



FULL STACK DEVELOPER

2 years fixed-term contract, Research project **SoDUCo**

July 2021

Context

The **SoDUCo** project proposes to develop methods and models to study the evolution of the urban spatial structure in relation with social and professional practices of the population. We will develop our study on the reconstitution of the evolution of Paris from 1789 to 1950 using two specific sets of sources: on the one hand, a set of master maps and the complete series of cadastral maps of the city and its suburbs, which describe the evolution of road networks and urban fabric and, on the other hand, for the same time period, street & trade directories, which provide the professional activities and/or the social status of people localized by their individual addresses. An important geographical and social reference database is constructed of the history of Paris starting from the Revolution to the XXth century.

The main goal of the project is the creation of an open collaborative web platform to validate, correct, enrich and link data extracted from maps and directories by the partners. This platform will also allow to execute workflows in a reproducible manner on subsets of data in order to study spatial and social co-evolution dynamics. Finally, it will provide tools to visualize and interact with the data and the results of the different extraction processes as well as publish them using the FAIR Guiding Principles for scientific data management and stewardship. This platform should be reusable in other contexts: on different time periods, different cities and different scales.

One of the main components of the platform is a generic online tool to store, manage, capture and validate geohistorical data. Several research prototypes have been developed during the project to handle different aspects: georeferencing, information extraction from directories and maps, collaborative data validation.

The main task of the developer will be to develop this platform by combining the existing infrastructures and tools. You will join a team of a dozen researchers and engineers from several institutions: IGN, EHESS, EPITA, Archives Nationales (French National Archives).

Goals

The Developer will participate to the design and development of this generic platform. It will provide the following functionalities:

- Management, storage and cataloging of the geographical data (raster/vector) and their metadata: upload, download, edition, versioning, exposition;
- Interfacing with several IIF services from archive data providers: [Gallica](#), [Specialized libraries of Paris](#), etc. ;
- Perform collaborative data creation, validation and enrichment (based on an existing prototype) ;
- Organize tasks in workflows (image upload, edition, annotation, validation, diffusion, etc.) ;
- User management (authentication, rights, data access) ;
- Task execution / delegation ;
- Back-end: workflows configuration, reporting, access management ;
- Front-end: visualisation interface and geohistorical data edition.

The developed platform will be entirely *Free and Open Source*.
The technological choices will depend on your profile and experience.

Profile sought

Required technical skills

- A Web *framework* and strategies to handle web applications scalability
- CI/CD with Gitlab, Github or equivalent
- Docker knowledge required
- Notions on scientific data processing
- Experience in handling large volumes of data preferable
- Notions in geomatics, geographical information systems or remote sensing preferable
- Free / open source culture required

Other required skills

- How to explain and document
- Knowledge of project management tools
- Work in an interdisciplinary team and remotely
- Communicate with researchers

Professional experience

- Solid training in Computer Science.

Conditions

- **Type** : 2 years fixed-term contract
- **Salary** : depending on diplomas and experience
- **Starting data** : as soon as possible
- **Work place** : IGN, LaSTIG – 73 avenue de Paris - 94160 - Saint-Mandé, near Métro (Saint-Mandé - ligne 1) and RER (Vincennes - ligne A)

Recruitment process

Thank you for sending you applications before september 17 (letter + resume in a single pdf) using reference **LASTIG_SODUCO** to the following addresses:

- **Bertrand Duménieu**: bertrand(point)dumenieu(at)ehess(point)fr
- **Julien Perret** : julien(point)perret(at)ign(point)fr

Interviews will start immediately and a final decision will be communicated on september 20 at the latest.

Do not hesitate to send us links to your previous projects.

Links

Codes GeoHistoricalData

Codes SoDUCo