2018-00784 - Machine Learning and Software Variability

**Contract type**: Public service fixed-term contract  
**Level of qualifications required**: Graduate degree or equivalent  
**Fonction**: Temporary scientific engineer  
**Level of experience**: Recently graduated

**About the research centre or Inria department**

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.

**Context**

VaryVary is a 4-year research project funded by the French National Research Agency (ANR). The goal is to explore the use of artificial intelligence (including machine learning) for playing with software variability present in almost all real-world systems.

The candidates will work at Inria/IRISA in the DiverSE team (workplace: Université Rennes 1, Campus de Beaulieu, 35000 Rennes, France). DiverSE’s research is in the area of software engineering, focusing on the management of diversity in the construction of software intensive systems. The team is actively involved in European, French and industrial projects and is composed of 8 faculty members, 18 PhD students, 5 postdocs and 4 engineers.

**Assignment**

**Assignments**:
With the help of DiverSE team (including Prof. Mathieu Acher, Prof. Jean-Marc Jézéquel, Prof. Olivier Barais), the recruited person will be taken to collect and analyze large software data of real-world projects (e.g., Linux, VLC, JHipster).

**For a better knowledge of the proposed research subject**:

**Collaboration**:
The candidates will work with a software engineer (fully devoted to the project), two PhD students (fully devoted to the project), some interns, and 8 professors.

**Responsibilities**:
The person recruited is responsible for producing experimental results and will take initiatives for disseminating them.

**Main activities**

**Main activities**:
- producing/gathering experimental data (based on the testing/executions of existing software systems);
- analysing data with statistics/visualisations;
- applying advanced machine learning techniques (classification, regression, active learning, etc.) and evaluating them with tools like scikit-learn or R;
- maintaining a website and a data platform to disseminate results;
- communicating with real-world projects to assess the suitability of the proposal and identify lacks.

**Skills**

**Technical skills and level required**: statistical machine learning, automated software engineering, advanced programming  
**Languages**: Python, R  
**Relational skills**: ability to communicate and share results  
**Other valued appreciated**: interests in software and open-source projects

**Benefits package**

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

Monthly gross salary : 2 562 euros

General Information

- **Theme/Domain**: Distributed programming and Software engineering
- **Statistics (Big data) (BAP E)**
- **Town/city**: Rennes
- **Inria Center**: CRI Rennes - Bretagne Atlantique
- **Starting date**: 2018-09-03
- **Duration of contract**: 2 years
- **Deadline to apply**: 2018-06-30

Contacts

- **Inria Team**: DIVERSE
- **Recruiter**: Acher Mathieu / mathieu.acher@irisa.fr

About Inria

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The keys to success

We are looking for highly motivated people in machine learning and software. We are studying real-world, popular, open-source, configurable software projects like Linux, Firefox, ffmpeg, VLC, Apache or JHipster – and we hope to have concrete impacts on them!

The candidate should have a strong interest and the skills for performing large-scale experiments. It means the candidate should master techniques and tools for

- producing/gathering experimental data (based on the testing/executions of existing software systems);
- analysing data with statistics/visualisations;
- applying advanced machine learning techniques (classification, regression, active learning, etc.) and evaluating them with tools like scikit-learn or R.

**If you like software and data science, you’re certainly the one!** The candidates will work with a software engineer (fully devoted to the project), two PhD students (fully devoted to the project), some interns, and 8 professors.

Conditions for application

Please submit online: your resume, cover letter and letters of recommendation.

For further information, please contact: mathieu.acher@irisa.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.