FRANKLIN GAVILANEZ
CURRICULUM VITAE
October 25, 2013

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EDUCATION

2002-2006 **University of Maryland,** College Park, Maryland
Ph.D. in Mathematics (degree conferred August 2006)
Advisor: Prof. Carlos Berenstein
Readers: Prof. Jeffrey Cooper, Prof. Ricardo Nochetto, Prof. Shankar Udaya
Prof. Ankur Srivastava.
2000-2002 **University of Maryland,** College Park, Maryland
Master of Sciences, Mathematics (degree conferred August 2002)
Thesis topic: "Multiresolution Analysis in the Hyperbolic Plane"
Advisor: Prof. Carlos Berenstein
Readers: Prof. Benjamin Kedem, Prof. Denis Healy
2000 **University of Arkansas,** Fayetteville, Arkansas
English as a Second Language
1994-1995 **Scuola Normale Superiore,** Pisa, Italy
Stage of Specialization
Area of work: Real and Complex Analysis, Calculus of Variations
Advisor: Prof. Stefano Mortola
1986-1992 **Escuela Politecnica de Chimborazo**, Riobamba, Ecuador
B.S in Mathematics with highest honors, October, 1992
Thesis topic: On the Spectral Theorem for Totally Continuous Operators

PhD DISSERTATION

"Network Tomography": *A study to find computationally effective methods to monitor specific connected subsets S of arbitrary planar weighted graphs (regions of interest) from the input-output map corresponding to paths that have crossed such regions and from this, to determine, for instance, congested areas or better yet anticipate areas that will get congested, in order to recommend measures to avoid the stoppage of traffic (weight).*
Advisor: Prof. Carlos Berenstein
Readers: Prof. Jeffrey Cooper, Prof. Ricardo Nochetto, Prof. Shankar Udaya, Prof. Ankur Srivastava

ACADEMIC AWARDS

2003 NATO Science Program Internship, Italy.
2002-2005 Graduate Research Assistant, University of Maryland. NSF funding.
2000-2002 Fulbright Fellowship.
1999-2002 Graduate School Fellowship, University of Maryland.
1993-1995 Italian Government Scholarship, Pisa, Italy.
1992 Best Student, Undergraduate level, Riobamba, Ecuador

PROFESSIONAL EXPERIENCE

2007-Present **Montgomery College**, Rockville Campus, Rockville, MD, USA
Associate Professor, full time
Courses I teach: Linear Algebra, Finite Math, Developmental Math, Calculus.
2006-2007 **American University,** Washington DC, USA
Visiting Assistant Professor, full time
Courses taught: Applied calculus, Finite Mathematics, Finite Mathematics-Business
2005-2006 **American University,** Washington DC, USA
Mathematics Instructor, full time

Courses taught: Finite Mathematics, Applied Calculus, Calculus I

1991-2000 **Escuela Politecnica, Riobamba, Ecuador**
Assistant Professor, full time
Courses taught: Linear Algebra, Functional Analysis, Statistics and Probability, Real Analysis, Complex Analysis, General topology, Calculus. Operations research, Finite Math, Applied calculus.

2005 **UNDERGRADUATE ENRICHMENT EXPERIENCE**
University of Maryland, College Park, Maryland
Research Advisor, Research Undergraduates Experiences program
Topic of research: "Leakage Optimization"

OTHER EXPERIENCE

2001-2005 **University of Maryland-Institute for Systems Research**
Position: Research Assistant
2002 **University of Maryland**, Department of Animal and Avian Sciences
Position: Research Assistant
Duties: Data Analysis and Statistical Programming
2012 **External editorial board member of Revista Ingenius**, Revista de Ciencia y Teonología de la Universidad Politécnica Salesiana del Ecuador

SERVICES AT MONTGOMERY COLLEGE

Course Chair, Peer Evaluation Committee member, Part-time Faculty evaluation coordinator, mentoring students, advising students, Tutoring, Mathematics-Biology committee member.

SERVICES AT AMERICAN UNIVERSITY

Spanish Language Written Examination Examiner

RESEARCH INTERESTS

Network Tomography, Integral Geometry, Radon Transform, Signal processing, Harmonic analysis.

PUBLICATIONS

PAPERS

"Tomography, Beyond the Medical Applications", UNIVERSITAS, Journal of Universidad Politecnica Salesiana del Ecuador, Year III, Vol. 11, Cuenca, Ecuador 2009.
Indexed by LATINDEX ISSN 1390-3837

"On Network Tomography", Publication of Universidad Nacional de Colombia y Sociedad Colombiana de Matemáticas**,** Revista Colombiana de Matemáticas. *Rev.colomb.mat.*, Oct 2007, vol.41, suppl.1, p.143-150. ISSN 0034-7426

"**Network Tomography",** Contemporary Mathematics Series, AMS Books, Integral Geometry and Tomography: AMS Special Session on Tomography and Integral Geometry, CONM-Vol.405, Providence, Rhode Island, 2006, p. 11-17. ISBN-10: 0-8218-3755-9, ISBN-13: 978-0-8218-3755-9

"Continuous and Discrete Inverse Conductivity Problems", Contemporary Mathematics Series, AMS Books, Partial Differential Equations and Inverse Problems CONM-Vol. 362, Providence, Rhode Island, 2005, p. 33-51. ISBN-10: 0-8218-3448-7, ISBN-13: 978-0-8218-3448-0

"Local Monitoring of the Internet Network", Institute for Systems Research Technical Reports, ISR, University of Maryland, College Park, 2003.
Series/Report no. ISR; TR2003-7
URI: http://hdl.handle.net/1903/6351

A brief overview of Homotopies, Revista "Perfiles", 3, p. 67-70, 1998, Escuela Superior Politécnica de Chimborazo, ESPOCH, Riobamba, Ecuador. **ISSN 1390-5740**

Long-Distance Education in the ESPOCH, Revista "Perfiles", 3, p. 85-87, 1998, Escuela Superior Politécnica de Chimborazo, ESPOCH, Riobamba, Ecuador. **ISSN 1390-5740**

On the existence of solutions for the Neumann Problem, Revista "Perfiles", 2, p. 69-74, 1997, Escuela Superior Politécnica de Chimborazo, ESPOCH, Riobamba, Ecuador. **ISSN 1390-5740**

Applications of Zorn Lemma, Revista "Perfiles", 4, p. 73-76, 1999, Escuela Superior Politécnica de Chimborazo,ESPOCH, Riobamba, Ecuador. **ISSN 1390-5740**

TEXTBOOKS

Introduction to Complex Variable.
Date of Publication: July 1997.
Editorial House: Editorial Politécnica. Escuela Superior Politécnica de Chimborazo, ESPOCH, Ecuador
Number of pages: 100

Foundations of Functional Analysis.
Date of Publication: January 1999
Editorial House: Editorial Politécnica. Escuela Superior Politécnica de Chimborazo, ESPOCH, Ecuador
Number of pages: 109

Linear Algebra
Date of Publication: March 2000
Editorial House: Editorial Politécnica. Escuela Superior Politécnica de Chimborazo, ESPOCH, Ecuador
Number of pages: 101

PRESENTATIONS

The Mathematics of X-Ray Transmission Tomography in $\mathbb{R}^2$, MathTalk Series, Montgomery College, Rockville, Maryland, April 2013.

"Limiting Processes: What Tools Are Needed?". MathTalk Series, Montgomery College, Rockville, Maryland, November 2009.

"Network Tomography, Mathematics a Scalpel", SEM Exchange Talk, Montgomery College, Rockville, Maryland, February 2008.

"On Network Tomography", Joint work with Carlos Berenstein, 10th New Mexico Analysis Seminar, University of New Mexico, Albuquerque, New Mexico, October 2007.

"From Electrical Impedance Tomography to Network Tomography"", Mathematics and Statistics Colloquium, American University, Washington DC, November 2006.

"Internet Tomography", AMS meeting. Session on Tomography. Lawrenceville, New Jersey, 2004.

"Network Tomography for Information Assurance", Industry Advisory Board Meeting, University of Maryland, College Park, Maryland, 2004.

"Network Tomography for Information Assurance", University Research Initiative-Review Meeting, University of Maryland, College Park, Maryland, 2004.

"Network Tomography for Information Assurance", University Research Initiative Workshop. Poster. Annapolis, Maryland 2004.

"Inverse Problems on Finite Graphs", Poster, NATO Science Program, Barga-Tuscany, Italy, 2003.

"Inverse Conductivity Problems on Networks", Institute for Systems Research, University of Maryland, College Park, Maryland, April 2003.

'Discrete Inverse Conductivity Problems', Institute for Systems Research, University of Maryland, College Park. November 2002.

MEMBERSHIPS

American Mathematical Society, AMS.

The Center for Satellite and Hybrid Communication Networks, CSHCN, NASA Partnership Center and part of Institute for Systems Research at University of Maryland.

University of Maryland Alumni Association

Fulbright Alumni Association, USA.

AAUP, American Association of University Professors.

LANGUAGE SKILLS

Spanish, Native speaker
English, Fluent
Italian, Fluent
Portuguese, Fluent

COMPUTER SKILLS

Matlab
Maple
MS Word:
Excel
PowerPoint
Access
Latex
WinEdt
Adobe Creative Suite
Scientific Word
Tex

RELEVANT GRADUATE- LEVEL COURSES

Probability and Statistics
Random Processes
Econometrics
Real Analysis
Functional Analysis

Complex Analysis
Operations research
Project Management
Numerical Analysis
Digital Communications,
Sampling Theory
Detection and Estimation Theory
Linear Systems
Optimal Control
Advanced Topics in Math (Integral geometry)
Digital Signal Processing
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11/25/2013