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RESEARCH INTEREST

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

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

- Biostatistical consultant at Postdoctoral Master Program for Translational Research *October 2018-Present*
- Assistant Professor of Biostatistics *August 2017-Present*

AWARDS

1. APPU: Fondos viajes congresos (Travel Award). *February 2020*
2. 2019 Symposium on Data Science & Statistics- Student & Early Career Travel Award. *May 2019*
3. Medical Device and Diagnostic (MDD) Section's 2018 student and young investigator competition paper award. Received at Joint Statistical Meeting (JSM) 2018 in Vancouver, BC. *August 2018.*

EXTRAMURAL FUNDING

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

1. Gonzalez, A., Duconge, J., Franqui, H., Feliu, R., Roche, A., **Almodóvar-Rivera, I.** (2021). *Insight on the Genetics of Atrial Fibrillation in Puerto Rican Hispanics*. Stroke Research and Treatment. Volume 2021 1-9. doi: 10.1155/2021/8819896.
2. **Almodóvar-Rivera, I. A.**, & Maitra, R. (2020). *Kernel-estimated nonparametric overlap-based syncytial clustering*. Journal of Machine Learning Research, 21(122), 1-54.
3. **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.
4. 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.
5. **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. Santos-Leon, E., & **Almodóvar-Rivera, I.**.*Non-parametric clustering diagnostic for k-means clustering solutions.* Presented at SIDIM 2020.
2. Gómez-Vargas, V., **Almodóvar-Rivera, I.**, Ortiz-Ortiz, K. J., Torres-Cintrón, C. R., & Ortiz-Martńez, A. P. (2019). Abstract C023: *Cervical cancer survival analysis based on screening practices and the socioeconomic position index in Puerto Rico.* DOI: 10.1158/1538-7755.DISP19-C023.
3. Ortiz-Chevres, F., **Almodóvar-Rivera, I.**, Joshipura, K., Rodriguez-Figueroa, L., & Pérez-Cardona, C. M. (2019, November).*Assessment of the sagittal abdominal diameter as an indicator of prediabetes and insulin resistance in overweight and obese adults*. In APHA's 2019 Annual Meeting and Expo (Nov. 2-Nov. 6). American Public Health Association.
4. 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).
5. 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).
6. 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.
7. de la Torre, M. C., Espinosa, A. D. J., Álvarez, C. D., Bernaola, P. R., González, K. M., **Almodóvar-Rivera, I.**, & Pérez-Cardona, C. M. (2018, November). *Impact of Hurricane María upon older adults in Puerto Rico: An assessment of hurricane stressors and depression and anxiety symptoms in the*

aftermath. In APHA's 2018 Annual Meeting & Expo (Nov. 10-Nov. 14). American Public Health Association.

SOFTWARE AUTHORED

1. **SynClustR:** `R` package for syncytial clustering algorithms.
   Available at `https://github.com/ialmodovar/SynClustR`.
2. **RFASTfMRI:** `R` package for Fast Adaptive Smoothing and Threshold (FAST) in functional magnetic resonance imaging (fMRI).
   Available at `https://github.com/ialmodovar/RFASTfMRI`.

COURSES TAUGHT

1. **Data mining**- Full instructor, in charged of lectures and homework. Software used `R`.
2. **Applied multivariate analysis**- Full instructor, in charged of lectures and homework. Techniques for displaying and analyzing multivariate data software used `R`.
3. **New topics in biostatistics**- Co-Teaching instructor, in charged of lectures and homework. Topics in machine learning. I was in charged in leading the time series, classification, principal components, and clustering topics in the health sciences more specific epidemiology students.
4. **Computational Statistics**- Full instructor, in charged of lectures, homework and exams. Introduction to the `R` statistical software in the health sciences.
5. **Clinical Laboratory Statistics**- Full instructor, in charged of lectures, homework and exams. Introductory statistics class to medical technologist majors.
6. **Applied non-parametric statistics**- Full instructor, in charged of lectures, homework and exams. Topics covered are nonparametric methods and inference in the health sciences. Software used `R`.
7. **Applied survey sampling**- Full instructor, in charged of lectures, homework and exams. Topics sample surveys, survey processes and methods of designing sample surveys in the health sciences. Software used `R`.
8. **Introduction to Biostatistics I & II**- Full instructor, in charged of lectures, homework and exams. Topics cover are statistical concepts and their use in the health science; collecting, organizing and drawing conclusions from data; elementary probability; distributions; regression; estimation and hypothesis testing. Software used `R`.
9. **Introduction to Business Statistics**- Teaching graduate assistant in charged of the laboratory section. Topics multiple regression analysis; model diagnostics; applications in analysis of variance and time series using `JMP`.

STUDENTS MENTORED

1. (Current) Keyla Narvaez, MS. Epidemiology (Expected 2021).
2. (Current) Fernando Mercado, MS. Epidemiology (Expected 2021).
3. (Current) Veronica García, MS. Epidemiology (Expected 2021).
4. Kelyvette Ortiz-Fontanez: *Mortality associated with mental health diseases in Puerto Rico: 2015-2018* MS. Demography (2020).
5. Daniela Medina-Camacho: *Sociodemographic profile of mothers in Puerto Rico of according to the birth intervals:2006-2018* MS. Demography (2020).
6. Eliezer Santos-Leon, *Non-parametric clustering diagnostic for k-means clustering solutions* MPH. Biostatistics (2020).
7. Vanessa Gómez-Vargas: *Survival analysis of screening patients with cervical cancer in Puerto Rico.* MS. Epidemiology (2019).

8. Faviola Ortiz-Chevres: *Association of measures of abdominal obesity, prediabetes, and insulin resistance in overweight and obese adults.* MS. Epidemiology (2019).
9. Laura Zayas-Martínez: *Development of the Caribbean Anthropometric Index (CAI).* MS. Epidemiology (2019).
10. Reynaldo Pérez-Alicea: *Relationship between Substance Use and Risky Sexual Behaviors in a Population-Based Sample of Hispanic Women*, MS. Epidemiology (2017).
11. 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. FAST: Fast adaptive smoothing and thresholding for accurate activation detection in low-signal functional magnetic resonance imaging. *Invited Webinar FDA November 2020*
2. Survey on Working Conditions, Employment, and Health Methodology for validation in Puerto Rico. *Southeast Regional Research Symposium.* Birmingham, Alabama. *February 2020*
3. Kernel-estimated Nonparametric Overlap-Based Syncytial Clustering. *Joint Mathematics Meeting.* Denver, Colorado. *January 2020*
4. Kernel-estimated Nonparametric Overlap-Based Syncytial Clustering. *2019 Symposium on Data Science & Statistics.* Bellevue, Washington. *May 2019*
5. 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*
6. 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.*
7. Some contributions to k-means clustering algorithm. *Department Seminar at Iowa State University.* Ames, Iowa. *April 2017*
8. 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*
9. Invited Seminar: A semi-supervised k-means clustering algorithm. *SIAM-ISU Student Chapter Seminar at Iowa State University.* Ames, Iowa. *November 2013*
10. A semi-supervised k-means clustering algorithm. *40th SACNAS National Conference.* San Antonio, Texas. *October 2013*
11. The Objective and Robust Bayesian Student's t test *40th SACNAS National Conference.* San Antonio, Texas. *October 2013*
12. The Objective and Robust Bayesian Student's t test. *SIDIM-Seminario Inter-universitario de Investigación en Ciencias Matemáticas XXVI.* Humacao, Puerto Rico. *March 2011*
13. Bayesian Discrimination of the Binomial Model. *Presentation Research Experienced for Undergraduate (REU).* Iowa City, Iowa. *July 2009*

EXTRACURRICULAR ACTIVITIES

1. Award commimmette member of the 2021 ASA Statistics Computing and Statistical Graphics (SCSG) Student Paper Competition.
2. Reviewer for the `R` journal.
3. Reviewer for the Puerto Rico Health Sciences Journal.
4. Informatics Committee of School of Public Health: President *September 2017-May 2020*
5. Asociación de Profesores Puertorrriqueños Universitarios (APPU) *April 2018-Present.*
6. Statistical Computing Section at American Statistical Association (ASA) *December 2016-Present.*
7. Medical Devices and Diagnostics (MDD) section at American Statistical Assocation (ASA) *December 2016-Present.*
8. 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/JMP/Stata` software: `R` is mostly use for research/teaching purpose. Non-parametric statistics, cluster analysis, data visualization, unsupervised learning. `JMP/Stata` mostly use for teaching purposes.
   (e) `AFNI/SUMA`: Software for the statistical analysis of functional neuroimaging.