BOOK OF ABSTRACTS AND CVs

SLOT 1

Completed and ongoing research projects I

Carmen M. Enss & Seraphim Alvanides (UrbanMetaMapping, University of Bamberg), "Historical city maps: from archival materials to scientific research"

Abstract

The UrbanMetaMapping (UMM) consortium collects digitised war damage maps from the Second World War and its aftermath from archives of bombed European cities (Enss & Knauer 2023). Maps are structured chronologically, according to their themes and their status as field sketches, re-drawings, basic maps for planning and coordination, or exhibition maps. A large proportion of these thematic maps were hand-drawn on cadastral base maps in times of war and crisis and utilised as instruments for overcoming chaotic situations. Ruined buildings were interpreted as physical structures, as references to human activity, and as dangerous spaces. Although thematic mapping and surveying were seen as a scientific activity in the first half of the twentieth century, damage surveying and mapping was a diverse and creative process, interpreting the situation from different angles and personal perspectives. In subsequent years, these thematic maps were used as a basis for the reconstruction of many bombed cities through architectural competitions and exhibitions of the urban planning process. Today, we can draw valuable information from these historical city maps and trace the effect of post-war planning on the contemporary urban and social fabric of heavily damaged cities (Ludwig & Alvanides 2023).

References:

Enss C. M. & Knauer B., eds. 2023. Atlas Kriegsschadenskarten Deutschland: Stadtkartierung und Heritage Making im Wiederaufbau um 1945. Basel: Birkh.user. <u>https://doi.org/10.1515/9783035625011</u>

Ludwig C. & Alvanides S. 2023. A Spatio-Temporal Analysis of the Urban Fabric of Nuremberg From the 1940s Onwards Using Historical Maps. Urban Planning, 8(1), 239-254. <u>https://doi.org/10.17645/up.v8i1.6084</u>

CVs

Carmen M. Enss (University of Bamberg) is an architectural historian and a senior researcher in urban conservation at the Centre for Heritage Conservation Studies and Technologies at the University of Bamberg. She specialises in the planning and conservation history of historic city centres, focusing particularly on the first half of the 20th century in Europe. In 2023, she and Birgit Knauer published the Atlas Kriegsschadenskarten Deutschland (Atlas of War Damage Maps). She has been head of the UrbanMetaMapping research consortium and is now head of the UrbanMetaMapping Transfer project. Alongside her team in Bamberg, she is developing new methods in urban spatial humanities. The team also hosted the Spatial Humanities Conference in Bamberg in 2024.

Seraphim (Serafeim) Alvanides is a senior researcher at Bamberg University with the UMM-Transfer team and an urban social geographer with research interests in land use change, urban sprawl, environmental justice and more recently spatial humanities. He has methodological expertise in quantitative methods, urban analytics and geographical information science. He is a co-Editor of the journal <u>E&P B: Urban</u> <u>Analytics and City Science</u> and Section Editor for the open access journal <u>Heliyon (Urban Development)</u> as well as an advocate of Open Science principles.

Daniel Jeller (Time Machine Europe), "Time Machine Europe & ICARUS"

Abstact

This lecture will give a short overview of the history, aims and current activities of both TMO, the Time Machine Organisation and ICARUS, the International Centre for Archival Research. Both are international associations located in Vienna. TMO aims at furthering the uncovering of the "Big Data of the Past" and ICARUS connects Archives, Libraries, and other GLAM institutions and assists them in managing their digital cultural heritage. Additionally, it is the home of some of the most widely used online platforms for charters and person registers, Monasterium and Matricula.

CV

Daniel Jeller is an Austrian historian and information technology expert. He is currently the CTO at Time Machine as well as the head of digitization and IT at ICARUS, the International Centre for Archival Research. Apart from managing the technical infrastructure at Time Machine and ICARUS, he works as a programmer and web developer on various projects and online portals. Additionally, he acts as maintainer for Monasterium, the biggest portal and online database for medieval and early modern charters. Privately, he is interested in the relationship between cultural heritage and the digital age. He started pursuing this topic during his studies at the University of Vienna which resulted in his master thesis "Archival material in the age of its digital reproduction" at the Department of History.

SLOT 2 Completed and ongoing research projects II

Johannes Reiter & Dominic Rieth (Generaldirektion Kulturelles Erbe Rheinland-Pfalz), "Kulturlandschaft digital erfassen: GIS in Archäologie und Denkmalpflege der GDKE Rheinland-Pfalz"

Abstract

The *Generaldirektion Kulturelles Erbe Rheinland-Pfalz* (GDKE) maintains an internal web-based geoportal that consolidates a wide range of spatial data relevant to cultural heritage management. This includes protected monuments, excavation protection zones, geological formations, and archaeological sites. Each dataset is georeferenced, with all objects and associated heritage management activities linked to coordinates in UTM Zone 32. The portal supports the integration of additional geospatial layers such as cadastral parcels, LiDAR-derived hillshades, and historical cartographic material. All information is stored in a PostgreSQL/PostGIS environment and is fully searchable and accessible for internal research, planning, and documentation purposes. Selected datasets are also made publicly available via standardized WMS and WFS APIs, facilitating external access, interoperability, and reuse.

Currently, the geoportal is populated by nearly 20 distinct applications based on the PGIS software framework. To improve interoperability, data consistency, and long-term sustainability, a new system — DFIS (Denkmalfachinformationssystem – working title) — is under development. DFIS aims to unify these applications into a single, integrated platform and provide a comprehensive spatial data infrastructure for cultural heritage in Rhineland-Palatinate.

This transition also marks a fundamental technological shift: from legacy desktop-based solutions to modern, interconnected web applications built using WebAssembly and cloud technologies. Future system architecture will rely exclusively on networked, browser-based applications and scalable self-hosted cloud services.

CV Johannes Reiter

Current Position: IT Referent Organization: Generaldirektion Kulturelles Erbe Rheinland-Pfalz Responsibilities: all aspects of software development within the IT/Communication Unit

Previous Roles:

- IT Systems Architect, Generaldirektion Kulturelles Erbe Rheinland-Pfalz, Mainz
- GIS Project Engineer, Widemann Systeme GmbH, Wiesbaden area

Academic Background:

- M.A. Classical Archaeology, University of Vienna
- M.Sc. Geoinformatics, Paris Lodron University of Salzburg

Profile:

Interdisciplinary professional combining expertise in cultural heritage, spatial technologies, and IT infrastructure. Strong background in both humanities and applied technologies, with a focus on digital heritage and geospatial data.

CV Dominic Rieth

Current Position: Project Staff – Digitalization Pilot Project **Organization:** Generaldirektion Kulturelles Erbe Rheinland-Pfalz

Previous Roles:

- Research Associate, Project "Mensch und Umwelt", JGU Mainz including local excavation lead at the "Hunnenring" near Nonnweiler (Saarland) and regional field surveys
- Lecturer, Institute of Ancient Studies, JGU Mainz taught geophysical fieldwork and digital data processing

Academic Background:

- Ph.D. in Prehistoric Archaeology, JGU Mainz
 Dissertation: "Katastrophenhorizonte in den römischen Nordwestprovinzen"
- M.A. in Prehistoric Archaeology, Ancient History & Near Eastern Archaeology, JGU Mainz Thesis: "Studien zur Anwendung der Neutronenaktivierungsanalyse (NAA) hinsichtlich der Provenienzbestimmung neolithischer Hämatitartefakte"
- Additional Studies: Computer Science at TU Kaiserslautern (not completed)

Profile:

Archaeologist with extensive experience in fieldwork, geophysical methods, and digital data processing, with participation in research projects across Germany, France, Ukraine, and Iran.

Nina Richards (Austrian Academy of Sciences, Centre for Digital Humanities and Cultural Heritage), "Connecting Places, People, and Time through OpenAtlas"

Abstract

OpenAtlas (<u>https://openatlas.eu/</u>) is an open source database application developed primarily at the Austrian Centre for Digital Humanities and Cultural Heritage (ACDH-CH) of the Austrian Academy of Sciences (ÖAW). It is designed for managing, editing, and analyzing complex data across a wide range of humanities disciplines.

Built on CIDOC CRM (<u>https://cidoc-crm.org/</u>), a widely recognized ontology in the cultural heritage sector, OpenAtlas offers a structured, sustainable, and flexible research environment. Its adaptive user interface supports a variety of projects with diverse research questions.

By modeling interconnected entities such as places, persons, events, and artifacts, OpenAtlas enables the analysis of spatial and temporal dynamics in both historical and contemporary contexts. Integrated GIS tools allow for the visualization of settlement patterns, networks, and transformation processes.

The platform is committed to current standards in data management, adhering to FAIR principles (https://www.go-fair.org/fair-principles/) and fostering the creation of Linked Open Data. It also offers an API for interoperability and collaboration across projects.

Data stored in OpenAtlas can be presented through dynamic, public-facing web interfaces, enhancing both scholarly transparency and public engagement. This presentation will showcase recent developments and real-world applications supporting sustainable digital heritage research.

CV

Nina Richards (née Brundke) is a researcher specializing in Early Medieval archaeology, physical anthropology, and digital humanities. She is currently affiliated with the Austrian Centre for Digital Humanities and Cultural Heritage at the Austrian Academy of Sciences and the Natural History Museum Vienna. She holds degrees in Medieval and Post-Medieval Archaeology from the Otto-Friedrich University of Bamberg (Magister) and in Biology from the University of Vienna (Bachelor). Her academic work bridges archaeological science and digital methods, with a particular focus on interdisciplinary collaboration. Nina has contributed to several international research initiatives, including the OpenAtlas project (https://openatlas.eu/) and THANADOS (https://thanados.net/). Within the OpenAtlas team, she is actively involved in developing interdisciplinary features, supporting project partners, and contributing to the project's scientific output and dissemination.

Felix Bach (Leibniz Institute for Information Infrastructure Karlsruhe, FIZ), "TOPORAZ - A digital space-time model for networked research using the example of Nuremberg"

Abstract

TOPORAZ is a virtual research environment developed to digitally reconstruct and explore the early modern city of Nuremberg using a spatial and temporal model. It combines architectural 3D models, historical maps, archival records, and narrative texts to form an integrated digital representation of urban space and its historical transformation. The project aims to support both scholarly research and public engagement through interactive, multimodal access to complex historical data.

At its core, TOPORAZ provides a platform for networked research in the digital humanities, allowing researchers to visualise spatial relationships and historical developments across time. Users can navigate the digital cityscape, explore buildings and city structures in their historical context, and link them to documentary evidence and metadata from cultural heritage institutions. This integration enables cross-referencing of diverse data types, from cartographic material to textual sources, thus promoting new forms of spatially-oriented historical inquiry.

TOPORAZ is part of a broader vision to make historical knowledge more accessible and reusable through digital infrastructures. It also contributes to methodological innovation in the digital humanities by demonstrating how spatial modelling, linked data, and 3D visualisation can be combined to reconstruct, analyse, and communicate the lived environment of the past.

CV

Dr Felix Bach is Head of the Research Data Department at FIZ Karlsruhe and responsible for the RADAR research data repository, including its extension RADAR4Memory. He leads Task Area 3 (Data Services) in NFDI4Memory and Task Area 3 (Repositories) in NFDI4Chem, where he also serves as Co-Spokesperson. He is further involved in NFDI4Culture and NFDI4Objects, and acts as Scientific Coordinator of the Leibniz ScienceCampus DiTraRe (Digital Transformation of Research).

His work focuses on the development of sustainable, interoperable infrastructures for FAIR research data across disciplines. He was a core contributor to the bwDataArchive project, which established a large-scale bit-level preservation infrastructure for hundreds of petabytes of data in Baden-Württemberg. He also contributed to the TOPORAZ and TRANSRAZ projects, which developed a virtual research environment reconstructing historical Nuremberg through 3D models and linked archival sources, supporting digital humanities research and public engagement.

SLOT 3 Methods of automatization

Rainer Simon (rainersimon.io), "Machines reading maps"

Abstract

Machines Reading Maps is an international research collaboration (US/UK/AT) funded by the NEH and AHRC that reimagines how we access and analyze digitized historical maps. The project unlocks text on maps as a rich, searchable data source, using advanced tools for text recognition (OCR), semantic classification, and entity linking.

At the core of our work is enhancing OCR processes tailored for historic maps and integrating them with end-user interfaces that make results actionable for visualization, verification, and correction. This enables annotation and analysis of map text at scale, bridging the gap between machine learning outputs and human interpretation.

Through partnerships with the David Rumsey Map Center and the National Library of Scotland, the project has demonstrated applications ranging from crowdsourced annotation to improved collection discoverability. By transforming unstructured cartographic labels into linked data, Machines Reading Maps supports new forms of historical inquiry, enriches archival metadata, and lays the foundation for map-based search and analysis in cultural heritage collections.

CV

Rainer Simon is a senior research software engineer and freelance IT consultant. He has been working in the field of information management, knowledge engineering and user interface design for more than 20 years. He has a passion for the Digital Humanities and Digital Library fields, has been collaborating with major GLAM (Galleries, Libraries, Archives, Museums) and academic partners worldwide, and published extensively on technological issues of digital representation, data modelling and systems design in this domain. In the past, he served as the Technical Director of Pelagios, an international Digital Humanities linked open data initiative. He is also the lead developer of the award-winning Recogito and Peripleo open source tools for geospatial annotation and visualisation.

Anna-Lena Schumacher (Institut für vergleichende Städtegeschichte Münster), "Historical survey maps and the comparative study of the functionality and morphology of urban space (HisMaComp)"

Abstract

Building upon the limitations of traditional spatial analysis, the project HiSMaComp aims to develop an ontology-based approach for recording and comparing the topography and morphology of historical urban spaces. By integrating GIS with semantic web technologies, the project allows for deeper, multidimensional, and standardised comparative analyses. The aim is to create solutions to standardisation problems and opportunities for comparison by implementing changes to methods and usage practices, rather than just a change in media. The main tool for this methodological change is the use of an ontology developed as part of the project to describe individual functional topographical objects in urban space, which will be made available for re-use. The presentation will focus on our combined methods, the necessary requirements analysis and the development of our ontology, as well as showcasing our work with it.

CV

Anna-Lena Schumacher is a research assistant at the Institute for Comparative Urban History at the University of Münster. She specialises in Digital History, Spatial Humanities and ontology engineering and is currently working on the HiSMaComp project (Historical survey maps and the comparative study of the functionality and morphology of urban space. Standardisation - Digital processing - Research). As part of the project, she is working on the case study of the cathedral chapter town of Ochsenfurt and is responsible for data modelling, in particular the development of the project's own ontology, and research data management.

Martin Fleischmann (Charles University Prague, Dep. of Social Geography and Regional Development), "Understanding cross-regional patterns of urban form using hierarchical morphotope classification"

Abstract

The way buildings are laid out, the patterns of streets, unique open spaces and transformations we observe when we move between neighbourhoods are among the strongest impressions a city leaves. Yet, when looking at the ways science deals with this particular aspect of primary human habitat, there's still a lot we don't know. One of the reasons is the complexity urban form encapsulates. The patterns of form are rich, complex and complicated. We need to reduce the complexity of the matter we study, through methods like classification. While various classification methods exist, they often oversimplify urban patterns or lack scalability. This talk presents the hierarchical morphotope classification (HiMoC) - a novel method for detailed, scalable, and adaptive classification of urban form.

The method was applied to 6 countries in Central and Eastern Europe, analysing over 90 million buildings from national cadastral databases. The classification identified more than 600,000 morphotopes across 867 regions, organised into 64,726 baseline types within a single taxonomic tree. This hierarchical structure allows for flexible analysis at different levels of detail, from broad urban patterns to specific local variations.

CV

I am a researcher in urban morphology and spatial data science focusing on quantitative analysis and classification of cities, remote sensing, and all the related things. While not doing the research, I write open source software, promote open science and help others with their data.

I am an author or a maintainer of a range of open scientific software, including GeoPandas, the open source Python package for geographic data handling, momepy, the urban morphology measuring toolkit for Python, Xvec, the tool for vector data cubes, and PySAL, the Python library for spatial analysis.

Rafael Sterzinger (TU Wien Faculty of Informatics, Institute of Visual Computing), "Segmentation of Historical Maps"

Abstract

Historical maps are invaluable cultural heritage assets, yet their diverse visual representations and limited annotated data pose significant challenges for automated processing. We propose a simple yet effective approach for few-shot segmentation of historical maps, leveraging the rich semantic embeddings of large vision foundation models combined with parameter-efficient fine-tuning. Our method outperforms the state-of-the-art on the Siegfried benchmark dataset, achieving +5% and +13% relative improvements in mloU for railway and vineyard segmentation in 10-shot scenarios. Additionally, it demonstrates strong performance on the ICDAR 2021 competition dataset, attaining a mean PQ of 67.3% for building block segmentation, despite not being optimized for this shape-sensitive metric. Notably, our approach maintains high performance even in extreme low-data regimes (5-shot), while requiring only 689k trainable parameters – just 0.21% of the total model size. Our approach enables precise segmentation of diverse historical maps while drastically reducing the need for manual annotations, advancing automated processing and analysis in the field.

CV

Rafael Sterzinger is a PhD student at TU Wien's Computer Vision Lab, where he focuses on adapting vision foundation models for segmentation in data-scarce domains. His work bridges cultural heritage and deep learning, with notable contributions in the segmentation of ancient Etruscan mirror engravings. In *ICDAR 2024*, he presented a deep segmentation pipeline that achieved human-level accuracy on degraded artifacts using minimal annotated data. His *ICPR 2024* paper introduced a deep-human refinement loop, cutting manual labeling by 75%. Complementing this, his most recent work explores few-shot segmentation of historical maps by linearly probing vision foundation models, demonstrating their power in extracting meaningful structures with minimal supervision. His research highlights the potential of combining large pretrained models with lightweight adaptation strategies to tackle real-world challenges in underdocumented visual domains such as historical maps.

Friedrich Hauer and Severin Hohensinner (Vienna),

"Tracing Vienna's urban waterscape. Mapping fluvial impacts on urban development, 1683 to present."

Abstract

Water is a prerequisite for settlement development, a key factor in settlement site selection and of wide morphogenetic impact on settlement structures over several scales. In this presentation we discuss the GIS-reconstruction of settlement expansion into Vianna's urban floodplains and case studies that explore and map the co-evolution of Vienna's urban fabric and waterscape.

CVs

Friedrich Hauer was trained an architect/urbanist and historian in Vienna, Austria. Since 2010 he has been a member of various interdisciplinary working groups in urban design and urban environmental history, focusing on questions of structural spatial development and urban metabolism. His PhD in urban morphology (2019) deals with the impacts of water(s) on Vienna's urban form in the past 500 years. Besides he has been publishing on topics of architectural history, has organized symposia and curated exhibitions. He is currently lecturer at TU Wien's Institute of Urban Design and Landscape Architecture and at University of Vienna's Department of European Ethnology.

Severin Hohensinner is a graduate engineer and Ph.D. in Landscape ecology/planning. He has been a researcher and lecturer at BOKU University Vienna since 2001, with a focus on the reconstruction of historical river/floodplain hydromorphology and modelling of fluvial processes with special emphasis on the Austrian Danube. The results of his studies contribute to the identification of historical living conditions for the biocoenoses in riverine ecosystems. He is involved in several interdisciplinary projects in the fields of aquatic ecology, river restoration and environmental history.

SLOT 4 Archiving and long-term preservation of historic (open) data

Martin Jeske (Staatsbibliothek zu Berlin, Digitale Kartographie und Geodaten), "Geodaten in der Staatsbibliothek zu Berlin: Stand und Perspektiven"

further information

Jeske, Martin (2023): Geodaten an der Staatsbibliothek zu Berlin: für Forschungsreisen in Raum und Zeit. In: Bibliotheksmagazin: Mitteilungen aus den Staatsbibliotheken in Berlin und München 2023, S. 30–33. https://doi.org/10.48711/20231204-004

CV

Since 2021 Martin Jeske has been in charge of the division Digital Maps and Geodata at the Map Department of the Berlin State Library – Prussian Cultural Heritage. Prior to this, he was a research assistant at Basel University where he earned his PhD on the history of mapping Russia. His Book "Ein Imperium wird vermessen" was published in spring 2023. Not just for his scientific research, but also for his tasks at the library it is of great value that Martin Jeske received a training as professional surveyor.

Sebastian David Schiller-Stoff & Leona Münzer (University of Graz, Department of Digital Humanities), "GIS-Integration in digitalen Forschungsarchiven: Herausforderungen und Lösungsansätze am Beispiel des GAMS"

Abstract

Im Kontext der Digitalen Geisteswissenschaften steht die nachhaltige Speicherung und Nutzung von räumlichen Daten vor besonderen Herausforderungen. Dieser Vortrag beleuchtet die technischen und methodischen Aspekte der Integration von GIS-Funktionalitäten in das Forschungsdatenrepositorium GAMS (Geisteswissenschaftliches Asset Management System) der Universität Graz.

Der Fokus liegt auf dem Spannungsfeld zwischen clientseitigen Berechnungen mit Frameworks wie Leaflet oder OpenLayers und serverseitigen Lösungen basierend auf PostGIS oder Marmotta. Anhand konkreter Beispiele aus dem DERLA-Projekt wird demonstriert, wie räumliche Daten langfristig gespeichert, verarbeitet und visualisiert werden können.

Die Präsentation zeigt Lösungsansätze für zentrale Herausforderungen wie Datenstandardisierung, Interoperabilität zwischen verschiedenen Systemen und die Gewährleistung nachhaltiger Zugänglichkeit von GIS-Daten in geisteswissenschaftlichen Forschungsprojekten. Besonderes Augenmerk liegt dabei auf der Frage, wie Datenmodelle konzipiert werden müssen, um sowohl die Anforderungen der Langzeitarchivierung als auch die Anforderungen an performante Visualisierung und Analyse zu erfüllen. Der Input trägt zur Diskussion innovativer Methoden für die digitale Erforschung und Vermittlung städtebaulicher Transformation bei und eröffnet Perspektiven für die Nutzung digitaler Infrastrukturen in den Digitalen Geisteswissenschaften.

CVs

Sebastian David Schiller-Stoff BA BA MA MA MA holds master's degrees in Art History, History and Digital Humanities and has deepened his expertise in software engineering. Since 2022, he has been working as a senior developer at the Institute for Digital Humanities at the University of Graz, where he is a full-stack engineer and is playing a key role in the development of the new version of GAMS, the institute's digital archive. His expertise also lies in the provision of solutions for digital infrastructures, software engineering and the optimisation of research processes through the use of AI.

Leona Elisabeth Münzer BA BA is currently studying Archaeology and Digital Humanities in the master's programs at the University of Graz. She works as a student assistant at the Institute of Digital Humanities on the DERLA project, which documents sites of remembrance related to victims of National Socialism. She holds Bachelor's degrees in Art History and Archaeology. Her main academic interests include geospatial humanities and the use of artificial intelligence in the humanities, particularly Al-assisted programming and agentic Al systems. As part of her studies, she is writing her master's thesis in Digital Humanities on the topic of "Cross-Cultural Heritage Mapping," focusing on the digital representation of archaeological sites in Austria and Japan.

TEAM URBAN META MAPPING (+ ASSOCIATED)

Klaus Stein is a senior researcher at the Otto-Friedrich-Universität Bamberg. His main research areas are spatial cognition/geo-informatics and social network analysis. He studied Informatics (Computer Science) at the TU München and participated in the interdisciplinary DFG priority program "spatial cognition" for his PhD. Klaus is particularly interested in the ongoing digital transformation taking place in the Social Sciences and Humanities. He enjoys collaborating with researchers and students from different fields on various interdisciplinary projects. Additionally, he recently joined the research support group of the central university IT services.

Birgit Knauer studied art history and romance studies at the University of Vienna. Following her PhD, she worked as a research assistant at the Chair of Heritage Conservation at the University of Bamberg, Germany. Since 2020, she has been researching and teaching at the Department of Heritage Conservation at TU Wien, focusing especially on the architecture of post-war modernism and discourse and practice of urban planning and conservation in the 20th century. She is interested in urban transformation and processes of value attribution and value assessment in heritage conservation.