LUCAS PESENTI

POSITIONS

Scientific assistant (postdoctoral position)   since September 2025
ETH Zürich

· Hosted by David Steurer and Afonso Bandeira

EDUCATION

Ph.D. in Statistics and Computer Science   2021 – January 2026
Bocconi University, Milan

· Thesis: "Algorithms beyond the union bound: polynomial optimization and discrepancy theory"
· Advised by Luca Trevisan (until June 2024), Laura Sanità and Pravesh Kothari (since June 2024).
· Awarded cum laude.

B.Sc. and M.Sc. in Computer Science   2016 – 2021
École Normale Supérieure de Paris (ENS Ulm)

· Parisian Master of Research in Computer Science obtained with the highest honors (rank 1/65).
· Student and civil servant at ENS with a major in computer science and a minor in mathematics.
· Ranked 1st at the ENS entrance exam (computer science section).

PREPRINTS AND PUBLICATIONS

[1] *Polynomial universality and dynamics of general first-order methods for random and deterministic matrices*, with Nicola Gorini, Chris Jones, and Dmitriy Kunisky.

[2] *Fourier analysis of iterative algorithms*, with Chris Jones.
in Proceedings of the International Colloquium on Automata, Languages and Programming (ICALP 2025).

[3] *On the second eigenvalue of random sparse hypergraphs*, with Luca Trevisan.

[4] *New SDP roundings and certifiable approximation for cubic optimization*, with Jun-Ting Hsieh, Pravesh K. Kothari, and Luca Trevisan.
in Proceedings of the Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2024).

[5] *Discrepancy minimization via regularization*, with Adrian Vladu.
in Proceedings of the Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2023).

TEACHING ASSISTANTSHIP

(ETH Zürich) Algorithms and Data Structures (head TA)	Fall 2025
(Bocconi University) 20874 – Algorithms for Optimization and Inference	Fall 2023, Fall 2024 Q
(Bocconi University) 20873 – Analysis of Algorithms and Data Structures	Fall 2023, Fall 2024
(Bocconi University) 30540 – Computing Theory and Algorithms	Spring 2022, Spring 2023
(Bocconi University) Algorithms	Spring 2022

RESEARCH VISITS

Princeton University (Pravesh Kothari)	Jan. – May 2025
Johns Hopkins University (Tim Kunisky)	Apr. 2025
ETH Zürich (David Steurer, Afonso Bandeira)	Oct. 2024
University of Pennsylvania (Anindya De)	Jan. – Feb. 2024
Simons Institute – University of California, Berkeley	Jul. 2023
Paris Diderot University (Adrian Vladu)	Feb. – Jul. 2021, Jul. 2023, Oct. 2024
Bocconi University (Luca Trevisan)	Sep. – Dec. 2020
TU Eindhoven (Nikhil Bansal)	Feb. – Jun. 2018

SELECTED COMMUNICATIONS

Fourier analysis of iterative algorithms — Jul. 2025
International Colloquium on Automata, Languages and Programming (ICALP 2025), Aarhus.

Fourier analysis of random optimization problems — Apr. 2025
Johns Hopkins University.

On maximizing polynomials — Dec. 2024
Workshop in memory of Luca Trevisan (1971-2024), Bocconi University.

Understanding iterative algorithms with Fourier diagrams — Oct. 2024
DACO seminar, ETH Zürich.

Diagram analysis of iterative algorithms — Sep. 2024
Roccella Conference on Inference and AI (poster presentation).

Up to the constant: Spencer's theorem and random matrices — Feb. 2024
Computer science seminar, University of Pennsylvania.

New SDP roundings and certifiable approximation for cubic optimization — Jan. 2024
Symposium on Discrete Algorithms (SODA 2024), Washington DC.

Discrepancy minimization via regularization — Jan. 2023
Symposium on Discrete Algorithms (SODA 2023), Florence.

SERVICE

Reviewing for Symposium on Foundations of Computer Science (FOCS), Symposium on Theory of Computing (STOC), Symposium on Discrete Algorithms (SODA), SIAM Journal on Computing (SICOMP), Journal of the ACM (JACM), Mathematical Statistics and Learning (MSL), Random Structures and Algorithms (RSA).

Ph.D. representative	2022 – 2025
Organization of the theoretical computer science reading group	2021 – 2023

EXTRA-ACADEMIC ACHIEVEMENTS

Bronze medals in the ACM-ICPC Southwestern European contest.   2016, 2017

Bronze medal in the International Olympiad in Informatics (IOI, Taipei)   2014

Ranked 1st in the national IOI selection   2013 – 2014