



**Offer #2024-07733**

## **Development & Research Engineer @ Grenoble: Functional Package Manager Helping System Experiments on Supercomputers / Ingénieur R&D @ Grenoble: Gestionnaire de paquet fonctionnel pour l'expérimentation sur les Supercalculateur**

**Contract type** : Fixed-term contract

**Renewable contract** : Yes

**Level of qualifications required** : Graduate degree or equivalent

**Fonction** : Temporary scientific engineer

**Level of experience** : Recently graduated

### **About the research centre or Inria department**

The Centre Inria de l'Université de Grenoble groups together almost 600 people in 22 research teams and 7 research support departments.

Staff is present on three campuses in Grenoble, in close collaboration with other research and higher education institutions (Université Grenoble Alpes, CNRS, CEA, INRAE, ...), but also with key economic players in the area.

The Centre Inria de l'Université Grenoble Alpes is active in the fields of high-performance computing, verification and embedded systems, modeling of the environment at multiple levels, and data science and artificial intelligence. The center is a top-level scientific institute with an extensive network of international collaborations in Europe and the rest of the world.

### **Context**

The candidate will join the [DataMove](#) INRIA team located on the campus of the Univ. Grenoble Alpes near Grenoble. The DataMove team is a friendly and stimulating group with a strong international visibility, gathering Professors, Researchers, PhD and Master students all pursuing research on High Performance Computing.

This work experience will bring you skills in high performance computing and DevOps (expert level) that are in high demand.

This work is part of a joint collaboration with national and international academic partners, giving you the opportunity to work in an international context.

Hiring date is flexible, starting as early as September 2024. Initial contract is for 30 months, with possibilities for extension.

The city of Grenoble is surrounded by the Alps mountains, offering a high quality of life, and where you can experience all kinds of mountain related outdoors activities and more.

The position is made available in the context of the Exa-AToW project (Data-oriented Software and Tools for the Exascale) of the NumPEX National Program: [Exa-AToW](#)

### **Assignment**

We are developing NixOS Compose (<https://github.com/oar-team/nixos-compose>) a tool designed for experiments in distributed systems. It generates reproducible distributed environments. Those can then be deploy either in virtualized or physical platform, respectively for local and distributed deployments. It inserts itself in the development cycle of the environments and uses to the notion of transposition to make it faster and easier. The intended workflow is to have fast iteration cycle on a local virtualized distributed system and once the configuration is complete it can be used for physical deployment.

NixOS Compose is based on Nix (<https://nixos.org/>) a functional package managers which provides

reproducibility and allows to elaborate and master complex software stack.

We are looking for a candidate that will join our team to develop NixOS Compose and its use in Exa-AToW project.

## Main activities

- Consolidating and extending NixOS Compose, for instance to improve user experience, and adding new platform and hardware target (Cloud, Edgs, ARM64)
- Develop experiments to evaluate Workflow Management System solutions for High Performance Computing (HPC)
- Run experiments on a variety of clusters and hardware.
- Participate to the research activity, possibly leading to publications.
- Participate and animate tutorials.
- Help user of NixOS-Compose.
- Collaborate with other national (Pepr Numpex) and European partners because this work will also be part of a start-up European project.

Through this work the candidate will gain strong expertise in DevOps technics and in high performance computing systems. She/he will integrate a dynamic research team and have the opportunity to work in an international context. The team also promotes the FOSS culture and is concerned about environmental sustainability issues related to IT and HPC.

## Skills

We welcome candidates with a master (or equivalent title) in computer science, experience with distributed systems and operating system.

Expected technical skills include Linux, System Administration, Python and a functional language (or desire to learn one), mastering of development processes is a plus (git, continuous integration, containers, etc.).

No previous work experience required as long as you are motivated and ready to train yourself to complement your skills.

## Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking (90 days / year) and flexible organization of working hours (except for internship)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage under conditions

## Remuneration

From 2,692 € (depending on experience and qualifications).

## General Information

- **Theme/Domain** : Distributed Systems and middleware IT Infrastructure (BAP E)
- **Town/city** : Montbonnot
- **Inria Center** : [Centre Inria de l'Université Grenoble Alpes](#)
- **Starting date** : 2024-09-01
- **Duration of contract** : 3 years
- **Deadline to apply** : 2024-06-23

## Contacts

- **Inria Team** : [DATAMOVE](#)
- **Recruiter** :  
Richard Olivier / [olivier.richard@inria.fr](mailto:olivier.richard@inria.fr)

## About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the

interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

**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.

## Instruction to apply

### **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.