The candidate should have prior experience in programming languages and/or machine learning, preferably both.

The candidate should be prepared to engage into a cross-domain research programme, combining elements of computing systems research, programming languages, and machine learning (specifically reinforcement learning).

The knowledge of the Rust programming language is a plus. Experience with OCaml and C++ programming is expected.
and branch and bound optimization to navigate the combinatorial search spaces of domain-specific program transformations involved in the acceleration of a selected set of numerical kernels. We will also adapt reinforcement learning techniques, including multi-armed bandit schemes, popular in such domain-specific scenarios [4], and attempt to combine these with the former. The student will prototype these concepts and algorithms in a domain-specific code generator, to deliver a so-called active or built-to-order library [5].

[1] https://research.fb.com/announcing-tensor-comprehensions

Principales activités
The typical activities of the student include algorithm design, formal semantics of a domain-specific language, compiler construction and prototyping, experimental evaluation, analytical and statistical studies to drive the research of more suitable algorithms. The work will also involve related work studies, contributions to the production of scientific reports and publications, the presentation and dissemination of these works, the participation to summer schools and conferences, and collaboration and travel within the community of experts and potential users.

Compétences
Technical skills and level required:
Languages : International English.
Relational skills : Work in a multicultural, collaborative research environment.
Other valued appreciated : Independence, Open Source, Interest in the construction of robust software artifacts.

Avantages sociaux
- Subsidised catering service
- Partially-reimbursed public transport

Rémunération
Gross Salary per month: 1 982 € the first 2 years and 2 085 € the last year