



## **Offer #2025-08700**

# **Fast anomaly detection in mobile phone data**

**Contract type :** Fixed-term contract

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

**Fonction :** Temporary scientific engineer

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

The Inria research centre in Lyon is the 9th Inria research centre, formally created in January 2022. It brings together approximately 320 people in 19 research teams and research support services.

Its staff are distributed in Villeurbanne, Lyon Gerland, and Saint-Etienne.

The Lyon centre is active in the fields of software, distributed and high-performance computing, embedded systems, quantum computing and privacy in the digital world, but also in digital health and computational biology.

## **Context**

This position integrates in the national PEPR Mobidec (<https://pepr-mobidec.fr/>) and more precisely in the Mob Sci-Dat Factory project (<https://pepr-mobidec.fr/mob-sci-dat-factory-pc3>). The selected researcher will join the Inria Agora team in the Inria Lyon center and will collaborate with other Inria teams and other institutes (IFPEN, IGN, CEREMA) in this framework.

## **Assignment**

The person recruited will be in charge of studying unique mobile datasets shared as part of the project, in order to propose and evaluate algorithmic solutions for detecting, and even anticipating, anomalies in this type of data.

## **Main activities**

The person recruited will bring significant contributions to the following points:

- Extraction of repetitive patterns from mobile telephony data collected by operators, in order to construct typical user and network behaviour. This behaviour will enable the automatic definition of anomalies, as situations that are sufficiently different from this typical profile.
- Implementation and evaluation of solutions for detecting the anomalies defined in the previous point. Compared with the state of the art, we will not be interested simply in metrics linked to the quality of detection, but also in the time taken to detect anomalies. The aim is to reduce this time as much as possible, and to detect anomalies at a very early stage. Modern artificial intelligence techniques, such as graph neural networks, will be studied.

## **Skills**

Technical skills and level required : previous experience with large-scale mobile phone datasets.

Languages : English

## **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

From 2692 € (depending on experience and qualifications).

## General Information

- **Theme/Domain** : Networks and Telecommunications System & Networks (BAP E)
- **Town/city** : Villeurbanne
- **Inria Center** : [Centre Inria de Lyon](#)
- **Starting date** : 2025-04-01
- **Duration of contract** : 12 months
- **Deadline to apply** : 2025-04-03

## Contacts

- **Inria Team** : [AGORA](#)
- **Recruiter** :  
Stanica Razvan / [razvan.stanica@inria.fr](mailto:razvan.stanica@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 job requires:

- proven interest in mobile networks and data science;
- willingness to work closely with scientists from other fields, such as transportation or sociology;
- excellent writing skills.

**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**

*Applications must be submitted online via the Inria website. Processing of applications submitted via other channels is not guaranteed.*

### **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.