General Information

- **Theme/Domain**: Optimization, machine learning and statistical methods
- **Scientific computing (BAP E)**
- **Inria Center**: CRI Lille - Nord Europe
- **Starting date**: 2018-05-01
- **Duration of contract**: 1 year, 7 months
- **Deadline to apply**: 2018-06-30

Contacts

- **Inria Team**: INOCS (DGD-S)
- **Recruiter**:
  - Brotcorne Luce / luce.brotcorne@inria.fr

About Inria

Inria, the French National Institute for computer science and applied mathematics, promotes “scientific excellence for technology transfer and society”. Graduates from the world’s top universities, Inria’s 2,700 employees rise to the challenges of digital sciences. With its open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is the source of many innovations that add value and create jobs.

Conditions for application

- **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.

Assignment

The objective of this project is to optimize the mining of transactions within the Ethereum blockchain, both in terms of processing time and costs.

Based on historical data extracted from the blockchain, the research aims at answering the two following questions:

- For a fixed fee, what is the maximum time limit for a transaction to be undermined?
- For a fixed maximum time limit, what is the amount of costs to be allocated (gasPrice)?

The researcher will combine machine learning techniques and robust and two-level optimization techniques to model the problem and develop efficient algorithms to solve it.

Main activities

- ...

Skills

Candidates should hold a PhD degree in Operations research, mathematics, computer science, or similar fields and should ideally have a solid background in discrete optimization, integer programming, decomposition techniques. Computer science
skills in algorithmic and C/C++ development as well as basic knowledge of machine learning techniques and blockchain technology are also welcome.

Knowledge of French is not required, but good communication skills and a solid knowledge of English are essential.

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