Gaëtan Serré

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About

I am working on convergent approximation methods for global optimization. My main research interests are consistency of global optimization methods, measure theory, and stochastic differential equations. I am currently working on my thesis with Nicolas Vayatis. In parallel, I use Lean to formalize research results and I am contributing to Mathlib, its mathematics library. With a strong background in computer science, I have solid expertise in both object-oriented and functional programming. My GitHub portfolio features a wide range of projects, spanning from neural network implementations to a compiler for assembly language.

Papers

- Formal equivalence between global optimization consistency and random search — arXiv — 2025
- Stein Boltzmann Sampling: A Variational Approach for Global Optimization — AISTATS — 2025
- LIPO+: Frugal Global Optimization for Lipschitz Functions — SETN — 2024
- Improvements of Global Optimization Algorithms for Lipschitz Functions — IPOL — 2023

Education

- PhD in Mathematics, Global Optimization — Centre Borelli — Present
- M2 Mathématiques, Vision, Apprentissage — ENS Paris-Saclay — 2023
- M1 Artificial Intelligence — Université Paris-Saclay — 2022
- Double Bachelor in Mathematics and Computer Science — Université Paris-Saclay — 2021

Projects

- `GOB` - A collection of global optimization algorithms implemented in C++ and linked with Python. — Git
- `SBS-PROOFS` - Formalization of some results of SBS using Lean 4. — Git
- `LEAN-LIPO` - Formalization of the LIPO's reject probability upper bound using Lean 4. — Git
- `ViTDet-to-Pose` - A extension of the ViTDet architecture for human pose estimation. — Git
- `GAiA` - A chess engine using a deep neural network to evaluate chess positions. — Git

Programming skills

- Python
- C++
- Lean 4
- PyTorch
- Scikit-learn