Bree Ettinger

Curriculum Vitae

Mathematics Department, Emory University,
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Appointments

2019-present Senior Lecturer, Emory University, Department of Mathematics

2013-2019 Lecturer, Emory University, Department of Math & Computer Science

2011-2013 Post-doc, MOX Laboratory for Modeling and Scientific Computing, Dipartimento di Matematica, Politecnico di Milano, Advisors: Laura Sangalli and Simona Perotto

2010-2011 Assistant Professor, Morehouse College, Department of Mathematics

2009-2010 Visiting Lecturer, Georgia State University, Department of Mathematics and Statistics

Education

2009 Ph.D. Mathematics, University of Georgia, Advisor: Ming-Jun Lai
Dissertation: *Bivariate Splines for Ozone Concentration Predictions*

2009 M.S. Statistics, University of Georgia

2004 M.A. Mathematics, University of Georgia, Advisor: Joan Hoffacker
Thesis: *Applications of Time Scales to Numerical Analysis*

2002 B.S. Mathematics, University of Georgia

Scholarship

Publications

Peer Reviewed Journals

1. B. Ettinger, S. Perotto and L.M. Sangalli. Spatial regression models over two-dimensional manifolds. *Biometrika*, 103 (2016), no. 1, 71-88.

2. F. Dassi, B. Ettinger, S. Perotto and L.M. Sangalli. A mesh simpli cation strategy for a spatial regression analysis over the cortical surface of the brain. *Appl. Numer. Math.*, 90 (2015), 111-131.

3. B. Ettinger, S. Guillas, M. J. Lai, Bivariate Splines for Functional Regression Models with Application to Ozone Forecasting,*Environmetrics*, 23 (2012) pp. 317-328

Peer Reviewed Book Chapter

1. B. Ettinger, T. Passerini, S. Perotto and L.M. Sangalli. Spatial smoothing for data distributed over non-planar domains. In *Complex Models and Computational Methods in Statistics*, Springer M. Grigoletto, F. Lisi, S. Petrone Eds. (2013), 123-135. Proceedings of SCo 2011, the 7th Conference on Statistical Computation and Complex Systems.

Conference Papers (Peer Reviewed)

1. B. Ettinger, S. Perotto and L.M. Sangalli. A functional data analysis approach to modeling spatially distributed data across several non-planar domains. In Proceedings of S.Co.2013, Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction, 2013. ISBN 9788864930190.

2. B. Ettinger, S. Perotto and L.M. Sangalli. Studying hemodynamic forces via spatial regression models over non-planar domains. In Proceedings of the 47th Scientic Meeting of the Italian Statistical Society, 2013. Electronic Book: *Advances in Latent Variables - Methods, Models and Applications.* ISBN 978-88-343-2556-8, Eds. E. Brentari, M. Carpita, Vita e Pensiero, Milano.

3. B. Ettinger, S. Perotto and L.M. Sangalli. Spatial smoothing over non-planar domains. In Proceedings of the 46th Scientic Meeting of the Italian Statistical Society, 2012. ISBN 978-88-6129-882-8, Cleup Eds.

Conferences

June 2019 Transforming Post Secondary Education in Mathematics (TPSEMath) Southeast Regional Meeting on Upper-Division Math Pathways, Morehouse College

- Panelist on Approaches to Program Development Panel

July 2018 SIAM Annual Meeting, Portland, OR

- Organizer and Co-Chair of Mini-Symposia on Innovative Pedagogical Practices, Curricular Reforms and Teaching Resources in Applied Mathematics Education
- Contributed talk: *Improving Students' Understanding of Numerical Analysis and Mathematical Statistics Through 3D Printing*

May 2017 Construct3D: 3D Printing & Digital Fabrication for Education, Duke University, Raleigh, NC

- Contributed talk: *Message in a Bottle: A 3D Printing Project for Numerical Analysis*

July 2015 Annual Meeting of the Society for Mathematical Biology, Atlanta, GA

- Contributed talk: *A Statistical Approach To Modeling Spatially Distributed Data On The Wall Of A Cerebral Artery*
- Co-Chair of Minisymposium Sessions: Advances in Mathematical and Numerical Models for the Cardiovascular System

April 2014 SIAM Conference on Uncertainty Quantification, Savannah, GA

- Contributed talk: *Multiple Patient Modeling over Bidimensional Riemannian Manifolds*
- Chair of CP16 Biology and the Environment

April 2014 Georgia Scientific Computing Symposium, University of Kennesaw, Kennesaw, GA

- Contributed Poster: *An iterative edge contraction method for a spatial regression analysis of cortical surface data*

May 2014 FIRB SNAPLE Closing Workshop Program, Dipartimento di Matematica, Politecnico di Milano, Milan, Italy

- Invited talk: *Spatial regression models over two-dimensional manifolds*
- Room and Board paid by conference

Sept. 2013 S.Co.2013, Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction, Milan, Italy

- Contributed talk: *A functional data analysis approach to modeling multiple patient data over non planar domains*

Sept. 2012 Workshop: High dimensional and dependent functional data, Bristol, UK

- Contributed talk: *Spatial regression models over two-dimensional Riemannian manifolds*
- Received travel grant from workshop

Sept. 2012 SNAPLE day, Second one-day workshop on FIRB Futuro in Ricerca research project SNAPLE, University of Warwick

- Contributed talk: *Spatial regression models over two-dimensional manifolds with applications to the study of hemodynamic data*

June 2012 Societ Italiana di Matematica Applicata ed Industriale SIMAI Biannual Congress, Politecnico di Torino, Italy

- Contributed talk: *A statistical-numerical approach for surface fitting over non-planar domains*

June 2012 Società Italiana di Statistica Scientic Meeting 2012, Sapienza Università di Roma, Italy

- Contributed talk: *Spatial smoothing over non-planar domains*

July 2012 14th Meeting of New Researchers in Statistics and Probability, University of California, San Diego, CA

- Contributed poster: *Spatial regression models over two-dimensional Riemannian manifolds*
- Room and Board paid by conference

Oct. 2011 SNAPLE kickoff meeting, Fist one-day workshop on FIRB Futuro in Ricerca research project SNAPLE, Politecnico di Milano

- Introductory talk: *Splines over triangulations applied to cortical surface models, a SNAPLE project*
- Organizer

Sept. 2011 S.Co.2011, Sixth Conference on Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction, Padova, Italy

April 2010 Thirteenth International Approximation Theory Conference, San Antonio, TX

- Contributed talk: *Bivariate Splines for Hurricane Path Prediction*
- Received travel grant from conference

May 2009 Summer School on Multivariate Splines and their Applications, University of Georgia, Athens, GA

- Invited talk: *Data Forecasting*

Jan. 2009 Joint Mathematics Meeting, Washington DC January 2009

April 2007 Twelfth International Approximation Theory Conference, San Antonio, TX

- Contributed talk: *Bivariate Splines for Functional Linear Regression Models Over the Unit Square*
- Received travel grant from conference

April 2002 Special Session on Dynamic Equations on Time Scales: Theory and Application, AMS/MAA Joint Meeting, Los Angeles, CA

- Contributed talk: *Applications of Time Scales to Numerical Analysis*

Research Experience

2011-2013 Post-doc "Statistical and Numerical methods for the Analysis of Problems in Life sciences and Engineering"(SNAPLE) a *FIRB Futuro in Ricerca* research project, Advisors: Laura Sangalli and Simona Perotto, Politecnico di Milano

2008 Graduate Teaching Assistant for Summer VIGRE Research Experiences for Undergraduates (REU) Numerical Analysis, Advisor: Ming Jun Lai, University of Georgia

2006 Graduate Teaching Assistant for Summer VIGRE REU Polynomial Splines, Bezier Curves, Barycentric Coordinates, Advisor: Tatyana Sorokina, University of Georgia

2005 VIGRE Research Group on Mathematical Cardiac Physiology, Advisor: Andrew Sornborger, University of Georgia

2004-2005 VIGRE Research Group on the Mathematical aspects of electrical excitation and wave propagation in the heart, Advisor: Andrew Sornborger, University of Georgia

2002-2003 VIGRE Research Group on Time Scales, Advisor: Joan Hoffacker, University of Georgia

2002 Summer VIGRE REU Time Scales, Advisor: Joan Hoffacker, University of Georgia

2001 Summer VIGRE REU The 3-body Problem, Advisor: Malcom Adams, University of Georgia

Selected Seminar Talks

2019 *Integrating Sustainability into the Mathematics Curriculum*, Electronic Seminar on Mathematics Education (https://math.mit.edu/seminars/esme/pastseminars.html)

2014 *Spatial regression models over two-dimensional manifolds*, Numerical Analysis & Scientific Computing Seminar, Emory University, Atlanta, GA

2010 *Hurricane Prediction using Bivariate Splines*, Mathematics Colloquium, Augusta State University, Augusta, GA

2010 *LaTeX for Beginners*, Software Interest Group, Department of Mathematics & Statistics, Georgia State University, Atlanta, GA

2009 *Bivariate Splines for Ozone Concentration Forecasting*, Applied Math Seminar, University of Georgia, Athens, GA

2006 *Surrogate Models for a Simple Oil Reservoir*, VIGRE Graduate Student Seminar, University of Georgia, Athens, GA

2003 *Real Life Problems with RSA Encryption*, Student Number Theory Seminar, University of Georgia, Athens, GA

2003 *Derivative Approximations on Time Scales*, VIGRE Graduate Student Seminar, University of Georgia, Athens, GA

Industry Experience, Summer Schools, & Workshops

May 2019 Preparation for Industrial Careers in Mathematical Sciences (PIC Math) Faculty Workshop, Brigham Young University, Provo, UT

- training to teach a PIC Math Course that raises awareness among mathematical sciences faculty and undergraduates about non-academic career options

Nov. 2009 Stochastic Transport and Emergent Scaling in Earth-Surface Processes (STRESS2), Tahoe Center for Environmental Research, Incline Village, NV

- Received travel grant from workshop

July 2008 MSRI Climate Change Summer School, Mathematical Sciences Research Institute, Berkeley, CA

- Room and Board paid by summer school

Aug. 2006 Mathematical Modeling Industry X Workshop, Institute of Mathematics and Its Applications, Minneapolis, MN

- Exxon Mobil Group: Reservoir Model Optimization under Uncertainty

May - Aug. 2004 *Summer Intern*, The Boeing Company, Phantom Works Mathematics Department, Geometry and Optimization Group

- As a summer intern at the Boeing Company, I created instructional web documents for Boeing's Python based General Geometry Generator. I also constructed a virtual 3D vehicle for optimization and improved the Newton convergence of their spline collocation code.

July 2004 Industrial Mathematical Modeling Workshop, North Carolina State University, Raleigh, NC

- CIIT Group: Identifying Respiratory Parameters from Plethysmography Data

July 2003 MSRI Summer Institute on Mathematical Graphics, Reed College, Portland, OR

- Room and board paid by summer institute

June 2003 Dynamical Systems And Their Applications To Population Dynamics Summer School, Rocky Mountain Mathematics Consortium, University of Wyoming, Laramie, WY

June 2002 Dynamic Equations on Time Scales and Their Applications Summer School, Rocky Mountain Mathematics Consortium, University of Wyoming, Laramie, WY

Awards

2018 Academic Advising Award, Emory College of Arts and Sciences

2016 Faculty Appreciation Award, Office of Undergraduate Admission, Emory

2011 Outstanding Support and Service Award, Department of Mathematics, Morehouse College

2008 Outstanding Graduate Teaching Award, Department of Mathematics, University of Georgia

Grants

2017-2018 Math Teachers' Circle Seed Grant for Intown Atlanta Math Teachers' Circle

2016-2017 Fund for Innovative Teaching (FIT) Grant: Project Title - *Message in a Bottle*

Fellowships

2017-2018 CFDE Teaching Fellows: Project Title - *Math for the Liberal Arts*

2008-2009 University of Georgia Mathematicians Educating Future Teachers (MEFT), Department of Mathematics, University of Georgia

2006 Preparing Mathematicians to Educate Future Teachers Award (PMET), Department of Mathematics, University of Georgia

2002-2005 University of Georgia VIGRE (Vertical InteGration of Research and Education) Fellowship, Department of Mathematics, University of Georgia

Honor Thesis Committees

2019 Ziyi Yin *Edge Detection and Enriched Subspaces*

2018 Safiyah Bharwani *Deriving a Metric to Compare Solutions of Malarial Strain Identification Problems and Performing Network Analysis of Disease Outbreaks Using Analytical and Machine Learning Methods*, Applied Math and Statistics.

2017 Joshua Pughe-Sanford *Properties of Quantum Walks within Various One Dimensional Media*, Physics

2017 Weiwei Zhong *Retirement's Effects on Physiological and Psychological Well-being among Elderly Chinese*, Economics

2017 William Milligan *An Empirical Test of Baker's Law: Dispersion Favors Increased Rates of Self-Fertilization in Caenorhabditis elegans*, Biology

2017 Qinyi She *Statistical Assessment of the impact of Coronary Geometry on Their Functionality*, Math & Computer Science

2015 Mengqi Zhao *Study of Benford's Law*, Math & Computer Science

2014 Rebecca Berge *I Am Somebody: What Kinds of Representatives Respond to Low-Income Voters, A Marginalized Subgroup? Analyses of Roll Call Votes*, Political Science

2014 Geunyoung Kim *Adultery Laws: The Effect of Legal Sanctions on Marital Investment and Adultery*, Economics

2014 Amy Shannon, *Live-Coding in Introductory Computer Science Education* Math & Computer Science

2011 Senior Seminar Student Adviser for Malcolm Mitchell *Bivariate Splines for Mortality Tables*, Morehouse College

PhD Committees

2018 Clarissa Garvey *Truncated Singular Value Decomposition Approximation for Structured Matricesvia Kronecker Product Summation Decomposition*

2014 Sebastian Berisha *Inverse Problems in Hyperspectral Imaging*

Professional Development

2019-2020 ALC: SoTL - Convener

2014-2018 Sci Ed Research Journal Club

2017-2018 ALC: Teaching and Contemplation: Nurturing the Teaching Self

2017 ALC: Data Science Research and Education at Emory University

2017 CoMinds Workshop: Improving the Preparation of Graduate Students to Teach Undergraduate Mathematics, University of Maine, Orono, ME

2016 Piedmont Project Workshop

2014 Academic Learning Community (ALC): Teaching International Students

2014 CFDE Pilot Mentoring Program

Service

Departemental Service

2018-present DUS of Mathematics Department: Student advisement, course scheduling, grade disputes, develop curriculum

2013-present Developed and implemented a Course Coordination system for improving consistency the 100-200 level math courses.

2014-2018 Co-DUS of Math and Computer Science Department: Student advisement, course scheduling, grade disputes, develop curriculum (Applied Math and Statistics Major, Actuarial Science Concentration), Assessment

2014-2015 EUMMA faculty advisor

2014-2015 *Chair*, Syllabus Committee to review departmental syllabi and develop detailed syllabi for first time instructors of 100-200 courses

2010-2011 Member of the Organizing Committee for the Ninth Annual Harriett J. Walton Symposium on Undergraduate Mathematics, Department of Mathematics, Morehouse College

2007-2008 Co-organizer of VIGRE Graduate Student Seminar, Department of Mathematics, University of Georgia

2008 Videographer, The Mathematics Education of Elementary Teachers (ME.ET), Michigan State University

Hiring Committees

2019 Computational Math Tenure Track Hiring Committee, *Member*

2018 Computational Math Tenure Track Hiring Committee, *Member*

2017 Mathematics Lecture Track Hiring Committee, *Chair*

2017 Computer Science Lecture Track Hiring Committee, *Member*

2014 Lecture Track Hiring Committee for Mathematics & Computer Science, *Member*

2014-2018 Visiting Assistant Professor Hiring Committee, *Chair*

Course Coordination

2019-2020 Course Coordinator for Math 111, and Math 112

2017-2018 Course Coordinator for Math 111, and Math 221

2016-2017 Course Coordinator for Math 211, Math 212, and Math 221

2013-2014 Course Coordinator for Math 107, and MATH 112

College & University Service

2018-present Piedmont Project Leadership & Brainstorming Group

2020 Emory Scholars Interviews (March 24 -March 25)

2020 Writing Graduation Requirement Assessment Team

2018-2020 Lecture Track Faculty Executive Committee, At-Large representative

2018 OSI Sustainability & Social Justice Incentives Fund selection committee member

2018 TATOO Micro-teaching Facilitator

2018 Emory Scholars Annual Retreat, Scholars Teaching Scholars Faculty Presenter *Stats Stat: Understanding how Statistics plays a role in your health*, January 10-January 13, Hilton Head, SC

2017 Emory Scholars Interviews (March 29 -March 30)

2017 TATOO Micro-teaching Facilitator

2017 STEM Pathways Pre-Orientation Presenter

2017 ECAS - Business Registration Experience Team, Emory Undergraduate Experience Initiative

2017 Co-Chair, GER Assessment MQR and SNT Team to Re-Write the MQR, SNT, and SNTL GERs.

2017 Dean's Achievement Scholars Selection Committee, Member

2017 STEM 2016 Abstract Reviewer

2016 STEM Pathways Pre-Orientation Presenter

2016 STEM Pathways Program Mentor (Summer/Fall 2016)

2016 TATOO Presenter *Course Design and Development in the Quantitative Sciences*

2013-2015 Reviewer of applications for STEM Research and Career Symposium

Service to the Community and Profession

2017-present Founded and led Intown Atlanta Math Teachers' Circle

Feb. 2015 Cengage Learning Mathematics & Statistics Think Tank, New Orleans, LA

Feb. 2015 Academic Affairs Roundtable at the College Board Southern Regional Forum, Atlanta, GA

Nov. 2014 AP Statistics Higher Ed Advisory Panel, Atlanta, GA

Memberships

- AAAS
- American Mathematical Society (AMS)
- American Statistical Association (ASA)
- Society for Industrial and Applied Mathematics (SIAM)
    - Activity Group on Applied Mathematics Education
    - Activity Group on Uncertainty Quantification

Computer Skills

- C++, Java, LaTeX, Maple, Matlab, Python, R, SAS