Martin Rapaport

Wean Hall 8124, Department of Mathematical Sciences
Carnegie Mellon University, Pittsburgh, USA
✉ mrapapor@andrew.cmu.edu
⌨ mrapapor.github.io

Curriculum Vitae

Education

2024–	**Postdoctoral Researcher**, *Carnegie Mellon University*, Hosted by Prof. Prasad Tetali.
2020–2023	**Ph.D. in Mathematics**, *Université Gustave Eiffel (Paris-Est)*, Supervisors: Paul-Marie Samson and Matthieu Fradelizi.
	Thesis: *Entropic curvature on graphs and discrete log-concavity on Z^d.*
2019–2020	**Master 2 in Mathematics and Applications**, *Université Paris Dauphine – PSL*, Paris.
2018–2019	**Master of Science in Mathematical Engineering**, *Faculty of Physical and Mathematical Sciences, Universidad de Chile*, Santiago.
2015–2018	**Bachelor of Science in Mathematical Engineering**, *Faculty of Physical and Mathematical Sciences, Universidad de Chile*, Santiago.
	Graduated with highest distinction (7/7).

Research

Research Interests	Convexity · Optimal transport · Discrete analysis

With Paul-Marie Samson: *Criteria for entropic curvature on graph spaces*, under revision, arXiv:2303.15874.

With Matthieu Fradelizi and Lampros Gavalakis: *On the monotonicity of discrete entropy for log-concave random vectors on Z^d*, under revision, arXiv:2401.15462.

With Matthieu Fradelizi and Lampros Gavalakis: *Entropic versions of Bergström's and Bonnesen's inequalities*, submitted, arXiv:2501.10309.

Teaching Experience

Carnegie Mellon University (2024–present)
Instructor. Courses: Probability (21-325), Linear Algebra (21-341).
Recognized through the Eberly Center's *Thank a Teacher* program for teaching excellence

Université Gustave Eiffel (2020–2022)
Teaching Assistant. Courses: Sequences and Series (L2), Statistics (L1), Methodology (L1)

Reading Groups

2024–2025	*Stein's Method Working Group, Carnegie Mellon University*

Based on the book *Fundamentals of Stein's Method* by N. Ross.

2020–2021	*Optimal Transport and Applications*

Based on the book *Optimal Transport for Applied Mathematicians* by F. Santambrogio.

Talk presented: *Brunn–Minkowski inequality and optimal transport.*

    2022–2023   *Complex Analysis*

Based on the book *An Introduction to Operators on the Hardy–Hilbert Space* by R. A. Martínez-Avendaño and P. Rosenthal.

Talk presented: *Introduction to Toeplitz operators.*

Seminars

    2024–   *ACO Seminar, Carnegie Mellon University*

Research seminar on algorithms, combinatorics, and optimization. Organizers: Quentin Dubroff, Bob Krueger.

    Oct. 2024   *Graduate Student Probability Seminar (GSPS), Carnegie Mellon University*

Talk presented: *Analogies Between Convexity and Information Theory.* Organizers: Yimeng Sun, Sherry Sarkar.

    Jan. 2023   *Online Asymptotic Geometric Analysis Seminar (AGA)*

Talk presented: *On the monotonicity of discrete entropy for log-concave random variables on Z^d.* Organizers: Galyna Livshyts, Liran Rotem, Dmitry Ryabogin, Konstantin Tikhomirov.

    2020–2023   *Informal Analysis Seminar, Université Gustave Eiffel*

Talks presented: *Entropic curvature in discrete spaces* (Nov. 2022); *Localization in discrete spaces after Lovász* (Nov. 2022). Organizers: Matthieu Fradelizi, Colin Petitjean.

    2020–2023   *Convexity, Optimal Transport and Probability Seminar, Institut Henri Poincaré (Paris)*

Research seminar on convexity and probability. Organizers: Max Fathi, Nathaël Gozlan, Matthieu Fradelizi.

    2020–   *Functional Analysis Seminar, Sorbonne Université*

Research seminar on functional analysis and convexity. Organizers: E. Abakoumov, D. Cordero-Erausquin, G. Godefroy, O. Guédon, B. Maurey, G. Pisier.

Workshops

    June 2025   *Workshop in High-dimensional Phenomena and Convexity, Technion University, Nahsholim (Israel)*

Conference on convex geometry and high-dimensional phenomena. Participant.

    2022   *Geometry, Analysis and Convexity (OLE), Seville, Spain*

Poster presented: *Some criteria for entropic curvature on graphs.*

    2022   *Phenomena in High Dimension, Institut Henri Poincaré, Paris, France*

Conference on analytic, geometric and probabilistic aspects of high-dimensional phenomena.

Computing

Languages   MATLAB, Python

Tools   LaTeX, Overleaf, GitHub

Languages

Spanish   Native

French   Full professional proficiency

English   Full professional proficiency

Italian   Basic knowledge (currently improving)