

## 2020-02850 - Engineer - Supporting SKA challenges

**Contract type :** Fixed-term contract

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

**Other valued qualifications :** A PhD will be very welcome.

**Fonction :** Temporary scientific engineer

**Corps d'accueil :** Ingénieur de Recherche (IR)

**Level of experience :** From 3 to 5 years

### About the research centre or Inria department

Grenoble Rhône-Alpes Research Center groups together a few less than 800 people in 39 research teams and 8 research support departments.

Staff is localized on 5 campuses in Grenoble and Lyon, in close collaboration with labs, research and higher education institutions in Grenoble and Lyon, but also with the economic players in these areas.

Present in the fields of software, high-performance computing, Internet of things, image and data, but also simulation in oceanography and biology, it participates at the best level of international scientific achievements and collaborations in both Europe and the rest of the world.

### Context

The **Square Kilometre Array** (SKA) project is an international effort to build the world's largest radio telescope, with eventually over a square kilometre (one million square metres) of collecting area. The scale of the SKA represents a huge leap forward in both engineering and research & development towards building and delivering a unique instrument, with all final reviews completed ahead of construction. The SKA Observatory is the second intergovernmental organisation dedicated to astronomy in the world, after the European Southern Observatory. It brings together a wealth of the world's finest scientists, engineers and policy makers to bring the project to fruition.

**SKA-France** is a national coordination of industrial, technical and scientific activities preparatory to the SKA project in France. It created a consortium named "Maison SKA-France" to finance France's membership in the Project Office, to define the French scientific and technological roadmap for the SKA, and to pursue the development of joint research projects between public and private partners targeting SKA major challenges.

Inria as a member of "Maison SKA France" brings its expertise in some challenging aspects of the project such as in high performance computing, big data, resource management, I/O, and IA.

The proposed job is an opportunity to work with many different people from around the world: physicists, computer scientists, engineers from academia and from the industry. It is also a rare opportunity to participate directly to a very ambitious international scientific project and see how it is operated.

### Assignment

The SKA project is now finalising the design work of all its components towards the construction proposal, including an intense Software Engineering activity. Development work is organized in small software teams distributed across the globe who coordinate through quarterly week-long planning events.

The recruited person will be at the interface between SKA, SKA France, and some Inria teams to contribute to answering issues raised during the bridging phase, in particular with respect to questions related to HPC programming models, HPC I/O, application performances, resource management, or energy efficiency.

The recruited person will participate to the PLANET team, a SKA software team dedicated to platform (benchmarking, monitoring, profiling) and network issues. This participation involves direct engineering work, regular meetings, planning work and reporting SKA activity to SKA France partners.

### Main activities

The main activities can be split into four types:

- The recruited person will be in charge of following and summing up the information flow coming from SKA activities. In particular, the person will participate to the PLANET team, attend quarterly SKA planning events, and report to SKA France partners.
- She will participate to French effort in close cooperation with SKA France, which may involve participating to the SKA activities in the framework of the recently **signed Collaboration Agreement** between SKAO, CERN, PRACE and GÉANT.
- She will directly contribute to benchmarking work in collaboration with the PLANET team. This may involve installing/configuring software, scripting, submitting jobs, plotting results, etc. on high performance machines.
- The recruited person will contribute to identify issues which require specific expertise, identify Inria teams with relevant solutions, and work with them to transfer solutions to the SKA project.

### Skills

Technical skills and level required:

- A broad understanding of high performance computing (programming models, benchmarking/profiling, optimization, parallelization, I/O) will be very valuable. In particular,

### General Information

- **Theme/Domain :** Distributed and High Performance Computing  
Scientific computing (BAP E)
- **Town/city :** Lyon
- **Inria Center :** **CRI Grenoble - Rhône-Alpes**
- **Starting date :** 2020-11-01
- **Duration of contract :** 1 year, 5 months
- **Deadline to apply :** 2020-10-30

### Contacts

- **Inria Team :** **AVALON**
- **Recruiter :**  
Pérez Christian / [christian.perez@inria.fr](mailto:christian.perez@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.

### The keys to success

This position requires to have a taste for collaborative work as it involves interacting with people in various organizations (French and international academics, industrials, and SKA).

### 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.

**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.

previous experience in submitting jobs to clusters/supercomputers (batch schedulers, monitoring) and basic linux admin skill would be a plus.

- Python proficiency would be appreciated, as well as familiarity with the Dask library.
- Knowledge of agile project management techniques (scrum, kanban, SAFe) will be valuable to interact with SKA development teams.

Languages: high proficiency in English (many collaborators are native speakers).

## 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 (after 6 months of employment) and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage

## Remuneration

Base of 2562€ gross / month. Wage according to the profile.