

SERGIO CRISTANCHO

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Languages: Spanish (native), English (fluent), German (waystage), Italian (waystage). **Citizenship:** Colombian.

PERSONAL STATEMENT

I am a third year graduate student in Applied and Computational Mathematics at Princeton University. I am broadly interested in the intersection of algebra, geometry and combinatorics, and applications.

EDUCATION

Universidad de los Andes

B.S. in Mathematics,
B.S. in Physics,
M.S. in Mathematics,

Bogotá, Colombia

2020
2021
2023

Princeton University

P.h.D. in Applied Mathematics,

Princeton, New Jersey

Ongoing

TEACHING EXPERIENCE

Teaching Assistant

Real Analysis, Abstract Algebra, Enumerative Combinatorics, Linear Algebra
Abstract Algebra, Applied Algebra, Honors Linear Algebra

Universidad de los Andes
Princeton University

Mentor for the Directed Reading Program

Princeton University

RESEARCH

Publications:

- With Mauricio Velasco (2024). Harmonic Hierarchies for Polynomial Optimization. *SIAM Journal on Optimization* 2024 34:1, 590-615.

Talks:

- Inequalities for metric trees and matroids. *Discrete Math Seminar*, University of Massachusetts Amherst, September 2025.
- Three proofs of the reverse Khovanskii-Teissier Inequality. *Special Year Seminar*, Institute for Advanced Study, January 2025.
- Harmonic Hierarchies for Polynomial Optimization on Homogeneous Spaces. *SIAM Conference on Applied Algebraic Geometry 2023 (SIAM AG23)*, Eindhoven University of Technology, July 2023.
- Harmonic Hierarchies for Polynomial Optimization. *International Conference on Continuous Optimization (ICCOPT 2022)*, Lehigh University, July 2022.
- Harmonic Hierarchies for Polynomial Optimization. *Conferencia Colombiana de Matemáticas Aplicadas e Industriales (MAPI 2)*, June 2022.