

## José M. Laborde

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CONTACT INFORMATION	777 Glades RD Department of Mathematics Florida Atlantic University Boca Raton, FL 33431 USA	<i>Voice:</i> (561) 843-9835 <i>Fax:</i> (561) 297-2436 <i>E-mail:</i> jlabordenavas@gmail.com <i>web:</i> www.stat.fsu.edu/~laborde
RESEARCH INTERESTS	Functional Data analysis, Statistical Shape Analysis, Bioinformatics, Biostatistics, Classification, Machine Learning.	
EDUCATION	<b>Florida State University</b> , Tallahassee, Florida USA <ul style="list-style-type: none"><li>• <b>Ph.D., Biostatistics</b>, December 2013 Dissertation Topic: “Elastic Shape Analysis of RNAs and Proteins” Advisors: Dr. Anuj Srivastava, Dr. Jinfeng Zhang</li><li>• <b>M.Sc., Biostatistics</b> (Focus in Statistical Shape Analysis of Biomolecules / Object Data Analysis), August 2011</li></ul> <b>Florida Atlantic University</b> , Boca Raton, Florida USA <ul style="list-style-type: none"><li>• <b>M.Sc., Mathematics</b>, August, 2009 (Focus on Mathematical Analysis, Probability and Abstract Algebra)</li><li>• <b>M.Sc., Applied Math and Statistics</b>, August, 2008 (Focus on Applied and Mathematical Statistics)</li></ul> <b>Escuela Superior Politécnica del Litoral</b> , Guayaquil, Ecuador <ul style="list-style-type: none"><li>• <b>B.Sc., Statistics and Computer Science</b>, June, 1999 Thesis Topic: Use of Neural Networks in Time Series Analysis</li></ul>	
SKILLS	<ul style="list-style-type: none"><li>• Statistical functional data analysis</li><li>• Markov Chain Monte Carlo Simulation</li><li>• Statistical Machine Learning: regression, classification, clustering, neural networks, generalized linear models, Bayesian networks, Hidden Markov models, Bayesian analysis.</li><li>• Categorical data analysis, Time series and ANOVA.</li><li>• Statistical Packages/languages: R, SAS, S-Plus, SPSS, Minitab, Systat.</li><li>• MATLAB, Python, C++, and Perl.</li><li>• Applications: Excel, L<sup>A</sup>T<sub>E</sub>X, Power Point, Word.</li></ul>	
EXPERIENCE	<b>Florida Atlantic University - Department of Mathematics</b> , Boca Raton, FL <i>Visiting Assistant Professor</i> <span style="float: right;"><b>January 2014 - Present</b></span> <ul style="list-style-type: none"><li>• Currently teaching: Calculus and Analytic Geometry 1.</li><li>• Past: Introductory Statistics, Methods of Calculus, Trigonometry.</li><li>• Research work in collaboration with other mathematics faculty.</li></ul> <b>Florida State University - Department of Statistics</b> , Tallahassee, FL <i>Research/Teaching Assistant</i> <span style="float: right;"><b>August, 2009 - December, 2013</b></span> <ul style="list-style-type: none"><li>• Conducted peer reviewed work on state of the art techniques for RNA/Protein structural comparison and classification (See “papers” section below).</li><li>• Taught and assisted courses: Statistics.</li><li>• Worked under <b>Grant</b>: NIH 1R21GM101552 (Helped obtain this grant and subsequently published with its support).</li></ul>	

**Florida Atlantic University - Department of Mathematics, Boca Raton, FL**

***Research/Teaching Assistant, Adjunct Instructor***

**August, 2005 - August, 2009**

- Conducted Research on Fuel efficiency on vehicles with Nitrogen in tires (Purigen 98 project, Directed by Dr. Hongwei Long). Found no difference in fuel economy compared to control vehicles.
- Conducted Research on Proteomic marker determination (directed by Dr. Dragan Radulovic). Created ad hoc estimators for peptide mass spectrometer mean signals and studied classification and clustering techniques implemented in C++.
- Taught and assisted courses: Calculus, Algebra, and Statistics.
- Taught as an Adjunct Instructor during fall 2008 and spring 2009.

**Armada del Ecuador, Guayaquil, Ecuador**

***Statistics researcher***

**January, 2005 - May, 2005**

- Conducted ANOVA studies for technologically modified warships.
- Resulting study provided a scientific framework to justify new investment in modification of other ships.

**Independent Statistics Consultant**

**January, 2000 - December, 2004**

- Dole Inc. (Ecuador): Statistically determined the maximum amount of fruit boxes to allow defective before rejecting and entire batch which balanced their costs vs. their quality.
- Supan S.A. (Bread Company - Ecuador): Determined customer preferences for new products through surveys. Gave expert witness opinion of customer perception of the Bimbo brand in Ecuador through surveys.
- Performed socio-economical statistical surveys on rural areas of Guayas province, Ecuador. Determined the needs for basic services (potable water, sewage, etc.) on those areas.

**CONECEL (Cell-phone Carrier), Guayaquil, Ecuador**

***Statistics Researcher***

**May, 1999 - December, 1999**

- Performed several statistical studies within the technical audit area which determined locations and causes for signal quality failure.

**RELEVANT CLASS  
PROJECTS**

- Face Recognition using Euclidean metric for classification with PCA, FDA and Simple Projections feature extraction. (Course: Computational Statistics I, fall 2009)
- Bayesian Analysis of Noisy Images. (Course: Computational Statistics II, spring 2010)
- Reversible Jump Markov Chain Monte Carlo Algorithm for Model Selection in Linear Regression. (Course: Computational Statistics II, spring 2010)
- Implemented machine learning methods to build models to predict antigen-antibody binding affinity. (Course: Statistical Genomics, fall 2010)

**HONORS AND  
AWARDS**

- Recipient of the LAC Students Scholarship at FSU for 4 consecutive years (2009-2013).
- IEEE BIBM 2011 Student Travel Award for excellent regular paper
- Member of Mu Sigma Rho Statistical Honor Society
- BMC Genomics special issue Journal submission invitation (for IEEE BIBM 2011 paper)
- 4.0 FSU GPA

PUBLICATIONS AND CONFERENCE PRESENTATIONS     Structure-based RNA Function Prediction using Elastic Shape Analysis. Laborde J., Srivastava A., Zhang J. 2011. IEEE International Conference on Bioinformatics and Biomedicine. DOI 10.1109/BIBM.2011.119. (acceptance rate 19.40%)

RNA global alignment in the joint sequencestructure space using elastic shape analysis. Jose Laborde, Daniel Robinson, Anuj Srivastava, Eric Klassen, and Jinfeng Zhang. Nucl. Acids Res. (2013) 41 (11): e114. doi:10.1093/nar/gkt187

An Efficient Multiple Protein Structure Comparison Method and its Application to Structure Clustering and Outlier Detection. Wei Wu, Anuj Srivastava, Jose Laborde, Jinfeng Zhang. IEEE-BIBM 2013 (Acceptance rate 18.00%).

RASS: A webserver for RNA alignment in the joint sequence-structure space. He, Gewen; Steppi, Albert; Laborde, Jose; Srivastava, Anuj; Zhao, Peixiang; Zhang, Jinfeng NAR-00287-2014

PAPERS IN PREPARATION     Laborde J., Srivastava A., Zhang J. Alignment of proteins in the joint sequence-structure space.

Laborde J., Srivastava A., Zhang J. Protein/RNA networks based on Elastic Shape Geodesic Distances.

Laborde J., Santos R., Long H., Srivastava A., Zhang J. On the Statistical Distribution of Pairwise Elastic Shape Distances of Biomolecules.

Laborde J., Zhang J., Srivastava A. Fast distance based classification of protein domains by Multiple Centroid Class Partitioning

LANGUAGES     • Fluent in English and Spanish.

AFFILIATIONS     • IEEE, ASA. (North America)  
•  $M\Sigma R$  Statistical Honor Society.  
• IASI, SEE. (Latin America)