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## **USING MACHINE LEARNING TO ILLUMINATE SOCIAL CHANGE: INTEGRATING DATA SETS FROM 1300-1000 BC FROM THE ATLANTIC TO SOUTHWEST ASIA**

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Advances in machine learning have yet to find widespread application in Archaeology even though this technology is used extensively to identify patterns in, for example, economic, financial and medical data. The ability to sift efficiently through the enormous, and rapidly growing, literature on Late Bronze Age and Early Iron Age Eurasia, from the Atlantic to Southwest Asia, using machine learning could be an important step in advancing understanding of how the scope and intensity of long-distance interactions and external factors, such as climate change, contributed to cultural change over time.

This paper evaluates the potential of applying machine learning to identify and correlate the markers of cultural change and societal resilience between 1300 and 1000 BC across Eurasia. It will highlight the value of this method in rapidly extracting meaningful trends from academic literature and digital sources written in multiple modern languages and across multiple disciplines (archaeology, philology and all relevant scientific disciplines including climate, provenance studies and ancient DNA analysis). Assembling relevant evidence efficiently in this way paves the way for resources to be directed towards evolving research questions and building, and testing, explanatory hypotheses for cultural change in Eurasia between 1300 and 1000 BC.

### **Keywords**

Machine Learning, Late Bronze Age/Iron Age Transition, Climate Change, Trade and interactions, Eurasia, Multidisciplinary approaches

### **Note/comment**

This paper will showcase the value of using machine learning to review massive bodies of knowledge in order to build narratives and hypotheses by digesting data over a wide geographical area. This will be illustrated by showing the results of a pilot study.