Simone Maria Giancola

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Education

Université Paris-Saclay, Orsay institute of mathematics (IMO) 2024 – 2025
M2 probability and statistics *Orsay, FRA*

Bocconi University 2021 – 2024
MS data science *Milan, ITA*

Arizona State University 2021
Undegraduate exchange *Phoenix, USA*

Bocconi University 2018 - 2021
BS economics, management and computer science *Milan, ITA*

Experience

PhD candidate (doctorant) Nov 2025 - present
Orsay institute of mathematics (IMO) *Orsay, FRA*

- Advisors: prof. Giraud, DR Verzelen (INRAE Montpellier)
- Statistical to computational gaps, low-degree method, statistical physics

Research intern Apr 2025 - July 2025
Orsay institute of mathematics (IMO) *Orsay, FRA*

- Advisors: prof. Giraud, DR Verzelen (INRAE Montpellier), prof. Carpentier (Potsdam)
- Statistical to computational gaps, low-degree method, graph theory

Research intern Feb 2024 - May 2024
King Abdullah university of science and technology (KAUST) *Jeddah, KSA*

- Advisor: prof. Richtárik
- Optimization, conditioned gradient descent methods, machine learning

Research intern Oct 2023 - Dec 2023
École normale supérieure (ENS) *Paris, FRA*

- Advisor: CR Loureiro
- Neural network theory, stochastic gradient descent, gradient flow

Research intern Jun 2023 - Aug 2023
Institute of science and technology Austria (ISTA) *Wien, AUT*

- Advisor: prof. Mondelli
- Statistical to computational gaps, information theory, message passing algorithms

ISTernship summer programme, ref. num. MPC-2023-01128, financed by ISTA, awarded by the OeAD

Papers

Carpentier, **Giancola**, Giraud, and Verzelen. *Low-degree lower bounds via almost orthonormal bases*. arXiv:2509.09353 [stat.ML], 2025.

Richtárik, **Giancola**, Lubczyk, and Yadav. *Local curvature descent: squeezing more curvature out of standard and Polyak gradient descent*. In: **NeurIPS25**, 2024.

Talks

Stochastic gradient descent methods 2024
Local curvature descent *KAUST*

Séminaire des doctorants 2023
Information-theoretic and algorithmic limits of mixed linear regression *ENS Paris*

Group seminar 2023
Information-theoretic and algorithmic limits of mixed linear regression *IST Austria*

Teaching

Analysis 2026
Teaching assistant, R209 *IUT Orsay*

Graph theory 2026
Teaching assistant, R207 *IUT Orsay*

Distinctions

Selected for the 12th Heidelberg laureate forum (HLF).

Scholarships: OeAD Austria; first Italian school in geometric deep learning.

Service

Reviewer NeurIPS 2024, ICLR 2025.

Mentor Prison math project (PMP); LeadTheFuture.

Skills

Advanced Python, LaTeX;
Basic Julia, Git, Unix, R, SQL, Matlab, C++, Keras, TensorFlow.

Languages

English (proficient); French (intermediate); Spanish (basic); Italian (native).

Profile & interests

Motivated researcher with a background in statistics, computer science, and probability. Passionate about the interplay of rigorous research and insights from physics. In my spare time, I enjoy rugby, motorbike trips, podcasts, reading, and running.