Call for applications: PhD candidate or Postdoctoral researcher

Key facts

- **Project**: INDIGO 2.0 — INventory and DIsseminate Graffiti along the dOnaukanal 2.0
- **Location**: University of Vienna, Vienna, Austria
- **Contract**:
    - **PhD position**: 3 years, 75% employment; annual gross salary starting at € 39,649 (step 1; subject to annual increases according to the Austrian collective agreement), or
    - **Postdoctoral position**: 2 years at 75% employment or 3 years at 50% employment (or a comparable arrangement within the project framework); annual gross salary starting at approximately € 35,100 (50% employment, step 1) or € 52,650 (75% employment, step 1), increasing with prior experience in accordance with the Austrian collective agreement.
- **Submission deadline**: 5 March 2026.
- **Start date**: April–June 2026

Position description

INDIGO 2.0 is a three-year interdisciplinary Heritage Science project that integrates *Digital Humanities* and *Technical Sciences* to develop a humanistic–technological framework for **monitoring, representing, and understanding contemporary graffiti-scapes**. The project addresses the limitations of traditional database practices by adopting an **ontology-driven and graph-based data infrastructure** to formally represent graffiti events, their documentation, and their temporal evolution.

The successful candidate will contribute to key conceptual and technical components of INDIGO 2.0, including designing a **time-aware ontology**, formalising temporal semantics, and implementing these models in a **graph database** that supports expressive semantic and spatio-temporal querying.

The position requires **close collaboration with the project leadership and team in Vienna** and plays a core role in shaping the project's semantic backbone.

Tasks and responsibilities

The successful candidate will:

- **Develop a time-aware ontology** informed by CIDOC CRM, its extensions, and OWL Time, extending these models where necessary to represent graffiti, their spatio-temporal lifecycle, and associated observations and interpretations. This work aims to produce a reusable, international framework for academic graffiti research that supports interoperability and long-term comparative research.

- **Define and formalise temporal relations and temporal inference rules**, including bounded and fuzzy temporal extents, ensuring that temporal information is modelled in a way that allows the derivation of new temporal intervals and the comparison and combination of temporal information over time.
- **Design and implement a graph data model that faithfully realises the developed ontology**, using RDF and/or labelled property graph representations, and supports semantic and temporal querying of the project data.
- **Contribute to the population of the graph database with project data**, using this process iteratively to evaluate, refine, and improve both the ontology and its graph-based implementation.
- **Participate in exploratory analyses of the populated graph data** to generate new insights into the spatio-temporal dynamics and characteristics of graffiti, and to feed analytical findings back into the conceptual design and formalisation of the ontology.
- **Contribute to the design of metadata models and documentation templates** for real-world graffiti and their digital derivatives (e.g. photographs, 3D models, orthophotos), ensuring conceptual consistency with the ontology while remaining suitable for practical documentation and long-term reuse.
- **Work closely with other INDIGO 2.0 team members and related graffiti research projects** to ensure conceptual consistency, interoperability, and alignment of the ontology and graph model with project workflows and research questions.
- **Support the organisation of a dedicated graffiti-focused session at an international conference** (planned for the 2028 EAA conference), contributing to the dissemination and discussion of project results within the broader research community.

Profile and required skills

Applicants should demonstrate:

- Expertise in **Semantic Web** and **ontology engineering**, including RDF, OWL 2, and SKOS.
- Experience with, or a strong interest in, **CIDOC CRM** and **event-based modelling**.
- Broad interest in **temporal modelling**, including event-centred and interval-centric approaches, and the ability to apply concepts such as Allen relations to structure and reason about temporal relationships.
- Strong interest in **metadata modelling** (including familiarity with common cultural heritage and research metadata standards) and the epistemological distinction between physical entities and their digital documentation.
- Experience with the design and use of **controlled vocabularies**.
- Experience with **SHACL** (or ShEx) for data validation and the specification of semantic constraints.
- Experience with, or interest in, **semantic reasoning and inference** over ontologies and graph-based data.
- Experience with **graph data structures**, including RDF triple stores or labelled property graphs, and an understanding of their semantic implications.
- Ability to translate ontological and temporal models into a **graph database schema**.
- **Solid programming skills** (preferably Python) and experience with collaborative software development (e.g., Git).

Organisational requirements

- Excellent **written and spoken English**.
- **Willingness to relocate to Vienna** and work primarily on-site, to enable regular in-person conceptual discussions.
- Ability to work independently and as part of an **interdisciplinary research team,** bridging Digital Humanities and Technical Sciences.

What we offer

- Competitive salary according to Austrian academic standards, commensurate with experience. Specific contract arrangements (duration and working hours) can be discussed depending on the candidate's profile and availability**.**
- Integration into a **highly motivated, interdisciplinary research team**.
- The opportunity to work on a **methodologically innovative international project**.
- Excellent **publication opportunities** and support for open-access dissemination.
- Active participation in international collaborations and standards initiatives.
- A stimulating research environment at the **University of Vienna**, closely tied to **TU Wien**.
- The chance to live and work in **Vienna**, consistently ranked among the **world's most liveable cities**.

Application instructions

Applications should include:

- Cover letter (1–2 pages)
- Curriculum vitae
- Relevant certificates/diplomas
- (Optional) References, sample publications, or GitHub links
- Please submit a **single PDF file** to **Geert.Verhoeven@univie.ac.at** by **5 March 2026**.