M2 internship: interplay between integration and optimization methods

**Initial topic** The goal of this internship is to explore relationships between integration and optimization methods (such as Euler or Runge-Kutta integrators on one side, and gradient descent and accelerated gradient descent on the other one). Among the expected novelties, we propose to transfer recent computer-assisted techniques for analyzing optimization methods, to the analyses of integration algorithms. Related previous works include [1, 2, 3].

**Practical information** The selected candidate will work under the supervision of Francis Bach and Adrien Taylor, within the Sierra team, at Inria. The internship can be considered as a good way to entering a Ph.D. program within the same group.

- Type of contract: internship.
- Place: Inria research center of Paris (2 rue Simone Iff, 75012 Paris).
- Salary: 1521,22 €/month (gross).

**Applications** Please send your resume, transcript of records, and names of 2-3 references to Adrien Taylor (adrien.taylor@inria.fr). A shortlist of candidates will be contacted and interviewed afterwards.

**References**

