Francisco Ponce-Carrion

Raleigh, NC, US

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Education

North Carolina State University | **Raleigh, NC, US**
PhD Mathematics | *August 2021 – May 2026*

Universidad San Francisco de Quito | **Quito, Ecuador**
BS Mathematics | *August 2016 – May 2020*

Research Interests

applied algebraic geometry - numerical algebraic geometry - algebraic statistics - homotopy continuation - linear compartmental models

Professional Experience

North Carolina State University | **Raleigh, NC, US**
Graduate Teaching Assistant | *August 2021 – Present*

Universidad San Francisco de Quito | **Quito, Ecuador**
Mathematics Teaching Assistant | *January 2021 – June 2021*

Banco Solidario | **Quito, Ecuador**
Data Analyst/Scientist (Intern from June-September) | *June 2019 – June 2021*

Publications

Published
- Jonathan D. Hauenstein, Caroline Hills, Hoon Hong, and Francisco Ponce-Carrion. Geometry of Continuous Adjoint Newton's Method for Bivariate Quadratics, *Maple Transactions*, 5(3), 22493, 2025.
- Johan Ceballos, Nicolás Coloma, Antonio Di Teodoro, Diego Ochoa-Tocachi, and Francisco Ponce. Fractional multicomplex polynomials. *Complex Analysis and Operator Theory*, 16(4):60, 2022.
- Nicolás Coloma, Antonio Di Teodoro, Diego Ochoa-Tocachi, and Francisco Ponce. Fractional Elementary Bicomplex Functions in the Riemann–Liouville Sense. *Advances in Applied Clifford Algebras*, 31(4):1–29, 2021.
- Johan Ceballos, Nicolas Coloma, Nicola Di Teodoro, and Francisco Ponce. *Introduction to Clifford analysis: A new perspective*. Nova Science Publishers, New York, 2020.

Accepted
- Nicolás Coloma, Maria Espericueta Sandoval, Erika Lopez, Francisco Ponce-Carrión, Gustavo Rama, Nathan C. Ryan, Alejandro Vargas-Altamirano. Repulsion of zeros close to $s = 1/2$ for L-functions, 2024. https://arxiv.org/abs/2401.07959
  To appear in Journal of Experimental Mathematics

Preprints
- Francisco Ponce-Carrion and Seth Sullivant. Marginal Independence and Partial Set Partitions, 2024. https://arxiv.org/abs/2402.16292

Presentations

- **Applied and Computational Algebraic Geometry. AMS Southeastern Sectional.** March 2026
  Upcoming Invited Talk — Savannah, GA, US

- **AMS Special Session: Numerical Algebraic Geometry and Applications. JMM.** January 2026
  Upcoming Invited Talk — Washington DC, US

- **New Directions in Algebraic Statistics. IMSI.** July 2025
  Contributed Lightning talk — Chicago, IL, US

- **AMS Special Session: Algebraic Statistics in Our Changing World. JMM.** January 2025
  Invited Talk — Seattle, WA, US

- **KTH Combinatorics seminar.** October 2024
  Invited Talk — Virtual (Sweden)

- **ISSAC 2024.** July 2024
  Contributed Poster — Raleigh, NC, US

- **Algebraic Statistics for Ecological and Biological Systems. IMSI.** October 2023
  Contributed Lightning talk — Chicago, IL, US

Select Workshops/Conferences attended

- **MRC: Real Numerical Algebraic Geometry** July 2025
  Participant — Providence, RI, US

- **Días de Combinatoria 2023** December 2023
  Teaching assistant for mini-course dictated by Laura Colmenarejo — Bucaramanga, Colombia

- **Invitation to Algebraic Statistics and Applications. IMSI.** September 2023
  Participant — Chicago, IL, US

- **Meeting on Applied Algebraic Geometry 2023** April 2023
  Participant — Atlanta, GA, US

Teaching Experience

Term	Course	Position	Institution
Fall 2025	MA 520 Linear Algebra	Instructor of record	NCSU
Summer 2025	MA 305 Introductory Linear Algebra and Matrices	Instructor of record	NCSU
Spring 2025	MA 131 Calculus for Life and Management Sciences A	Instructor of record	NCSU
Fall 2024	MA 305 Introductory Linear Algebra and Matrices	Instructor of record	NCSU
Summer 2024	MA 305 Introductory Linear Algebra and Matrices	Instructor of record	NCSU
Spring 2024	MA 241 Calculus II	Instructor of record	NCSU
Fall 2023	MA 305 Introductory Linear Algebra and Matrices	Instructor of record	NCSU
Spring 2023	MA 131 Calculus for Life and Management Sciences A	Instructor of record	NCSU
Fall 2022	MA 242 Calculus III (Honors section)	Recitation leader	NCSU
Spring 2022	MA 241 Calculus II	Recitation leader	NCSU
Fall 2021	MA 241 Calculus II	Recitation leader	NCSU
Spring 2021	MAT 1202 Integral Calculus (4 sections)	Recitation leader	USFQ

Service

- **Mentor for an undergraduate student for Undergrads Union Grads program.**
  Fall 2021

- **Organizer of Pure Graduate Seminar at NCSU.**
  August 2024-May 2026

- **Organizer of AMS Special Session at JMM: Numerical Algebraic Geometry and its Applications.**
  January 6, 2026

Languages

- **English:** Fluent, certified CEFR C2 proficiency.
- **Spanish:** Native language.
- **French:** Basic.

Other skills and interests

- **Programming:** R, Python, Macaulay2, Maple, Julia, Sage, C++ and Latex