

Education

- **University of Texas at Austin** Austin, TX
Ph.D., Mathematics 2002–2007
 - Dissertation: *The Boltzmann equation: Sharp Povzner Inequalities Applied to Regularity Theory and Kaniel & Shinbrot Techniques Applied to Inelastic Existence.*
 - Supervisor: Dr. Irene Gamba.
- **Universidad de Los Andes** Bogotá, Colombia
MS in Electronic Engineering (Automation and Control) 1996–1998
 - Thesis: *Application of Advanced Control Techniques for Theoretical Description of a Tracking System with Optical Scopes.*
 - Original Title: *Utilización de Técnicas Avanzadas de Control para la Descripción Teórica de un Sistema de Seguimiento por Miras Ópticas.*
 - Supervisor: Dr. Alain Gauthier.
- **Universidad Javeriana** Bogotá, Colombia
BS in Electronic Engineering 1991-1996
 - Bachelor Graduation Project: *Phone Calls Generator (Application for the Compact Norstar System 6/16).*
 - Original Title: *Generador de Llamadas (Aplicación para el Sistema Norstar Compacto 6/16).* Co-author: Francisco Useche.
 - Supervisor: Ing. Francisco Viveros & Ing. Jorge Sanchez.

Professional Experience

- **Department of Mathematics, UT Austin** Austin, TX
Assistant Instructor Aug 2007–present
 - Member of the Faculty of the University of Texas at Austin. Instructor of different undergraduate courses in Mathematics.
- **Department of Mathematics, UT Austin** Austin, TX
Graduate Research Assistant Aug 2002–present
 - Studying the existence, uniqueness and regularity theory of the homogeneous and inhomogeneous Boltzmann Equation for elastic and inelastic cases.
 - Studied a simplified model for the shallow water equation and proving the existence, uniqueness and regularity of the solution using Faedo-Galerkin approximates.
- **Department of Mathematics, UT Austin** Austin, TX
Teaching Assistant Aug 2002–present
 - Instructor for undergraduate and graduate courses in mathematics.
- **Department of Engineering, Universidad Javeriana** Bogotá, Colombia
Head of Process Control Section Aug 1996–Jun 2002

- Leded the Process Control section. Coordinated graduate and undergraduate control courses as well as laboratory practices. Managed the team of professors assigned to the section. Member of the Department and Undergraduate committees.

- **Department of Engineering, Universidad Javeriana**

Bogotá, Colombia

Assistant Instructor

Aug 1996–Jun 2002

- Taught graduate and undergraduate courses in control process, dynamical systems, stochastic process, communication systems, solid state physics and electronic circuit design.

Publications

- *Maxwellian Bounds for the Derivatives of the Solution of the Homogeneous Boltzmann Equation*, submitted for publication.
- *Existence of Global Solutions to the Cauchy Problem for the Inelastic Boltzmann Equation with Near-vacuum Data*, submitted for publication.
- *Analysis of the Diffusive Wave Approximation of the Shallow Water Equations*, submitted for publication. Co-author Mauricio Santillana.

Other Academic Activities

- **Research**

Thesis Advisor

- *Prototype System for Oxygen Control in IRAQUOIS Helicopter (UH1H)*.
Original title: *Sistema Prototipo para Control de Oxígeno en Helicóptero IRAQUOIS (UH1H)*.
Author: Diana C. Cajamarca, Universidad Javeriana.
- *Supervisory Control for a System of Reactive Cathodic Pulverization*.
Original title: *Control Supervisorio de un Equipo de Pulverización Catódica Reactiva DC*.
Author: Jorge E. Alvarez, Universidad Javeriana.
- *Multivariable Control Implemented with Fuzzy Logic*,
Original title: *Controlador Multivariable Implementado con Lógica Difusa*.
Author: Cristina Bustos, Universidad Javeriana.

- **Workshop**

Speaker

- *The Boltzmann equation*.
Institut Henry Poincaré (IHP). Paris, France, 2007.

- **Summer School**

Scholar

- *Topics in Nonlinear PDEs*.
Centro Internacional de Matemática (CIM), University of Coimbra. Portugal, 2007.
- *Recent Trends in Partial Differential Equation*.
Universidad Menéndez Pelayo. Santander, Spain, 2004.

Skills

- Microsoft Office, MATLAB, FORTRAN, Visual Basic, Assembly, C/C++, Labview and L^AT_EX.

- Excellent interpersonal and team skills. Strong organization and time management skills.
- Fluent in Spanish.

Academic Organizations

- **American Mathematical Society**
Member