

## LE STUDIUM RESEARCH FELLOWSHIP – Scholarly Data Editing expert researcher (H/F)

(Open to international experienced researchers)

### INTELLIGENCE DES PATRIMOINES Research Programme – ARD 2020 (Cultural & natural heritage)

Research Field: [Ontology, data integration](#)

#### CONTEXT

---

Intelligence des Patrimoines is a research and development programme supported by the Centre-Val de Loire Region (AMI ARD) and by the Centre d'Etudes Supérieures de la Renaissance of Tours (UMR 7323 - Université de Tours / CNRS / Ministère de la Culture). It brings together on the heritage thematic 34 laboratories and 360 researchers from institutions and organizations of higher education and research of the Centre-Val de Loire Region: University of Tours, University of Orléans, CNRS, INRA, IRSTEA, INSA Centre Val de Loire, BRGM and ESCEM.

Structured around 3 axes - Research, Training, Development -, Intelligence des Patrimoines offers a new understanding of cultural and natural heritage. It operates its activities through:

- 5 interdisciplinary topic projects: Chambord-Châteaux; Vine & Wine; Loire & Rivers; Gastronomy, Health & Wellbeing; Monuments, Parks & Urban Gardens;
- 1 transversal project, dedicated to the creation of a platform for heterogeneous data on heritage.
- 1 Graduate school in Heritage Intelligence (Master and PhD level) in connection with the UFR CESR
- 1 incubator : Smart Tourism Lab

In an international environment characterized by changing regulatory regimes and increasing harsh competition, research and innovation are key factors to ensure smart specialization and sustainable economic development of territories and stakeholders. LE STUDIUM Loire Valley Institute for Advanced Studies contributes to The Intelligence des Patrimoines Programme for the selection and recruitment of international experienced researchers. **LE STUDIUM Loire Valley Institute for Advanced Studies opens a position for an experienced researcher in Scholarly Data Editing.**

#### SCIENTIFIC RESEARCH CONTEXT

---

Intelligence des Patrimoines follows two objectives. First, a new understanding of cultural and natural heritage and their synergy. Second the implementation of new forms of socio-economic and touristic development on scientific basis. This results in the development of services and innovative tools, creators of economic values and jobs. Therefore, the transversal project, a.k.a. the platform for heterogeneous data from natural and cultural heritage, aims at integrating the cultural and natural heritage data from the five interdisciplinary topic projects, in order to support these two objectives.

Data Integration is the central problem of this transversal project. The heterogeneity of the domains of study of each project, the extended production of data and the systematic development of dedicated databases, not necessarily designed for interoperability at the beginning, have brought to the fore the

**LE STUDIUM** Loire Valley Institute for Advanced Studies

1, rue Dupanloup - 45000 Orléans, France

Tel +33 238 211 482 – email : [contact@lestudium-ias.fr](mailto:contact@lestudium-ias.fr)

<http://www.lestudium-ias.fr>

need for seamless interconnection of diverse and large numbers of information sources for interdisciplinary purposes.

In order to provide uniform access to heterogeneous and autonomous data sources, complex query and integration mechanisms have to be designed and implemented.

Data from multiple sources are characterized by multiple types of heterogeneity. Semantic heterogeneity, which stands for differences in interpretation of the 'meaning' of data, is one of the most important sources of differences in heterogeneous datasets. Whereas other types of heterogeneity have been addressed and resolved by many automated and semi-automated approaches, semantic heterogeneity is still a critical question. First differences can arise from all the levels of knowledge (language, conceptual, domain and data levels). Second it cannot be resolved without a human expertise on the knowledge domain.

---

To address this problem, the project has opted for a hybrid ontology-based integration approach. This approach involves the use of CIDOC CRM as top-level vocabulary to effectively combine data or information from multiple heterogeneous sources.

The first step for ontology-based integration process consists in adapting the ontology model to cover the data to integrate. For this purpose, an ontology expert has been recruited to support Life Science (ecology, zoology, biology, medicine) and Science of Materials (architecture, buildings, urbanism) data, which domains are partially covered by the CIDOC CRM and its extensions.

Here are his following tasks:

- Ontological study of the transversal platform datawarehouse
- Mapping study to CIDOC CRM
- Identification of new specific vocabularies / extensions
- Alignment or mapping of existing vocabularies / Modelling of new CIDOC CRM ontological extensions

The second step of ontology-based integration consists in semantically annotating the data with respect to the ontology model.

This step includes two activities:

- (1) the alignment of the source data terminologies (terms issued from data schemes) to the target vocabularies of the ontology model;
- (2) the automatized generation of the corresponding semantic annotations in RDF to feed the HeritageS knowledge base.

Also, to guarantee the meaning of the source data, the activity (1) implies:

- a scientific validation of the source data by domain experts (guaranteed by scientific publications or by a domain expert review)
- the identification of the target vocabularies from the ontology model
- a discussion between data producers/domain experts and knowledge organization experts to proceed in a collaborative alignment
- a possibility for domain experts to enrich the target vocabularies with new concepts and definitions derived from the source data

Activity (2) implies:

Work with several standards or ongoing recommendation, such as SKOS, OWL, TEI, MEI

Participate in eventually improving such recommendations

The third step of ontology-based integration consists in editing and publishing on the Web the annotated data to make it reusable by any applications and people.

This step includes several activities:

- (1) edition and mediation of the integrated and multimedia data on the HeritageS Web portal;
- (2) publication of RDF data on the Linked Open Data.

**LE STUDIUM** Loire Valley Institute for Advanced Studies

1, rue Dupanloup - 45000 Orléans, France

Tel +33 238 211 482 – email : [contact@lestudium-ias.fr](mailto:contact@lestudium-ias.fr)

<http://www.lestudium-ias.fr>

Also, activity (1) implies:

- a typology of integrated data for edition purpose
- a typology of multimedia data for visualization purpose
- a typology of visualization tools

Activity (2) implies:

- attribution of international unique identifiers (IRIs) such as ARK identifiers to the data
- export of of the knowledge base RDF data to store it in the LOD
- exposition of the Heritage knowledge base through an open SPARQL EndPoint API

## MISSION OF THE RESEARCH SCIENTIST

---

- Build a scientific proven methodology to handle the second step of the ontology-based data integration
- Collaboration with the ontology expert on methodology for scientific validation of data
- Collaboration with colleagues on semantic annotation of multimedia data.
- Collaboration with colleagues on textual data annotation
- Participation in scientific mediation projects and events organized by Intelligence des Patrimoines and LE STUDIUM Loire Valley Institute for Advanced Studies
- Contribution in publishing of scientific articles related to the project
- Teaching courses at ESIPAT school on this research subject

For any further information on the mission, applicants can liaise with Perrine Thuringer  
Perrine.Thuringer(at)univ-tours.fr

## ESSENTIAL SKILLS AND EXPERIENCE

---

The position is offered to a highly motivated researcher, to join the Intelligence des Patrimoines team. The successful candidate must have:

- PhD in History with a consistent experience in scholarly editing data in Digital Humanities, preferably Italian or better Franco-Italian, an achievement in an interdisciplinary computing setting –Social and Human Sciences, Philosophy or Life Sciences will be a plus;
- Successful professional experience (i.e. with production of solutions now used), at least two years in scholarly editing;
- Advanced knowledge and methodology skills for:
  - Scientific validation of cultural and natural heritage data
  - Autoptic Process methodology for multimedia data annotation
  - Interoperability of cultural and natural heritage data
  - Digital scholarly edition and publishing on the Web and Web of Data
  - Perennization of cultural and natural heritage data
- Advanced Technology skills in:
  - annotation and visualization software DAP, Relight, 3D HOP, MESHLAB
  - CIDOC CRM and extensions
  - SKOS
- Excellent knowledge and mastering of Semantic Web standards and cultural heritage terminologies
- Advanced Languages skills:
  - English : fluently spoken, read and written
  - Italian : fluently spoken, read and written in order to collaborate with Italian colleagues
  - French : fluently spoken, read and written

**LE STUDIUM** Loire Valley Institute for Advanced Studies

1, rue Dupanloup - 45000 Orléans, France

Tel +33 238 211 482 – email : [contact@lestudium-ias.fr](mailto:contact@lestudium-ias.fr)

<http://www.lestudium-ias.fr>

- Strong organizational and time management skills with ability to prioritize work, manage time effectively and deliver results on time.

## CONDITIONS OF ELIGIBILITY

---

The fellowship is intended to attract an experienced international researcher in possession of a doctoral degree and a minimum of five years of full-time research experience, preferably ten.

- Applicant researchers must be national or long-term resident of a country other than France, ie. having spent a period of full-time research activity of at least 5 consecutive (without breaks in research) years in a country other than France.
- Applicant researchers must also comply with the following mobility rule: not having resided or carried out their main activity (work, etc.) in France for more than 12 months in the 3 years immediately prior to the deadline of application. Compulsory national service and/or short stays such as holidays are not taken into account.

## CONDITIONS OF EMPLOYMENT

---

The position is based in Tours, France and offers a **one-year contract**.

The position is expected to be filled as of 1<sup>st</sup> July 2019 and not later than September 1<sup>st</sup>, 2019.

The successful candidate will be hosted in the Centre d'Etudes Supérieures de la Renaissance of Tours (UMR 7323 - Université de Tours/CNRS/ Ministère de la Culture <http://cesr.univ-tours.fr/>) into the Intelligence des Patrimoines network and integrated in the LE STUDIUM international faculty of fellows.

The scientific working languages are French, English and Italian.

Entitlements detailed in the French contract of employment issued by LE STUDIUM include:

- a personal salary.
- rental costs of a fully furnished apartment for the applicant and her/his family. Utilities (water, heating, electricity, tax) have to be paid by the fellow.
- Affiliation to the French social security protection scheme and a contribution to a private medical protection scheme for all health costs complementing the French basic social security protection.
- Working hours, vacation and travelling expenses are bound by the same regulation as those effective for the personnel of the hosting laboratory.
- Logistics and administrative assistance by a member of LE STUDIUM operational team.

## CONDITIONS OF APPLICATION

---

Online application via LE STUDIUM platform: **Apply section**

The deadline for application is **31<sup>st</sup> May 2019**. Applications will be reviewed as they come in.

The application will consist of three elements:

- A completed online LE STUDIUM application form with personal information and details of track records;
- A curriculum vitae of maximum two pages including information not in the online application;
- A motivation letter.

Upload these two documents as pdf files.

**LE STUDIUM** Loire Valley Institute for Advanced Studies

1, rue Dupanloup - 45000 Orléans, France

Tel +33 238 211 482 – email : [contact@lestudium-ias.fr](mailto:contact@lestudium-ias.fr)

<http://www.lestudium-ias.fr>