# Oxford researchers use AI to reveal text on ancient Herculaneum scroll after 250 years



Recent advancements in artificial intelligence (AI) are proving to be transformative in the field of archaeology, particularly highlighted by a significant discovery at the University of Oxford. Researchers have successfully utilised AI to decipher an ancient papyrus scroll that has remained indecipherable for over 250 years, shedding light on historical mysteries that have long eluded scholars.

The use of AI in archaeology has historically been limited, but recent developments signal a shift in this trend. The breakthrough was achieved at Oxford’s Bodleian Library as part of the Vesuvius Challenge, a project dedicated to revealing the contents of scrolls that originated from Herculaneum, a Roman town that was destroyed during the catastrophic eruption of Mount Vesuvius in AD 79.

The scroll in question, like many others recovered from the site, had deteriorated over the centuries, reducing it to fragile fragments that appeared unreadable. However, in July 2024, a pivotal step forward was made when researchers employed the Diamond Light Source, a synchrotron facility in Oxfordshire, to carry out non-invasive scans of the scroll. This non-destructive technique was a significant milestone in the project, allowing researchers to investigate the material without further damaging it.

A notable aspect of the discovery centred around the unique composition of the ink used on the scroll. The researchers discovered that this ink, which likely contains lead, exhibited a chemical makeup different from other inks used in scrolls from Herculaneum. This distinct characteristic made the ink more discernible under the advanced X-ray scans. Although the chemical composition remains partially unidentified, this property enabled AI to assist in identifying faint characters, facilitating the transcription of the hidden text.

AI did not transcribe the text autonomously but was instrumental in revealing the faded characters that emerged during the scans. Following this initial analysis, the team from the Vesuvius Challenge successfully transcribed some sections of the text, including the ancient Greek word “διατροπή,” which translates to “disgust,” appearing twice in the scans. While these initial findings are modest, they have sparked considerable excitement within the academic community regarding the scroll's potential for further historical insights.

Dr. Brent Seales, co-founder of the Vesuvius Challenge, expressed his excitement regarding the project’s progress. “We are thrilled with the success of scanning this scroll at the Bodleian Library,” Seales remarked. He noted that the scroll could contain more recoverable text than any other Herculaneum scroll scanned to date, although he cautioned that additional refinement of the techniques will be necessary to fully read both this scroll and others from the area.

The Vesuvius Challenge has attracted global interest, drawing public participation in the effort to decode these ancient texts. This initiative exemplifies a significant advancement in archaeological science, merging contemporary technological capabilities with the quest to unravel ancient mysteries.

The ongoing collaboration between AI and archaeology signifies a new chapter for archaeological inquiry, paving the way for future explorations into ancient civilisations. While significant challenges remain in fully deciphering the Herculaneum scrolls, the potential for further discoveries appears expansive. As researchers continue to blend human curiosity with technological innovations, there is palpable optimism that the secrets of ancient texts, long hidden, may soon be revealed.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.diamond.ac.uk/Home/News/LatestNews/2025/05022025.html> - This article details the use of Diamond Light Source's synchrotron facility to scan a 2,000-year-old Herculaneum scroll, aiding in its virtual unrolling and deciphering.
2. <https://apnews.com/article/22506589e8ad28efc59ce05224bf6657> - This news piece discusses the collaboration between AI and scientists to decipher ancient scrolls carbonized by the eruption of Mount Vesuvius in A.D. 79, highlighting the Vesuvius Challenge and recent breakthroughs.
3. <https://time.com/6326563/vesuvius-challenge-herculaneum-papyri-ai/> - This article covers the Vesuvius Challenge, a competition using AI to decode ancient Roman scrolls, and the involvement of researchers like Luke Farritor in this endeavor.
4. <https://phys.org/news/2024-08-vesuvius-ai-virtually-unroll-pompeii.html> - This article explains the 'virtual unrolling' technique used to scan and digitally flatten carbonized scrolls from Pompeii, a method applicable to Herculaneum scrolls as well.
5. <https://scrollprize.org/> - The official website of the Vesuvius Challenge, a machine learning competition aimed at reading the Herculaneum scrolls, offering insights into the project's goals and progress.
6. <https://www.diamond.ac.uk/Home/News/LatestNews/2019/03-10-2019.html> - This article discusses the scanning of Herculaneum scrolls from the Institut de France using Diamond Light Source, highlighting previous efforts in deciphering these ancient texts.
7. <https://news.google.com/rss/articles/CBMitAFBVV95cUxPS2lRU3NKa3lsREdtZ19nREw0Q0tFMW1kRl9YcXV6UGlPTTZ3clpFd2VIZWtITm9BZlNuVzhUTy1laEdSUFd3eGZoNi1GdDB3OWVjemZFNDNTSlQtVVZ3SlRoZ0gxaU9wTElXMGUyOTJONGZfXzFySWdDTjFWdkhja08tLVhmZzkxalBqSnYtcE5seExDOGpuME4tWS1BcmVKMFNCeWRWSmJONWNqZURXVkYyRFY?oc=5&hl=en-US&gl=US&ceid=US:en> - Please view link - unable to able to access data