



Post-Doc Position: software development for interactive multi-level network visualization

Objective

INRA is looking for a candidate to fill a year-long post-doctorate position. The candidate will be working on an interdisciplinary project between the social sciences lab specializing in Science Studies ([LISIS](#)) and ([Digiteo Moulon lab](#) - INRIA), a leader in complex data visualization.

The objective of the project is to design a software solution for the interactive visualization of medium-scale multi-level networks. The software would enable users to explore and interact with a network online (for a final integration in the [CorText Manager](#)) as well as on [WILDER](#) - INRIA's very-high-resolution wall-sized visualization platform. The candidate will be in charge of designing a strategy for:

- (1) highlighting the most important nodes in the network given a specific zoom level;
- (2) rearranging nodes dynamically into layouts that are optimized yet coherent across zoom levels;
- (3) adding interaction capabilities for the user to edit or annotate nodes and clusters.

Context

The candidate will be under the joint supervision of the INRA (LISIS - CorText) and INRIA teams (AVIZ and ILDA).

Regarding INRA, the post-doctorate candidate will contribute to the CorText digital platform, whose goal is to design and develop innovative methods for the quantitative analysis of textual corpora for social sciences, including Natural Language Processing, Network Analysis and Mapping, and Complex Data Visualisation. The solutions garnered are implemented through [CorText manager](#). This free and online platform allows researchers to analyze various datasets, such as: scientific & patents publications, press articles, web corpora, etc. The multi-level network interface will ultimately be integrated into CorText Manager and will provide its users (more than 1,000 people worldwide) with a solution for interacting, exploring and ultimately interpreting the wide array of maps which may be produced (semantic network, collaboration network, citation network, etc.).

On the INRIA side, the candidate will be working with researchers from teams [AVIZ](#) and [ILDA](#). AVIZ is a multidisciplinary project-team that seeks to improve analysis and visualization of large, complex datasets by tightly integrating analysis methods with interactive visualization. ILDA team members work on the design and development of data-centric interactive systems for the navigation in, and manipulation of, large, heterogeneous, and distributed datasets as found, e.g., on the Web of Data. The post-doctorate candidate will design and implement visualizations of data coming from the CorText platform. Two main types of visualizations will be developed: visualizations that run in Web browsers, using languages and toolkits such as, e.g.,

Javascript, SVG and d3.js; and visualizations that run on cluster-driven very-high-resolution wall-sized displays (WILD and WILDER) using Java and user interface toolkits developed by ILDA.

Qualifications required

The ideal candidate should have a PhD in Computer Science, and should have some knowledge and experience in the domain of data visualization. Experience in object-oriented programming (such as C++, C# or Java) and web scripting languages (such as Javascript) is also required. Background knowledge in network analysis is also appreciated, as well as previous experience in network visualization. While not mandatory, both are highly valued.

Practical details

- The position will start as soon as possible and is for a duration of one year.
- The candidate will be employed by INRA.
- The post-doc will be located at INRIA in the Digiteo Moulon laboratory located in Gif sur Yvette. The candidate will be hosted by the AVIZ and ILDA teams. The candidate will be working under the joint supervision of Jean-Daniel Fekete (AVIZ INRIA), Emmanuel Pietriga (ILDA INRIA), and Jean-Philippe Cointet (LISIS INRA).
- Salary will be commensurate with experience
- Please send your application to jphcoi@gmail.com, jean-daniel.fekete@inria.fr and emmanuel.pietriga@inria.fr

