



## Session

# Collaborative Platforms for Cultural Heritage Preservation: New Database Technologies and Artificial Intelligence.

### **Chairpersons:**

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### **Description and Motivation:**

For handling complex, multidimensional data, emerging database systems like graph and vector databases provide strong tools. These tools facilitate collaboration between artificial intelligence agents and human researchers and allow the integration of various datasets across domains. The transformative potential of these technologies in the Cultural Heritage contexts will be examined in this session, with particular attention paid to the following topics.

Data Structuring and Semantic Grouping.

By employing graph databases to gather, arrange, and connect disparate data sources, cultural artifacts can be better represented and interpreted. AI-based semantic analysis can be used in this process, also to group and connect data.

Georeferencing and Spatial Analysis.

Using databases' geospatial features to map and examine cultural sites in various locations can facilitate location-specific analyses and international comparative research.

Artificial Intelligence Integration.

Utilizing AI technologies to handle and interpret complex datasets stored in databases, revealing hidden patterns in cultural heritage data, enabling predictive analysis, and possibly enabling hypothesis-testing based on digital twins can greatly support research advancements.

Collaborative Knowledge Building.

Creating cooperative platforms and common databases and database structures is essential to strengthen interdisciplinary and cross-cultural research collaborations, closing gaps between international research groups by a more immediate and interoperable sharing of information. This session, which also looks at case studies and experimental projects, aims to discuss how artificial intelligence and new database technologies can work together with the research community to transform the preservation, analysis, and sharing of cultural heritage data in a common research environment across cultures and geographies.

**Target Audience:**

To participate in this multidisciplinary discussion, we welcome professionals from a range of disciplines, such as archaeology, architecture, data science, information technology, and cultural studies.

**Keywords:**

Cultural Heritage, Artificial Intelligence, Graph Databases, Data Integration, Collaborative Research.

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