

### **Contact Information**

Aniel Nieves-González

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### **Education**

- Ph.D., Applied Mathematics, State University of New York at Stony Brook, 2010.
- M.S., Applied Mathematics, University of Puerto Rico, Río Piedras, 2006.
- B.S., Computer Science, Physics, and Mathematics (Magna Cum Laude), University of Puerto Rico, Río Piedras, 2003.

### **Honors**

- 2003 Natural Sciences College Award, University of Puerto Rico (UPR).
- 2003 Dr. Francisco Garriga Medal, Department of Mathematics (UPR).
- 2003 Facundo Bueso Medal, Department of Physics (UPR).
- 2002 National Dean's List.
- 2002-2001 Who's Who Among Students in American Universities and Colleges.
- 2002-2001 Dean's List of the Natural Sciences College of the University of Puerto Rico, Río Piedras.
- 1998-2000 University of Puerto Rico, Registrar Honor Enrollment.

### **Positions: Teaching and Research Experience**

- January 2017 - Present. Assistant Professor. Institute of Statistics and Computerized Information Systems, University of Puerto Rico, Río Piedras campus.
- August 2012 - December 2016. Adjunct Assistant Professor. Institute of Statistics and Computerized Information Systems, University of Puerto Rico, Río Piedras campus. Duties performed in this position:

- Teaching undergraduate level courses in the following areas:
  - \* Mathematics: Quantitative Methods for Business Administration I (MECU 3031) and Quantitative Methods for Business Administration II (MECU 3032).
  - \* Statistics: Statistics for Business Administration I (ESTA 3041) and Statistics for Business Administration II (ESTA 3042).
  - \* Computer Science: Fundamental Structures of Computer Science (CCOM 3030).
- Undergraduate course coordination for the course ESTA 3041.
- Teaching graduate level (MBA) courses:
  - \* Algorithms and structures (ADMI 6807).
  - \* Decision Making (ADMI 6510).
- Course creation: Intermediate Quantitative Methods for Finance and Economy I (MECU 5001).
- Scholarly work.
- January 2011 - July 2012. Visiting Assistant Professor. Department of Mathematics, Duke University. Duties performed in this position:
  - Teaching an undergraduate mathematics course: Multivariable calculus (Math 103).
  - Scholarly work.
- February 2010 - December 2010. Graduate Assistant of Dr. David Green of the Applied Mathematics & Statistics at State University of New York at Stony Brook.
- August 2006 - January 2010. Research Assistant of Dr. Leon Moore of the Physiology and Biophysics Department at State University of New York at Stony Brook.
- 2004 - Summer 2006. Research Assistant of Dr. Mariano Marcano of the Mathematics Department at University of Puerto Rico, Río Piedras.
- Summer 2005. Graduate Summer School of the Institute of Advanced Study / Park City Mathematical Institute.
- Fall 2003. Teaching Assistant of the Department of Mathematics, University of Puerto Rico, Río Piedras.

- Summer 2002. Research Experience for Undergraduate at the Computer Science Department, University of Kentucky.
- Summer 1999. Research Experience for Undergraduate at the Physics Department, University of Florida at Gainesville.

### Scholarships

- 2006-2004 Computer Science, Engineering and Mathematics Scholarship. National Science Foundation.
- 2004-2003 Undergraduate Computer Science, Engineering and Mathematics Scholarship. National Science Foundation.

### Funding

- Fondos Institucionales para investigación (FIPI). *A framework to unravel the structure of evolutive systems: An interdisciplinary approach*. August 1, 2017 - Present. \$20,000.
- Programa de Iniciativas de investigación (PII). *Power spectrum analysis of high frequency data*. August 1, 2017. \$5,000.

### Publications

- Peer-reviewed articles.
  - *Use of PLS Components to Improve Classification on Business Decision Making*. Jose C. Vega Vilca, Aniel Nieves-Gonzalez, and Roxana Aparicio. International Journal of Data Mining & Knowledge Management Process (IJDKP) Vol. 8, No. 3, May 2018.
  - *Fluid Dilution and Efficiency of  $\text{Na}^+$  Transport in a Mathematical Model of a Thick Ascending Limb Cell*. Aniel Nieves-González, Chris Clausen, Mariano Marcano, Anita T. Layton, Harold E. Layton, and Leon C. Moore. Am J Physiol Renal Physiol 304: F634-F652, 2013.
  - *Transport Efficiency and Workload Distribution in a Mathematical Model of the Thick Ascending Limb*. Aniel Nieves-González, Chris Clausen, Anita T. Layton, Harold E. Layton, and Leon C. Moore. Am J Physiol Renal Physiol 304: F653-664, 2013
  - *Parameter estimation for mathematical models of NKCC2 cotransporter isoforms*. Mariano Marcano, Hun-Mo Yang, Aniel Nieves-González, Chris Clausen, and Leon C. Moore. Am J Physiol Renal Physiol 296: F369-F381, 2009.

- Thesis and Dissertation.
  - *A Multiscale Model of the Thick Ascending Limb*. Aniel Nieves-González. Dissertation submitted to the Department of Applied Mathematics & Statistics in fulfillment of the requirements for the Ph.D. degree. December 2010.
  - *An Optimization Algorithm for a Sodium-Potassium-Chloride Co-transporter Model*. Aniel Nieves-González. Thesis submitted to the Department of Mathematics in fulfillment of the requirements for the M.S. degree. July 2006.
- Peer-reviewed poster publications.
  - *A dynamic model of the Interactions between Acropora Cervicornis and its environment*. Ruiz-Diaz, C. P., Nieves-González, A., Toledo-Hernández, C, and Roberson, L. M. 13th Coral Reef Symposium 2016. Poster ID: 526.
  - *Low basolateral  $\text{Na}^+$  pump activity in macula densa cells may be necessary to generate tubuloglomerular feedback responses*. Mónica Nadal-Quirós, Aniel Nieves-González, Leon C. Moore, and Mariano Marcano. The FASEB Journal, 2014; 28 (Abstract 1789).
  - *Sodium Transport in a Mathematical Model of a Macula Densa Cell*. Mónica Nadal-Quirós, Aniel Nieves-González, Leon C. Moore, and Mariano Marcano. The FASEB Journal, 2013; 27 (Abstract 912.25).
  - *A kinetic model for sodium transport via a non-gastric  $\text{H}^+$  ( $\text{Na}^+$ )/ $\text{K}^+$  ATPase*. Mónica Nadal-Quirós, Aniel Nieves-González, Leon C. Moore, and Mariano Marcano. The FASEB Journal, 2012; 26 (Abstract 867.1).
  - *Dynamical Properties of the Thick Ascending Limb (TAL): a modeling study*. Aniel Nieves-González, Chris Clausen, Harold E. Layton, Anita T. Layton, and Leon C. Moore. The FASEB Journal, 2011; 25 (Abstract 665.8).
  - *Efficiency of sodium transport in a model of the Thick Ascending Limb (TAL)*. Aniel Nieves-Gonzalez, Chris Clausen, Mariano Marcano, Harold E. Layton, Anita T. Layton, and Leon C. Moore. The FASEB Journal, 2011 25 (Abstract 1041.21).
  - *Efficiency of sodium transport in the thick ascending limb*. Aniel Nieves González, Leon C. Moore, Chris Clausen, Mariano Marcano,

- Harold E. Layton, and Anita T. Layton. The FASEB Journal, 2010; 24 (Abstract No. 606.8).
- *Mathematical model of interactions between cell volume regulation and transport in cortical TAL cells.* Aniel Nieves-González, Chris Clausen, Harold E. Layton, and Leon C. Moore. The FASEB Journal, 2008; 22 (Abstract No. 1158.3).
  - *Kinetic Models for Ammonium Transport by the NKCC2 Cotransporter.* Mariano Marcano, Hun-Mo Yang, Aniel Nieves-González, Chris Clausen, and Leon C. Moore. The FASEB Journal, 2007; 21 (Abstract No. 736.7).
  - *Estimation of Acid-Base and  $\text{NH}_4^+$  Transport Parameters in a TAL Cell Model Using Inverse Methods.* Aniel Nieves-González, Mariano Marcano, Chris Clausen, Harold E. Layton, and Leon C. Moore. The FASEB Journal, (Abstract No. 602.21).
  - *Parameter Estimation for Models of  $\text{NH}_4^+$  Transport by the Renal Na-K-2Cl Cotransporter.* Mariano Marcano, Hun-Mo Yang, Aniel Nieves-González, Chris Clausen, and Leon C. Moore. The FASEB Journal, (Abstract No. 602.22).
  - *Kinetic Model for Ammonium Transport by NKCC2 Cotransporter.* Aniel Nieves-González, Mariano Marcano, Hun-Mo Yang, Chris Clausen, Leon C. Moore. Abstract for poster presentation, Mathematical Biosciences Institute, Ohio State University February 19-23, 2007.
  - *An Optimization Problem for a  $\text{Na}^+\text{-K}^+\text{-2Cl}^-$  Cotransporter Model.* Aniel Nieves-González, Mariano Marcano. Abstract for poster presentation, Seminar for Research in Mathematical Sciences (SIDIM in Spanish). February 2006.

### Contributed Talks

- *Dynamical Properties of the Thick Ascending Limb (TAL): a modeling study.* Aniel Nieves-González. Seminar at University of Puerto Rico, Río Piedras Campus. College of Natural Sciences Biomedical Research Training Center, Nov. 2 2012.
- *Efficiency of sodium transport in a model of the Thick Ascending Limb.* Aniel Nieves González, Leon C. Moore, Chris Clausen, Mariano Marcano, Harold E. Layton, and Anita T. Layton. Abstract for oral presentation in Modelling in Renal Physiology Mini-Symposium. Society of Mathematical Biology Meeting (SMB). Rio de Janeiro, July 2010.

- *A Lyapunov function for an Epithelial Cell Model of the Thick Ascending Limb.* Aniel Nieves-González, Mariano Marcano, and Leon C. Moore. Abstract for oral presentation, Seminar for Research in Mathematical Sciences (SIDIM in Spanish). February 2010.

### **Manuscripts in preparation**

- *A mathematical model of the interactions between Acropora cervicornis and its environment.* Aniel Nieves-González and Claudia P. Ruiz.
- *Bifurcation analysis of a mathematical model of a coral.* Aniel Nieves-González and Mariano Marcano.
- *Dynamical Properties of the Thick Ascending Limb (TAL): a modeling study.* Aniel Nieves-González, Mariano Marcano, Chris Clausen, Harold E. Layton, and Leon C. Moore.
- *Parallel Implementation of a splitting method to solve a mathematical model of the Thick Ascending Limb (TAL).* Aniel Nieves-González, Mariano Marcano, Chris Clausen, and Leon C. Moore.

### **Professional Affiliations**

- Society for Industrial and Applied Mathematics.
- Society for Mathematical Biology.
- American Physiological Society.

### **Programming languages**

- C, C++, MATLAB<sup>®</sup>, and R.