



Session

Data and technologies for architectural and urban history (UHDL)

Chairpersons:

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Description and Motivation:

Urban and architectural history are key areas in digital humanities and digital heritage. With respect to these research areas, digital repositories, data and research methods play an important role, especially when hosting visual media like photographs, paintings, or drawings, and last but not least physical and virtual models. Due to the wide field of possible research, different approaches, methods and technologies have emerged – and are still emerging.

This session is part of the 4th issue of the Urban History in the Age of Digital Libraries (UHDL) workshop. UHDLs purpose is to provide a full picture with regards to epistemics, technology and framework conditions. We aim to discuss crucial challenges for further research and encourage exchange and debate about humanities research and education, technologies and data and particular trends as BIM or FAIR and 3D Publication/Sharing.

For the proposed session we would like to invite contributions on theoretical and methodological issues, application scenarios and projects, as well as novel approaches and tools in the following areas:

- Data handling and data schemes
- Machine Learning and Artificial Intelligence
- Visualization and Presentation

1. Data handling and data schemes

The immense effort invested in digitization and rapid changes in technologies and formats has greatly increased the importance of data standards. Long-term data storage, availability of models and the interoperability of data formats are major challenges to existing digital infrastructures. We welcome contributions on:

- 3D databases as a tool to support urban historical research
- Metadata and paradata
- Linked and semantic data related to urban historical research
- the influence of knowledge of HCI on the design of historic models

2. Machine Learning and Artificial Intelligence

During the past few years, various new technological opportunities have arisen from big data, Semantic Web technologies, and the exponential growth in data accessible via digital libraries such as EUROPEANA. Data-driven supervised and unsupervised classification approaches have been used to acquire high-level semantic concepts, especially from the interconnection of different types of data. Interdisciplinary collaborations between computer science and humanities disciplines are essential in developing methods and workflows to enable cultural heritage research to exploit machine learning approaches. We welcome contributions on:

- use cases and best practices of applied machine learning in digital humanities research
- approaches and technologies, e.g. radiance fields, image-based synthesis

3. Visualization and Presentation

Historians in cultural heritage research today are enabled to explore new research directions due to the availability of multitudes of digitized historical photographs in image repositories. Moreover, novel approaches such as the photogrammetric reconstruction of historical buildings from image databases allow for contextualization and intuitive access to data. Typical motivations for accessing these archives and repositories are scientific research, pedagogical applications, and the study of historical sites. These areas require advances in methods for visualization and presentation of data to support the different target groups. We welcome contributions on:

- Projects and investigations from urban history concerned with visualizations and presentation of spatial and/or scholarly data
- Research scenarios for scholars using visualizations of urban history data
- Interdisciplinarity, e.g. intersections between digital cultural heritage and (sustainable) tourism studies
- Data handling and data schemes
- Machine Learning and Artificial Intelligence
- Visualization and Presentation

Target Audience:

The target group for this session includes professionals, researchers, and practitioners from cultural heritage institution, digital technology, policies, and research, with a focus on those interested in the intersection of technology and heritage. Specific groups include:

- Cultural Heritage Professionals: Conservators, restorers, heritage site managers, and curators using digital tools for preservation and documentation.
- Digital Technology Experts: BIM specialists, architects, engineers, and 3D modeling professionals working on heritage conservation projects.
- Academics and Researchers: Scholars and researchers studying heritage preservation, digital methodologies, and climate adaptation strategies.
- Policymakers and Legal Experts: Professionals addressing the ethical and legal dimensions of digitizing cultural heritage and creating relevant policies.

Keywords:

UHDL, urban history, technology, AI

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