Offer #2025-09010

Efficient and robust benchmarking for AI with benchopt

Level of qualifications required : Graduate degree or equivalent

Fonction : Temporary scientific engineer

About the research centre or Inria department

*Le centre de recherche Inria de Saclay a été créé en 2008. Sa dynamique s'inscrit dans le développement du plateau de Saclay, en partenariat étroit d'une part avec le pôle de l'**Université Paris-Saclay** et d'autre part avec le pôle de l'**Institut Polytechnique de Paris**. Afin de construire une politique de site ambitieuse, le centre Inria de Saclay a signé en 2021 des accords stratégiques avec ces deux partenaires territoriaux privilégiés.*

*Le centre compte **40 équipes-projets**, dont 32 sont communes avec l'Université Paris-Saclay ou l'Institut Polytechnique de Paris. Son action mobilise **plus de 600 personnes**, scientifiques et personnels d'appui à la recherche et à l'innovation, issues de 54 nationalités.*

Le centre Inria Saclay - Île-de-France est un acteur essentiel de la recherche en sciences du numérique sur le plateau de Saclay. Il porte les valeurs et les projets qui font l'originalité d'Inria dans le paysage de la recherche : l'excellence scientifique, le transfert technologique, les partenariats pluridisciplinaires avec des établissements aux compétences complémentaires aux nôtres, afin de maximiser l'impact scientifique, économique et sociétal d'Inria.

Context

Numerical evaluation of novel methods, a.k.a. benchmarking, is a pillar of the scientific method in machine learning. However, due to practical and statistical obstacles, the reproducibility of published results is currently insufficient: many details can invalidate numerical comparisons, from insufficient uncertainty

quantification to improper methodology. In 2022, the benchopt initiative provided an open source Python package together with a framework to seamlessly run, reuse, share and publish benchmarks in numerical optimization. With this project, we aim at making benchopt a new standard in benchmarking by empowering researchers and practitioners with efficient and valid benchmarking methods.

Assignment

The candidate will both contribute to the core benchopt library, and develop novel benchmarks for various AI fields, from optimization of large deep learning architectures to the evaluation of inverse problems resolutions. In particular, for core benchopt:

- Develop novel tools to better customize the HTML rendering of the benchmarks
- Improve the parallelization capabilities for the benchmarks

For the novel reference benchmark, a particular focus will be set on developing reference benchmarks for deep learning optimization, in particular with nanoGPT speed run optimization challenges, coupled with imagenet challenges.

Main activities

Main activities:

- Participate in the development of the team's open source software benchopt
- Develop novel benchmarks in deep learning optimisation.

Additional activity: Participate to the team's research by providing support on how to evaluate novel methods on reference benchmarks.

Skills

- Strong mathematical background. Knowledge in machine learning is a plus.
- Good programming skills in Python. Knowledge of a deep learning framework is a plus.
- The candidate should be proficient in English. Knowing French is not necessary, as daily communication in the team is mostly in English due to the strong international environment.

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

Remuneration

According to profile

General Information

- **Theme/Domain :** Computational Neuroscience and Medicine
  Software engineering (BAP E)
- **Town/city :** Palaiseau
- **Inria Center :** Centre Inria de Saclay
- **Starting date :** 2025-10-01
- **Duration of contract :** 12 months
- **Deadline to apply :** 2025-09-30

Contacts

- **Inria Team :** MIND
- **Recruiter :**
  Moreau Thomas / thomas.moreau@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

We seek candidates strongly motivated by challenging research topics in machine learning for science. Applicants should have a strong mathematical background with knowledge of numerical optimization and machine learning. With regards to software engineering, proficiency in Python is expected, and experience in applying ML to large-scale data is a plus.

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

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.