the sacred pearl necklaces worn by the Sassanid rulers as represented on the coins **Daryoosh Akbarzadeh** sheds insight on the hidden realm of these kings.

-**Karim Bakhsh Torshabi** sheds light on the cultural significance of native housing in central Baluchestan and offers insightful analysis of regional architectural customs.

-**Yousef Yassi and Reza Yassi** explore the historical development of hydrostatic scales in a singular exploration of the field of experimental archaeology.

-In his analysis of the creative use of natural materials and methods in Sistan's native architecture,

**Mohammad Ali Sargazi** emphasizes the significance of these elements in attaining thermal comfort.

-**Mehdi Mortazavi** concludes with a thorough evaluation of a book covering Iranian archaeology, which spans a long time from the Palaeolithic to the Achaemenid Empire.

### Artificial Intelligence: A Fresh Avenue for Exploration

Although these publications shed light on the past, archaeology has a bright future ahead of it. The potential of artificial intelligence (AI) is bringing the field closer to a revolutionary age. For example, archaeologists can use artificial intelligence to translate extinct languages and rebuild old constructions in addition to analysing large datasets and satellite photographs.

Actually, there are drones with artificial intelligence that can scan vast areas and locate possible ancient sites with previously unheard-of accuracy and speed. Conversely, artificial intelligence algorithms that examine the found artefacts and uncover correlations and patterns that even the most seasoned archaeologists miss. Consequently, there are virtual reality experiences that transport us to the past, letting us explore historic cities and engage with the past in a totally immersive setting.

### Artificial Intelligence's Challenges in Respect to Archaeological Research

Virtual reconstructions of the ancient world and faster excavations and data analysis are only two of the ways artificial intelligence (AI) has the potential to revolutionize archaeology. But there are also a number of issues with using artificial intelligence in this subject that need to be well thought through.

With its great potential to speed up digs, analyse data, and create virtual reconstructions of the ancient world, artificial intelligence (AI) has the potential to revolutionize archaeology. Nevertheless, there are a number of issues with using artificial intelligence in this industry that need to be properly explored.



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Among these challenges are:

### **Moral Implications**

Artificial intelligence is capable of deceiving users by manipulating data. Algorithms, for instance, can be adjusted to show only results that support a specific idea.

Moreover, when AI systems are trained on biased data, the biases in that data may be reflected and amplified. Unfair and discriminatory outcomes may result from this. Finally, using artificial intelligence in archaeology can result in the gathering and storing of enormous volumes of data, including 3D scans and satellite photos of historical artefacts. Concerns around data usage and privacy are brought up by this.

### **Human Resource**

Much of the labor-intensive work that archaeologists currently conduct can be automated by artificial intelligence. This issue could lead to job losses and unemployment in this sector. Furthermore, it's possible that many seasoned archaeologists lack the new skills required to apply artificial intelligence in archaeology. Archaeologists must learn how to work effectively with artificial intelligence technologies in order to enhance their research.

### **Technology**

The development and application of artificial intelligence tools may be expensive. This issue can make it difficult for archaeologists working in institutions with limited resources to obtain these tools. Furthermore, mistakes in artificial intelligence systems' reliability might lead to misleading and erroneous results. Lastly, as the study of archaeology involves interpretation, human judgement is required. AI can help with data processing, but humans are still needed to interpret the findings.

### **Proposed Remedies**

#### ***Developing Ethical Frameworks***

Lucid and transparent ethical frameworks are essential for the proper application of AI in archaeology.

#### ***Training and Skill Development***

In order to employ artificial intelligence tools and advance their digital skills, archaeologists need have the appropriate training.

#### ***Interdisciplinary Collaboration***

Experts in computer science, ethics, and other relevant subjects must work together to address the issues posed by artificial intelligence in archaeology.

#### ***Investing in Research and Development***

More funding for research and development is required to create artificial intelligence technologies

appropriate for archaeology and enhance their dependability and effectiveness.

### **Conclusion**

In summary, artificial intelligence holds great promise to revolutionize archaeology and advance our comprehension of history, even in the face of current obstacles. Artificial intelligence can be used ethically and responsibly, allowing us to take use of this new technology and advance archaeological research. AI, for instance, can assist archaeologists in more quickly and precisely analyzing vast volumes of data, such as geophysical data, satellite photos, and 3D scans. AI may also be used to virtually reconstruct historical landmarks and monuments, and it should be utilized to simulate daily life in the past. Archaeologists can find new ancient sites with the aid of this clean technology, especially in large and difficult-to-reach places. It can aid in the interpretation of extant ancient texts as well as the decoding and translation of unknown ancient languages. Another alluring advantage of artificial intelligence is its ability to produce engaging educational experiences. Simulations and educational games, for example, can be utilized to provide engaging educational experiences for students and archaeology aficionados. Indeed, both online and offline, artificial intelligence (AI) can be utilized to deliver current, reliable information regarding ancient research and new findings. It's also fascinating to consider how translating historical data into several languages and presenting it in a way that the masses can comprehend can be accomplished by artificial intelligence, thereby democratizing access to it.

Finally, AI is a potent instrument that can aid in improving historical understanding and disseminating ancient knowledge to the general public for archaeologists. We may use this new technology to further our understanding of the ancient world for the benefit of future generations by utilizing artificial intelligence in an ethical and responsible manner. I extend an invitation to all researchers and archaeologists to submit their findings for consideration in upcoming issues of *Archaeology through Artificial Intelligence*.

Wishing for an improved artificial intelligence-powered future for archaeology

### **References**

For further information, please see the European Parliamentary Research Service (EPRS) briefing titled "*Artificial intelligence in the context of cultural heritage and museums: Complex challenges and new opportunities*" (2023)