Offer #2025-08953

Software engineer for MAPIE – P16

Contract type : Fixed-term contract

Level of qualifications required : PhD or equivalent

Other valued qualifications : Engineering degree or Ph.D. in computer science, applied mathematics, numerical methods, statistical learning or related field.

Fonction : Support functions

Corps d'accueil : Ingénieur de Recherche (IR)

Context

Since 2018, Inria has played a crucial role as a support for the State's action in the field of artificial intelligence, in close collaboration with the National Strategy for AI. To steer this mission, Inria has created the AI Program, which is part of the Program Agency set-up entrusted by the State to Inria, and which coordinates innovative cross-functional AI initiatives: research, transfer and support for public policies.

As part of the AI acceleration strategy, and in particular in the area of "developing cutting-edge digital infrastructures, stimulating public-private partnerships and increasing the impact of AI research", Inria has proposed the implementation of an acceleration project to support the implementation and development of an open and interoperable sovereign platform of AI software libraries for French companies, and its scaling to the European level. This initiative is one of Inria's priorities as part of the development of its AI acceleration strategy, and with the aim of contributing to French technological sovereignty and the economic impact on French industry.

The expected impact of this measure on French industry is to enable all French companies, as well as public and institutional players, to accelerate their digital transformation using AI, without being in a captive relationship with the dominant

players, thanks to the availability of a generic technological base and a set of associated transfer mechanisms.

As part of this ambition, the implementation of the measure is based on the P16 project, whose aim is to develop and disseminate a coherent suite of software for AI and data science based on three actions:

- Action 1 focuses on data interoperability.
- Action 2, "Data Wrangling," addresses data preparation, aiming to reduce the manual time required in data science projects.
- Action 3 focuses on model training and execution, in particular on scikit-learn. In this context, MAPIE offers a valuable addition to scikit-learn, with algorithms that are specifically designed for uncertainty quantification.

The engineer recruited will be part of the Institute's permanent engineering team, represented at center level by the Experimentation and Development Department (SED).

His or her main activity is part of the MAPIE project, an open-source reference package for uncertainty quantification, based on conformal predictions and integrated into the scikit-learn-contrib ecosystem. As part of its integration into P16 and its strategic alignment with scikit-learn, we are looking for an engineer to participate in the development of new functionalities, reinforce software quality, and increase the library's outreach to the scientific and industrial community.

Assignment

Main missions (80%) :

- Development of MAPIE
- Development planning and phasing
- Collaborate with cross-functional teams

Cross-functional missions (20%)

- Take an active part in the life of the Inria Paris engineering community

Main activities

As part of his/her main mission (80% of his/her time)

1/ Development of MAPIE:

- Participate in the development of new MAPIE library functionality (e.g., uncertainty quantification for LLMs, multi-class classification ...) using robust software development practices.

- Optimize code performance and quality by exploring different implementations.
- Participate in the development and coordination of user community and external contributors.
- Enhance MAPIE's documentation, training materials and communication.
- Monitor advancements in conformal prediction methods, uncertainty quantification, and trustworthy AI to stay current with scientific and technological developments.

2/ Development planning and phasing:

- Participate in task planning and organization of sprints in collaboration with the Capgemini Invent France development team.

3/ Collaborate with cross-functional teams:

- Collaborate with other technical teams within the P16 project to ensure integration of MAPIE with other software components.
- Participate in meetings with related teams to align development goals and efforts.

As part of collective or cross-functional activities (20% of his/her time), the engineer will:

- Participate in training courses, seminars and department activities.
- Promote best practices in software engineering and experimentation within the Institute.
- Participate in drafting projects and advising on development projects.
- Participate in the animation of the software development community in the Center and participate in thematic networks.

Skills

- Solid experience in Python, with excellent knowledge of libraries such as scikit-learn, pandas, numpy, matplotlib and scipy.
- Advanced skills in data manipulation and statistical analysis, with a thorough understanding of machine learning methods.
- Demonstrated ability to work collaboratively on research and software development projects as part of a multi-location team.
- Ability to reimplement algorithms from academic publications.
- Experience in uncertainty quantification.
- Strong knowledge of software engineering practices, including version control, testing, continuous integration and Agile methodologies.
- Excellent communication skills, enabling effective collaboration with internal and external teams.

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 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

General Information

- **Town/city :** Paris
- **Inria Center :** Siège
- **Starting date :** 2025-07-01
- **Duration of contract :** 12 months
- **Deadline to apply :** 2025-07-31

Contacts

- **Inria Team :** Prog-IA (ADPnum)
- **Recruiter :**
  Kraidache Khallihanna / khallihanna.kraidache@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

- Relevant experience in similar projects, preferably in the context of artificial intelligence and data research.

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.