

## LE STUDIUM RESEARCH FELLOWSHIP – Ontology expert researcher for data integration (H/F)

(Open to international experienced researchers)

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

Research Field: [Ontology-based data integration](#)

### CONTEXT

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Intelligence des Patrimoines is a research and development programme supported by the Centre-Val de Loire Region (AMI ARD) and by the Centre d'études 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.

In an international environment characterized by changing regulatory regimes and increasing harsh competition, research and innovation are key factors to ensure smart specialisation 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 Ontology-based data integration.**

### SCIENTIFIC RESEARCH CONTEXT

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

Ontologies, as formal models of representation with explicitly defined concepts and named relationships linking them, are used to address the issue of semantic heterogeneity in data sources. A hybrid ontology-based data integration approach has been retained with a strong top-level vocabulary: 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>

**CIDOC CRM ontology.** The CIDOC CRM provides definitions and a formal structure for describing the implicit and explicit concepts and relationships used in cultural heritage documentation. Whereas the CIDOC CRM was created for information from cultural heritage, it is adequate to model other domains as well. Several compatible ontologies dedicated to more specific domains (archaeology, bibliography, provenance, spatio temporality, etc...) have been mapped to CIDOC CRM and approved by the CRM SIG and are as such considered as true extensions. In order to complete the description of other specific domains of the transversal project, new vocabularies should also be derived from CIDOC CRM. These specific domains are (but not limited to): Life science domains involving ecology, zoology, biology, medicine, Science of materials, architecture, buildings, urbanism...etc.

## MISSION OF THE RESEARCH SCIENTIST

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For the data integration purposes of this project, which involves many interdisciplinary and semantically heterogeneous data sources from both natural and cultural heritage domains, the main mission of the ontology expert will be :

- Ontological study of the transversal platform data warehouse
- Mapping study to CIDOC CRM
- Identification of new specific extensions
- Derivation of specific vocabularies / Modelling of new CIDOC CRM ontological extensions

For any further information on the mission, applicants can liaise with Benoist Pierre, Director of the Centre d'études supérieures de la Renaissance at [intelligencedespatrimoires@univ-tours.fr](mailto:intelligencedespatrimoires@univ-tours.fr)

## ESSENTIAL SKILLS AND EXPERIENCE

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

- PhD in computer science, preferably "Data integration" oriented; or PhD in other scientific fields with a strong interest in Ontology; 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 ontological analysis and conceptual modelling for semantic integration;
- Advanced skills for: Ontological analysis, Ontology modelling, Ontology mapping, Ontology alignment;
- Advanced knowledge in: reference ontologies and their role, CIDOC CRM and extensions, philosophical foundation of ontologies, Logical foundation of ontologies;
- Ability to innovate and interact with diverse stakeholders, academic and non-academic audiences, including industry;
- Strong organisational and time management skills with ability to prioritize work, manage time effectively and deliver results on time.

## CONDITIONS OF ELIGIBILITY

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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

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prior to the deadline of application. Compulsory national service and/or short stays such as holidays are not taken into account.

## CONDITIONS OF EMPLOYMENT

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

The position is expected to be filled at the end of the second semester of 2018.

The successful candidate will be hosted in the Centre d'études 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 and English.

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

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

The deadline for application is **24<sup>th</sup> October, 2018**.

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.