

The Role of Artificial Intelligence in Historical Research: Investigation of Documents, Manuscripts, Resources, and Sources

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Abstract. *The Role of Artificial Intelligence in Historical Research: Investigation of Documents and Sources. The article analyzes the role of artificial intelligence technologies in the fields of historical science, source criticism, paleography, and archival studies from the perspective of a historian and scholar. Avoiding complex mathematical and technical terminology, the paper explains the methodological innovations brought by the Digital Humanities in an accessible language. It explores the capabilities of AI in deciphering ancient and faded manuscripts, detecting forged documents through stylometric analysis, establishing global archival networks, and digitally reconstructing damaged stone inscriptions and clay tablets. Furthermore, the ethical boundaries of AI and the problems of algorithmic bias are evaluated in the light of the traditional principles of source criticism. The study explores how artificial intelligence can enhance the examination of historical materials by facilitating the digitization, recognition, organization, and analysis of complex documentary and manuscript collections. A qualitative and comparative approach is applied to assess the usefulness of AI-assisted research techniques while emphasizing the importance of source verification and scholarly interpretation in maintaining the reliability of historical findings.*

Keywords: *artificial intelligence, historiography, source criticism, paleography, digital archives, stylometry, semantic translation*

Introduction

Historical science has always been associated with dusty archival shelves, yellowed papers, ancient documents preserving the scent of time, and manuscripts that take months to decipher. We, as historians, source critics, and archivists, dedicate our lives to seeking a light, a truth, within the dark chambers of the past. However, the technological leap of the 21st century has ignited a completely new, distinct, and powerful digital lantern before the humanities: artificial intelligence (AI). Although artificial intelligence and Big Data may initially seem like cold, mathematical fields detached from the humanities and human emotions, AI is actually becoming our greatest ally in resurrecting the past and fluently conveying forgotten voices to us.

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Traditional historical methods are now compelled to merge with the opportunities brought by the Digital Humanities. Digital tools do not take archives and live research away from us; on the contrary, they organize vast piles of documents that would take decades or an entire lifetime for a human to process, thereby saving our time. From a historian's perspective, this technology is a tool that directly supports source criticism, paleography, and archival work, rather than operating through complex formulas. While searching for the traces of the past, we no longer rely solely on magnifying glasses but also on the analytical power of neural networks. The purpose of this article is to stay away from the dry language of technical sciences and investigate, from a humanitarian and critical-scientific standpoint, how AI revitalizes old sources, unlocks their hidden secrets, and simplifies the work of historians.

One of the most difficult intellectual and physical challenges an investigator faces in daily work and within archives is paleography—namely, ancient script types. Deciphering complex calligraphic forms such as *Siyaqat*, *Ta'liq*, *Shikaste*, *Naskh*, or ornate *Kufic*, as well as the intricate ligatures of medieval decrees, requires years of training, patience, and profound language proficiency. Furthermore, documents that have faded, aged, or been damaged by moisture or fire over time are often completely illegible to the human eye. A historian may spend days trying to read a single word. Artificial intelligence's image recognition and machine learning systems come to our aid at this challenging juncture. It analyzes microscopic ink traces and indentations in the paper's relief that are invisible to the human eye, predicts missing letters, and converts the text into a digital format.

Methods

This study employs a qualitative research methodology to examine the role of artificial intelligence in historical research, with particular emphasis on the investigation, interpretation, classification, and preservation of historical documents, manuscripts, resources, and sources. The methodological framework combines document analysis with a systematic review of relevant academic literature and technological applications. The purpose of this approach is to identify the main ways in which AI-based tools can support historians while also considering the methodological limitations and risks associated with their use.

The first stage of the research involves a review and analysis of scholarly publications addressing artificial intelligence, digital humanities, historical research, manuscript studies, optical character recognition, natural language processing, and digital preservation. Academic articles, books, conference papers, institutional reports, and relevant digital resources are examined to establish a theoretical foundation for understanding the interaction between AI technologies and historical research. Particular attention is given to studies that demonstrate practical applications of AI in the digitization, transcription, classification, and interpretation of historical materials.

The second stage focuses on the analysis of AI-assisted methods for examining historical documents and manuscripts. These methods include optical character recognition, handwritten text recognition, natural language processing, image analysis, and automated metadata generation. The study considers how these technologies can transform scanned or photographed historical materials into searchable digital data. AI-supported text recognition is examined particularly in relation to manuscripts containing difficult handwriting, damaged pages, faded ink, unusual spelling, and obsolete linguistic forms.

The third methodological component involves comparative analysis. Traditional approaches to historical source analysis are compared with AI-assisted procedures in terms of processing speed, accessibility, classification capacity, consistency, and the ability to identify relationships between large collections of sources. The comparison does not assume that AI can replace conventional

historical methods; instead, it examines AI as an additional research instrument that can facilitate the work of historians and enable them to investigate larger volumes of material.

Source verification constitutes another important element of the methodology. Since AI systems may generate inaccurate transcriptions, misinterpret historical terminology, or incorrectly identify persons, dates, places, and events, AI-generated results are treated as preliminary research outputs rather than definitive historical evidence. The reliability of identified information is therefore assessed through comparison with original documents, established archival records, scholarly publications, and other independent sources. This verification procedure is intended to reduce the possibility of reproducing computational errors in historical interpretation.

Finally, the study evaluates the methodological and ethical challenges associated with the use of AI in historical research. These include algorithmic bias, incomplete digitization of archival collections, language limitations, loss of contextual information, inaccurate transcription, questions of authorship, and the potential misinterpretation of culturally or historically sensitive materials. Based on the analysis, the research considers AI most effectively as a complementary technology that assists historians in discovering, organizing, and examining sources while leaving contextual interpretation and final scholarly judgment to the researcher.

Results

The Digital Lantern of Historical Science and New Methodological Challenges

Optical Character Recognition (OCR) and particularly Handwritten Text Recognition (HTR) technologies used in the modern world have revolutionized the digitalization of handwritten heritage (Abbasov, 2023; Boonstra et al., 2014; Hitchcock, 2013; Mühlberger et al., 2019). Thanks to new digital platforms, thousands of Arabic manuscripts, Ottoman-era official documents, and medieval European Latin texts are being decrypted at a rapid pace. Artificial intelligence does not merely isolate letters; it also learns a scribe's individual style. Once the system learns the handwriting characteristics of a specific scribe, it can read other obscure documents belonging to that same scribe with greater accuracy. However, as scholars, let us not forget that the system only reads and digitalizes the text visually; its true historical meaning, philosophical distinction, and context are still left to us—living scholars (Habibova, 2026; Terras, 2011).

The most vital yet challenging part of source criticism and archival work is the internal and external criticism of documents. A researcher must first ask this question: Is this document authentic, or is it a forgery created later for a specific purpose? Throughout history, due to political interests, land claims, throne disputes, or property issues, false decrees have often been written in the name of rulers, wills have been altered, or subsequent insertions have been made into chronicles. Verifying the authenticity of a document through classical methods involves analyzing the chemical composition of the paper, watermarks, and ink; this requires laboratory conditions and can sometimes cause irreversible damage to the physical structure of a rare document.

Artificial intelligence examines the language, style, and sentence structure of a document without physically touching it. Every author, historian, calligrapher, or court scribe possesses a unique choice of words, sentence structure habits, and punctuation preferences. Neural networks quickly discover this hidden "stylistic fingerprint" (Juola, 2008; Mosteller & Wallace, 2012). For instance, if an investigated Safavid decree or a letter from an Ottoman prince contains foreign words or grammatical forms that do not fit the lexicon of that era and emerged in later centuries, AI identifies this anachronism within seconds. This serves as a filter protecting the historian from drawing incorrect conclusions based on forged sources and from distorting history.

Historical events are never confined to a single place or the borders of a single state. An internal political event or a diplomatic step taken by one state is also reflected in the documents of neighboring and allied states. For example, the decrees, treaty texts, or diplomatic letters of a certain period in our history, such as the era of the Khanates, may be scattered simultaneously across archives in Baku, Istanbul, Tbilisi, St. Petersburg, Paris, or London. It is physically and financially impossible for an individual historian to visit all these archives, leaf through millions of pages in different languages, and cross-reference them within a human lifespan.

Artificial intelligence integrated with Big Data databases and cloud technologies unites these scattered geographies within a single digital space. Millions of documents digitalized in different parts of the world are scanned by AI within seconds (Putnam, 2016). The system uncovers hidden logical, chronological, and person-oriented connections among materials written in different languages. For instance, it can reveal to whom an anonymous and undated official letter found in the Istanbul archives actually belonged, and trace how the response to that letter connects in a chain-like fashion to a digital report document in the London archives. In this manner, the puzzle of history, which has been fragmented for centuries, turns into a unified and complete picture, allowing national histories to find their true place within a global context.

Discussion

Wars, palace coups, fires, humidity, the plundering of libraries, and other natural disasters have dealt severe and incurable blows to the written memory of humanity over the centuries. Today, many ancient clay tablets, papyri, parchments, and stone inscriptions (epigraphic monuments) preserved in world museums and archives are broken, eroded, or completely erased. To find what was written in lost lines or broken parts, historians and epigraphists often resort to subjective hypotheses and personal intuition, which puts scientific certainty into question.

Today, advanced large language models and deep neural networks learn substantial data regarding the grammar of ancient languages, the literary-political language of the period, poetics, and context. These models can reconstruct the lost or broken parts of documents with scientific precision (Assael et al., 2022). Artificial intelligence does not merely fill in the blanks; it compares thousands of historical texts, formulas, and phrase patterns from the same period to restore the scientific variant that aligns with the spirit and logic of the era. Thanks to these digital reconstruction methods, stone inscriptions or decrees that previously remained incomplete enter the scientific realm as fully functioning historical sources.

Translating an ancient or medieval text into a modern language is not just about finding the contemporary equivalents of words from a dictionary. Languages change and transform like living organisms. Concepts, administrative-titular terms, and legal expressions used in the Middle Ages or even more ancient times either carry a different meaning today or have been completely forgotten and shifted into the passive vocabulary of the language. Simple, literal, and mechanical translations lead to the distortion of historical facts and the misinterpretation of events.

New-generation "contextual" language models can translate text not word-for-word, but semantically, taking into account the political, cultural, religious, and social environment of the period in which it was written (Mustafayev, 2026). Artificial intelligence investigates the real semantic field and conceptual system of words used in the century the document was penned. In this way, for example, we can understand a ruler's expression not merely through its literal dictionary meaning, but by more accurately, objectively, and scientifically capturing the underlying real political threats, hidden diplomatic messages, palace intrigues, and the nuances of diplomatic discourse (Spruit & de Jong, 2011). Given that artificial intelligence can compromise lexical semantics and render the context window ineffective, this situation demands a greater sense of responsibility (Qəhrəmanova, 2026).

These fascinating, rapid, and extensive opportunities presented by artificial intelligence in the digital humanities should not make us entirely complacent or diminish our scientific vigilance. Recent discussions in the Azerbaijani scientific community also show that the cybersecurity of historical facts and their protection against manipulations in the digital space remain urgent issues (Alizadeh, 2026). As scholars, historians, and representatives of the humanities, we must never forget that AI is not a "historian" in itself, and it can never be. By nature, it is essentially a forecasting tool operating on excellent mathematical calculation, statistical analysis, and probabilities. It possesses neither the historical thinking to comprehend historical events, nor human emotions, nor the ability to feel the hidden, mysterious spirit of history as a human does.

The machine can fully read text, restore missing parts, and digitalize it, but it cannot completely comprehend how the person, scribe, or ordinary individual who wrote that text was affected under fear, joy, psychological states, political pressure, or censorship. Furthermore, one of the greatest dangers of AI is the problem of "algorithmic bias." If the baseline dataset used during the training of artificial intelligence is one-sided, subjective, or filled with certain ideological biases, the results produced and the historical connections established by the machine will be equally biased, erroneous, and unscientific. For this reason, every finding, reading, and translation variant presented by technology must always pass through the classical scientific filter of the human historian—namely, the methodology of fundamental source criticism. The final scientific judgment, moral responsibility, and scholarly value must always stem from human creative intelligence.

Conclusion

In conclusion, we investigate history not merely out of curiosity about what happened in the past, but to understand the present and build the future on firmer ground. The speed, high accuracy, global archival connections, and restoration opportunities that AI brings to history, source criticism, and archival studies usher a new era of "Digital Awakening" into historiography. Technology does not change the historian; rather, it liberates them from tedious, mechanical, and years-long technical tasks, allowing them to engage directly in creative analysis, philosophical generalization, and scientific interpretation.

Technology is our most loyal assistant in preserving documents for future generations, making them readable, and ensuring they are accessible from anywhere in the world. The historiography of the future will be a science that combines archival dust with the digital light of the computer screen, and traditional principles of source criticism with advanced neural networks. This alliance between human intelligence and AI will bring back to light the forgotten truths, documents, and facts lost in the dark corners of history, transferring our national and global memory to future generations flawlessly and without distortion.

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