

# SERGIO CRISTANCHO

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**Languages:** Spanish (native), English (fluent), German, Italian (intermediate).

**Citizenship:** Colombian.

## PERSONAL STATEMENT

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

## EDUCATION

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<b>Princeton University</b> P.h.D. in Applied Mathematics,	Princeton, New Jersey <i>Ongoing</i>
<b>Universidad de los Andes</b> M.S. in Mathematics, B.S. in Physics, B.S. in Mathematics,	Bogotá, Colombia 2023 2021 2020

## TEACHING EXPERIENCE

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<b>Teaching Assistant</b> Abstract Algebra, Applied Algebra, Honors Linear Algebra Real Analysis, Abstract Algebra, Enumerative Combinatorics, Linear Algebra	Princeton University Universidad de los Andes
<b>Mentor for the Directed Reading Program</b>	Princeton University

## RESEARCH

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### Publications:

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

### Talks:

- Lorentzian polynomials and triangular hyperfields. *Arbeitsgemeinschaft: Combinatorial Hodge Theory*, Mathematisches Forschungsinstitut Oberwolfach, October 2025.
- 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.