As part of its research in the field of data visualisation, project-team ILDA at Inria Saclay – Île-de-France, and Inria Chile, in Santiago de Chile, and make it more interactive so as to enable users to perform more elaborate visualization-driven ultra-high-resolution wall-sized display platforms such as those set up at Inria Saclay and Inria Chile to work with partners at Inria Chile and deploy the application on Inria Chile's wall display.

Seawall will be based on an existing prototype called TsunamiLab, a demo of which can be seen at http://tsunamilab.inria.cl. TsunamiLab is an educational Web-based platform enabling the simulation and visualization of tsunamis, that runs on desktop computers and portable devices such as tablets and smartphones. Seawall aims at extending TsunamiLab so as to make it able to run on cluster-driven ultra-high-resolution wall-sized display platforms such as those set up at Inria Saclay and Inria Chile, and make it more interactive so as to enable users to perform more elaborate visualization-driven tasks with it.

Main activities

In the context of their work, the project-team ILDA specializes in the design, development and evaluation of advanced interactive visualization systems to help domain experts understand and manipulate large amounts of data.

Assignment

The goal of this project is to develop a new software application called Seawall for the interactive visualization of tsunami simulations on ultra-high-resolution wall-sized displays. The project is a collaboration between three partners: team Lemon at Inria Sophia Antipolis - Méditerranée located in Montpellier, project-team ILDA at Inria Saclay – Île-de-France, and Inria Chile, in Santiago de Chile.

Seawall will be based on an existing prototype called TsunamiLab, a demo of which can be seen at http://tsunamilab.inria.cl. TsunamiLab is an educational Web-based platform enabling the simulation and visualization of tsunamis, that runs on desktop computers and portable devices such as tablets and smartphones. Seawall aims at extending TsunamiLab so as to make it able to run on cluster-driven ultra-high-resolution wall-sized display platforms such as those set up at Inria Saclay and Inria Chile, and make it more interactive so as to enable users to perform more elaborate visualization-driven tasks with it.

General Information

- Town/city: Paris Saclay Orsay
- Inria Center: CRI Saclay - Île-de-France
- Starting date: 2/1/18
- Duration of contract: 1 year, 6 months
- Deadline to apply: 1/31/18

Contacts

- Inria Team: ILDA AE
- Recruiter: Emmanuel Pietriga, emmanuel.pietriga@inria.fr
- Antoine Rousseau, antoine.rousseau@inria.fr

Defence Security:

This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy:

As part of its diversity policy, all Inria positions are accessible to people with disabilities.

Warning: you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.
As part of its research in the field of data visualisation, project-team ILDA conducts research and development projects about the design, engineering and evaluation of interactive visualization techniques for ultra-high-resolution wall-sized displays. This type of display features a very high pixel density over a large physical surface. For instance, the first wall display set up at Inria Saclay, has a total resolution of 20,480 × 6,400 = 131 megapixels for a surface area of 5.5m×1.8m.

Using existing frameworks for distributing data and graphics rendering across the computers of wall display clusters, such as, e.g., the SAGE2 framework, the recruited engineer will be in charge of porting TsunamiLab so that it can run on such wall displays. The main activities include:

- Integration of Cesium.js (an open-source javascript virtual globe for the development of geovisualization applications) and TsunamiLab with SAGE2. A proof of concept of this integration has already been prototyped at Inria, to demonstrate the feasibility of the approach.
- Developing different visualization modes that can advantage of the high display capacity of ultra-high-resolution wall displays.
- Developing a user input manager that can interpret events from devices typically used when interacting with wall displays, beyond the keyboard and mouse, such as smartphones, tablets, motion tracking systems.
- Working in collaboration with members of team Lemon to enhance the tsunami simulation code so that it can support higher-resolution models and data.

**Skills**

Candidates should have prior experience with Web-based technologies.

**Required skills:**

- Software engineering skills (version control with svn or git, unit tests, documentation, etc.)
- Good knowledge of Javascript
- Web-based data formats (JSON, XML, etc.)
- The candidate should speak English, or Spanish, as the work will be conducted in collaboration with Inria Chile.

**Optional skills:**

- js
- WebGL
- Prior experience with SAGE2
- Prior experience with Cesium.js

**Benefits package**

- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities

**Remuneration**

Salary: in regards to experiences and diplomas