Israel A. Almodóvar-Rivera

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RESEARCH INTEREST

Cluster Analysis, Data Mining, Data Science, Data Visualization, Analysis of Massive Datasets, functional Magnetic Resonance Imaging, Statistical Computing, Statistical Learning, Epidemiology, Statistical Education, Consulting.

EDUCATION

Ph.D., Statistics *April 2017*
Iowa State University, Ames, Iowa
Thesis title :Some contributions to k-means clustering problems.
Major Professor: Dr. Ranjan Maitra.

M.S., Statistics *April 2014*
Iowa State University, Ames, Iowa
Creative Component: A efficient k-means algorithms for partitioning a semi-supervised framework for big data problems.
Major Professor: Dr. Ranjan Maitra.

M.S., Applied Mathematics *April 2011*
University of Puerto Rico at Río Piedras
Thesis title: The Objective and Robust Bayesian Student's t test.
Major Professor: Dr. Luis Raúl Pericchi Guerra.

B.S., Mathematics *April 2008*
University of Puerto Rico at Río Piedras

PROFESSIONAL EXPERIENCE

University of Puerto Rico at Medical Science Campus, Department of Biostatistics and Epidemiology, Puerto Rico, USA

- Statistical consultant at Postdoctoral Master Program for Translational Research *October 2018-Present*
- Visiting Assistant Professor of Biostatistics *August 2017-Present*
- Instructor *September 2016- May 2017*

AWARDS

1. 2019 Symposium on Data Science & Statistics- Student & Early Career Travel Award. *May 2019*
2. Medical Device and Diagnostic (MDD) Section's 2018 student and young investigator competition award.Received at Joint Statistical Meeting (JSM) 2018 in Vancouver, BC. *August 2018.*
3. Alliance for Graduate Education and the Professoriate (AGEP) Fellowship at Iowa State University. *August 2011-May 2016*
4. SACNAS conference 2013 travel scholarship award. *October 2013*
5. Alan Turing Fellowship at University of Puerto Rico Río Piedras Campus. *August 2007-May 2011.*

RESEARCH SUPPORT

1. Principal Investigator, *Cross-Cultural Adaptation of the Survey on Working Conditions, Employment, and Health in the aftermath of Hurricanes Irma and Maria in Puerto Rico.* Sub-award from the NIOSH funded Sunshine Education and Research Center at the University of South Florida. $8,000.

PUBLICATIONS

PEER REVIEWED

1. **Almodóvar-Rivera, I.**, & Maitra, R. (2019). *FAST Adaptive Smoothing and Thresholding for Improved Activation Detection in Low-Signal fMRI.* IEEE Transactions on Medical Imaging. doi: 10.1109/TMI.2019.2915052.
   I was awarded 2018 Student and Young Investigator Paper Competition award from the ASA Section on Medical Devices and Diagnostic for an early version of the manuscript.
2. **Almodóvar-Rivera, I.**, & Maitra, R. (2018). *Kernel-estimated Nonparametric Overlap-Based Syncytial Clustering*. arXiv preprint arXiv:1805.09505. Reviewed received for The Journal of Machine Learning Research.
3. Veach, E., Xique, I., Johnson, J., Lyle, J., **Almodóvar**, I., Sellers, K. F., & Jackson, M. C. (2014). *Race matters: analyzing the relationship between colorectal cancer mortality rates and various factors within respective racial groups*. Frontiers in public health, 2, 239.
4. **Almodóvar, I.**, & Pericchi, L. (2012).*New criteria for the choice of training sample size for model selection and prediction: the cubic root rule*. Revista de la Facultad de Ciencias, 1(1), 7-22.

CONFERENCE PROCEEDINGS

1. Hernández-Torres, E., Segarra, M., Villalobos, M., **Almodóvar-Rivera, I.**, Ramirez-Marrero, F., & Martínez, L. D. R. (2019). *Health Related Fitness Comparison between 1st Year and 4th-6th Year College Students in Puerto Rico*: 3387 Board# 75 June 1 9:30 AM-11:00 AM. Medicine & Science in Sports & Exercise, 51(6).
2. Martínez-Colón, L. D. R., Segarra, M., Villalobos, M., **Almodóvar-Rivera, I.**, Ruiz-Nieves, M., & Ramirez-Marrero, F. (2019). *Achievement of Healthy Fitness Zone by Academic Major in College Students from Puerto Rico*: 3383 Board# 71 June 1 9:30 AM-11:00 AM. Medicine & Science in Sports & Exercise, 51(6).
3. Martínez-Rodríguez, J. A., del Rosario Martínez, L., Nevárez, C., Rivera, M., **Almodóvar, I.**, & Ramírez-Marrero, F. A. (2019). *Physical Activity, Sedentary Time, And BMI In 1st-4th Grade Hispanic Children In Puerto Rico*: 904: Board# 138 May 29 2: 00 PM-3: 30 PM. Medicine & Science in Sports & Exercise, 51(6), 228.

SOFTWARES AUTHORED

1. **RKNOBSynC:** `R` package for merging clusters components using non-parametric estimation of the pairwise overlap. Available at https://github.com/ialmodovar/RKNOBSynC.
2. **RFASTfMRI:** `R` package for Fast Adaptive Smoothing and Threshold (FAST) in functional magnetic resonance imaging (fMRI). Available at https://github.com/ialmodovar/RFASTfMRI.
3. **ssKmeans:** `C` source code for performing semi-supervised k-means algorithm.

STUDENTS MENTHORED

1. Vanessa Gómez-Vargas: *Survival analysis of screening patients with cervical cancer in Puerto Rico.* MS. Epidemiology (2019).
2. Faviola Ortiz-Chevres: *Association of measures of abdominal obesity, prediabetes, and insulin resistance in overweight and obese adults.* MS. Epidemiology (2019).
3. Laura Zayas-Martínez: *Development of the Caribbean Anthropometric Index (CAI).* MS. Epidemiology (2019).
4. Reynaldo Pérez-Alicea: *Relationship between Substance Use and Risky Sexual Behaviors in a Population-Based Sample of Hispanic Women*, MS. Epidemiology (2017).
5. Mayrim Bernard-Vega: *Disparities in the prevalence of diabetes, comorbidities and the use of health services by type of health insurance in the pediatric population of Puerto Rico*, MS. Epidemiology (2017).

PRESENTATIONS

1. Kernel-estimated Nonparametric Overlap-Based Syncytial Clustering. *2019 Symposium on Data Science & Statistics.* Bellevue, Washington. *May 2019*
2. Invited Seminar: The Importance of Biostatistics in Clinical and Translational Research. *Research Seminar at University of Puerto Rico-Medical Sciences Campus.* San Juan, Puerto Rico. *February 2019*
3. FAST: Fast adaptive smoothing and thresholding for accurate activation detection in low-signal functional magnetic resonance imaging. *Joint Statistics Meeting 2018.* Vancouver, British Columbia, Canada. *August 2018.*
4. Some contributions to k-means clustering algorithm. *Department Seminar at Iowa State University.* Ames, Iowa. *April 2017*
5. Efficient k-means semi-supervised clustering algorithms for Big Data Problems. *Graduate Minority Assistantship Program (GMAP) Research Symposium at Iowa State University.* Ames, Iowa. *October 2015*
6. Invited Seminar: A semi-supervised k-means clustering algorithm. *SIAM-ISU Student Chapter Seminar at Iowa State University.* Ames, Iowa. *November 2013*
7. A semi-supervised k-means clustering algorithm. *40th SACNAS National Conference.* San Antonio, Texas. *October 2013*
8. The Objective and Robust Bayesian Student's t test *40th SACNAS National Conference.* San Antonio, Texas. *October 2013*
9. The Objective and Robust Bayesian Student's t test. *SIDIM-Seminario Inter-universitario de Investigación en Ciencias Matemáticas XXVI.* Humacao, Puerto Rico. *March 2011*
10. Bayesian Discrimination of the Binomial Model. *Presentation Research Experienced for Undergraduate (REU).* Iowa City, Iowa. *July 2009*

PROFESSIONAL DEVELOPMENT

1. STEM Faculty Launch Workshop at Worcester Polythenic Institute (WPI), Worcester MA. Premier workshop for graduate students and post-doctoral researchers seeking tenure-track positions in the STEM fields. *September 2016*
2. Preparing Future Faculty at Iowa State University, Ames, Iowa. Developing young faculty candidates in transition to academia. *2015*
3. Parallel Programming and Optimization for Intel Architectures Developer. Workshop for parallel computing sponsored by Intel Corporation. *2015*

4. Modern Math workshop at SACNAS National Conference, San Antonio, Texas. Participant as recipient of the SACNAS travel scholarship award. *2013*
5. Conference on New Statistical Methods for Next Generation Sequencing Data Analysis, Ames, Iowa *2012*
6. SACNAS National Conference, Seattle, Washington. *2012*
7. Joint Mathematics Meeting, San Francisco, California. *2010*
8. Third Annual Iowa Mathematical Field of Dreams Conference and StatFest Conference at University of Iowa, Iowa City. *2009*
9. Computational Modeling 4th Interdisciplinary Research Workshop- Sponsored by Puerto Rico Louis Stoke Alliance for Minority Participation, Mayagüez, Puerto Rico. *2008*

EXTRACURRICULAR ACTIVITIES

1. Informatics Committee of School of Public Health: President *September 2017-Present*
2. Asociación de Profesores Puertorrriqueños Universitarios (APPU) *April 2018-Present.*
3. Statistical Computing Section at American Statistical Assocation (ASA) *December 2016-Present.*
4. Medical Devices and Diagnostics (MDD) section at American Statistical Assocation (ASA) *December 2016-Present.*
5. Statistics and Community (STATCOM) *January 2015-June 2015.*
6. Iowa State University SACNAS chapter, Founding member of the ISU SACNAS chapter and vice-president. *August 2013-July 2015*
7. Latino Graduate Student Association at Iowa State University *August 2013-May 2016.*
8. Iowa State University, STAT-ers Safety Committee, Fall 2012. *August 2011 to May 2016*
9. Advancing Hispanics/Chicanos Native Americans in Science(SACNAS) *October 2012-Present.*
10. American Statistical Association (ASA) *January 2012-Present.*

SKILLS

1. Languages:
   (a) Spanish: write fluent, read fluent and speak fluent.
   (b) English: write fluent, read fluent and speak fluent.
2. Software Experience:
   (a) TEX, LATEX : Use LATEX homework, projects, articles and most documents style.
   (b) `C`: program for efficient computation.
   (c) `GSL`: GNU Scientific Library (GSL) is a numerical library for `C` and `C++` programmers.
   (d) `R` software: Mostly use for research/teaching purposes. Non-parametric statistics, cluster analysis, data visualization, unsupervised learning.
   (e) `JMP`: Taught it for three semester at Iowa State University for business statistics.
   (f) `Stata`: For statistical analysis in health sciences.
   (g) `AFNI/SUMA`: Software for the statistical analysis of functional neuroimaging.