JORGE MARTÍN AREVALILLO

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Address: Department of Statistics and Operational Research. UNED. Pº Senda del Rey. 28040. Madrid (Spain). Phone number: +34 91 398 72 64
Email: jmartin@ccia.uned.es / jmartin.arevalillo@gmail.com
Web: www.uned.es/personal/jmartin
Linkedin: Jorge Martín Arevalillo

Education (University Nacional Educación a Distancia)

- Bachelor of Science (Mathematics). 1996

- Ph.D. Statistics. 2003

Experience at university

- Associate Professor Ph.D. UNED. Madrid (Spain). 01/2012 -

- Collaborator Assistant Ph.D. UNED. Madrid (Spain). 07/2005 - 12/2011

- Assistant Professor. UNED. Madrid (Spain). 02/2002 - 06/2005

- Teaching Assistant. UNED. Madrid (Spain). 02/1997 - 01/2002

- Instructor: CEURA center of UNED. Madrid (Spain). 02/2012 - 06/2015

- Instructor: Madrid center of UNED. Madrid (Spain). 09/1996 - 10/2010

- Research fellow: Institute of Applied Mathematics. State University of San Luis (Argentina). 07/1996 - 08/1996

MS. STUDENTS

- 2010. Aitor Gutiérrez Fajardo. *Statistical learning with support vector machines and kernel methods. Foundations and applications* (in Spanish)

- 2009. José Ignacio Ezquerra. *An introduction to the Boosting methodology for statistical learning* (in Spanish)

Professional experience

- Data Scientist at BBVA Continental. Lima (Perú). 03/2013 -

- Data Scientist at Hitachi Consulting: Aptivo. Madrid (Spain). 03/2010 - 08/2011. Final client. *McDonald's Spain*

- Data Scientist at The Guidance S.L. Madrid (Spain). 10/2010 - 06/2011. Final client. *Advertising company Yell Publicidad S.A*

- Market Research Project Manager (Data Mining Consulting) at Brand Value. Madrid (Spain). 12/2007 - 04/2008. Final client. *Carrefour retail*

- Data Mining Consultant at Neuronics Data Intelligence. Madrid (Spain). 03/2007 - 07/2007. Final client. *Advertising company Yell Publicidad S.A*

- Senior Data Mining Researcher at Salford Systems. San Diego, CA (USA). 08/2006 - 10/2006

- Data Mining Consultant at Indigo Value Analysis. Madrid (Spain). 05/2004 - 06/2004. Final client. *Insurance company Mutua Madrileña Automovilista*

- Statistician at Trabajos Catastrales S.A. Pamplona (Spain). 03/2002 - 04/2002. Final client. *Confederación Hidrográfica del Tajo*

Instructor for institutions and private companies

- UNED Foundation. Madrid (Spain). 01/2004 - 09/2016

- Data Mining Consulting. Lima (Perú). 05/2016 - 06/2016

- DECIDE SOLUCIONES. Madrid (Spain). 01/2014 - 05/2014

- CIFF Business School. Madrid (Spain). 02/2004 - 07/2012

- Boston Consulting Group. Madrid (Spain). 03/2008 - 10/2009

- Universidad - Empresa Foundation. Madrid (Spain). 10/1999 - 06/2006

Publications (books)

1. Jorge Martín Arevalillo, Hilario Navarro Veguillas (2011). PROBLEMAS RESUELTOS DE INICIACIÓN AL ANÁLISIS ESTADÍSTICO DE DATOS. CIENCIAS E INGENIERÍA. Editorial: UNED. ISBN: 9788436262131

Publications (papers)

1. Jorge M Arevalillo (2019) *A machine learning approach to assess price sensitivity with application to automobile loan segmentation.* Applied Soft Computing. **76**. $390 - 399$.

2. Jorge M Arevalillo, Hilario Navarro (2019) *A stochastic ordering based on the canonical transformation of skew-normal vectors.* TEST. **28**(**2**). $475 - 498$.

3. Lucia Trilla-Fuertes, Angelo Gámez-Pozo, Guillermo Prado-Vázquez, Andrea Zapater-Moros, Mariana Díaz-Almirón, Jorge M Arevalillo, María Ferrer-Gómez, Hilario Navarro, Paloma Maín, Enrique Espinosa, Álvaro Pinto, Juan Ángel Fresno Vara (2019) *Biological molecular layer classification of muscle-invasive bladder cancer opens new treatment opportunities.* BMC Cancer **19**:636

4. Guillermo Prado-Vazquez, Angelo Gamez-Pozo, Lucia Trilla-Fuertes, Jorge M Arevalillo, Andrea Zapater-Moros, Maria Ferrer-Gomez, Mariana Diaz-Almiron, Rocio Lopez-Vacas, Hilario Navarro, Paloma Main, Jaime Feliu, Pilar Zamora, Enrique Espinosa, Juan Ángel Fresno Vara (2019) *A novel approach to triple-negative breast cancer molecular classification reveals a luminal immune-positive subgroup with good prognoses.* Scientific Reports **9**, Article number: 1538.

5. Andrea Zapater-Moros, Ángelo Gámez-Pozo, Guillermo Prado-Vázquez, Lucía Trilla-Fuertes, Jorge M. Arevalillo, Mariana Díaz-Almirón, Hilario Navarro, Paloma Maín, Jaime Feliu, Pilar Zamora, Enrique Espinosa, Juan Ángel Fresno Vara (2018). *Probabilistic Graphical Models Relate Immune Status With Response To Neoadjuvant Chemo-Therapy In Breast Cancer.* Oncotarget. **9**(**45**). $27586 - 27594$.

6. Lucia Trilla-Fuertes, Angelo Gámez-Pozo, Jorge M Arevalillo, Mariana Diaz-Almiron, Guillermo Prado-Vazquez, Andrea Zapater-Moros, Hilario Navarro, Rosa Aras-Lopez, Irene Dapia, Rocio Lopez-Vacas, Paolo Nanni, Sara Llorente-Armijo, Pedro Arias, Alberto M Borobia, Paloma Main, Jaime Feliu, Enrique Espinosa (2018). *Molecular characterization of breast cancer cell response to metabolic drugs.* Oncotarget. **9**(**11**). $9645 - 9660$.

7. Lucia Trilla-Fuertes, Angelo Gamez-Pozo, Maria Urbanowicz, Gustavo Ruiz-Ares, Juan M Sepulveda, Guillermo Prado-Vazquez, Jorge M. Arevalillo, Andrea Zaparter-Moros, Hilario Navarro, Rocío López-Vacas, Ray Manneh, Irene Otero, Felipe Villacampa, Jesus M. Paramio, Juan A.

Fresno-Vara, Daniel Castellano (2017). *Urothelial cancer proteomics provides both prognostic and functional information.* Scientific Reports **7**, Article number: 15819.

8. Jorge M Arevalillo, Marcelo B Sztein, Karen L Kotloff, Myron M Levine, Jakub K Simon (2017). *Identification of immune correlates of protection in Shigella infection by application of machine learning.* Journal of Biomedical Informatics. **74**. $1-9$

9. Angelo Gámez-Pozo, Lucía Trilla-Fuertes, Julia Berges-Soria, Nathalie Selevsek, Rocío López-Vacas, Mariana Díaz-Almirón, Paolo Nanni, Jorge M Arevalillo, Hilario Navarro, Jonas Grossmann, Francisco Gayá Moreno, Rubén Gómez Rioja, Guillermo Prado-Vázquez, Andrea Zapater-Moros, Paloma Main, Jaime Feliú, Purificación Martínez del Prado, Pilar Zamora, Eva Ciruelos, Enrique Espinosa, Juan Ángel Fresno Vara (2017). *Functional proteomics outlines the complexity of breast cancer molecular subtypes.* Scientific Reports. **7**. Article number: 10100

10. Jorge M Arevalillo (2016). *The Cornish-Fisher Expansion for a Class of Statistics in First Order Autoregression.* Communications in Statistics - Theory and Methods. **45(11)**. $3196-3205$

11. Paloma Maín, Jorge M Arevalillo, Hilario Navarro (2015). *Local effect of asymmetry deviations from Gaussianity using information-based measures.* In Proceedings of the 2nd Int. Electron. Conf. Entropy Appl. $15-30$. November 2015. Sciforum Electronic Conference Series, Vol 2, 2015, B002. doi:10.3390/ecea-2-B002

12. Angelo Gámez-Pozo, Julia Berges-Soria, Jorge M Arevalillo, Paolo Nanni, Rocío López Vacas, Hilario Navarro, Jonas Grossmann, Carlos A Castañeda, Paloma Main, Mariana Diaz-Almiron, Enrique Espinosa, Eva Ciruelos, Juan Ángel Fresno Vara (2015). *Combined label-free quantitative proteomics and microRNA expression analysis of breast cancer unravel molecular differences with clinical implications.* Cancer Research. **75** : $2243-2253$

13. Jorge M Arevalillo, Hilario Navarro (2015). *A note on the direction maximizing skewness in multivariate skew-t vectors.* Statistics & Probability Letters. **96**. $328-332$

14. Jorge M Arevalillo (2014). *Higher-order approximations to the quantile of the distribution for a class of statistics in the first-order autoregression.* TEST. **23(2)**. $291-310$

15. Jorge M Arevalillo, Hilario Navarro (2013). *Exploring correlations in gene expression microarray data for maximum predictive - minimum redundancy biomarker selection and classification.* Computers in Biology and Medicine. **43(10)**. $1437-1443$

16. Jorge M Arevalillo (2012). *Exploring the relation between the r^* approximation and the Edgeworth expansion.* Metrika. **75**(**8**). $1009 - 1024$

17. Sara Jurdao, Emilio Chuvieco, Jorge M Arevalillo (2012). *Modelling forest fire ignition probability from satellite estimations of life fuel moisture content.* Fire Ecology. **8**(**1**). $77 - 97$

18. Jorge M Arevalillo, Hilario Navarro (2012). *A study of the effect of kurtosis on discriminant analysis under elliptical populations.* Journal of Multivariate Analysis. **107**. $53 - 63$

19. Jorge M Arevalillo, Hilario Navarro (2011). *Uncovering bivariate interactions in high dimensional data using Random Forests with data augmentation.* Fundamenta Informaticae, Special issue on Machine Learning in Bioinformatics. **113**(**2**). $97 - 115$

20. Jorge M Arevalillo, Hilario Navarro (2011). *A new method for identifying bivariate differential expression in high dimensional microarray data using quadratic discriminant analysis.* BMC Bioinformatics. **12**. (Suppl 12):S6. doi:10.1186/1471-2105-12-S12-S6

21. S. Jurdao, J. M. Arevalillo, E. Chuvieco, M. Yebra (2011). *Development of a method to transform Life Fuel Moisture Content into ignition probability.* Proceedings of the 34th International Symposium on Remote Sensing of Environment. Sydney

22. Jorge M Arevalillo, Hilario Navarro (2009). *Using random forests to uncover bivariate interactions in high dimensional small data sets.* Proceedings of the KDD-09 Workshop on Statistical and Relational Learning in Bioinformatics. 3-6. París. ACM New York, NY, USA. ISBN: 978-1-60558-667-0 doi.10.1145/1562090.1562091

23. Jorge M Arevalillo (2003) *Inverting a saddlepoint approximation.* Statistics & Probability letters. **61**. $421 - 428$

24. J. M. Arevalillo (2001) *A Second Order Approximation for the Inverse of the Distribution Function of the Sample Mean.* Kybernetika. **37**. $91 - 102$

Participation in congresses, conferences and seminars

1. XXXVIII Meeting of the Spanish Statistical and Operational Research Society. Alcoi (Spain). 2019

2. I Conference on Transfer between Mathematics & Industry (CTMI 2019). Santiago de Compostela (Spain). 2019

3. 9th Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA 2019) Madrid. 2019

4. Cádiz University. Cádiz (Spain). 2019

5. 11th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2018). Pisa. 2018

6. 25th Biennial Congress of the European Association for Cancer Research Amsterdam. 2018

7. XXXVII Meeting of the Spanish Statistical and Operational Research Society. Oviedo (Spain). 2018

8. 10th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2017). London. 2017

9. EACR-AACR-SIC Special Conference 2017: The Challenges of Optimizing Immuno and Targeted Therapies: From Cancer Biology to the Clinic. Florencia. 2017

10. UNED workshop on Big Data. Madrid. 2016

11. 17th International Conference on Systems Biology. Barcelona. 2016

12. 2nd International Electronic Conference on Entropy and Its Applications (on-line). 2015

13. Big Data Analytics Summit. Lima (Perú). 2015

14. San Antonio Breast Cancer Symposium. SABCS 2013

15. University Complutense. Madrid (Spain). 2013

16. Salford Analytics and Data Mining Conference. San Diego (USA). 2012

17. XXXIII Meeting of the Spanish Statistical and Operational Research Society. Madrid (Spain). 2012

18. 34th International Symposium on Remote Sensing of Environment. Sydney (Australia). 2011

19. $9th$ International Workshop on Data Mining in Bioinformatics. BIOKDD10. Washington (USA). 2010

20. KDD-09 Workshop on Statistical and Relational Learning in Bioinformatics. Paris (France). 2009

21. PAS 2009 Annual Meeting. Baltimore (USA). 2009

22. CRISP - DM Workshop. Chicago (USA). 2006

23. Salford - Systems Data Mining Conference. San Diego (USA). 2006

24. XXV European Meeting of Statisticians. Oslo (Norway). 2005

25. Salford Systems Data Mining Workshop. Madrid (Spain). 2005

26. XXVIII Meeting of the Spanish Statistical and Operational Research Society. Cádiz (Spain). 2004

27. XIV summer course of the University Nacional a Distancia. Seminar on "Data Mining techniques". UNED Ávila (Spain). 2003

28. Program of technological conferences at INAD from ALTRAN corporation. Madrid (Spain). 2000

29. V spring course on "Probability Theory and Statistical Inference Methods". UNED Ávila (Spain). 2000

30. XXV Meeting of the Spanish Statistical and Operational Research Society. Vigo (Spain). 2000

31. Seminar on "Introduction to the use of Statistical Software". UNED Melilla (Spain). 1999

32. IV spring course on "Probability Theory and Satatistical Inference Methods". UNED Ávila (Spain). 1999

Grants

- 01/09/2018 − 31/12/2019. UNED - Santander Bank Research and Transfer 2018 Award (2018V/PREMIO/07). Grant 18CF05. *From Big Data to Great Value: Development and implementation of Machine learning and statistical learning mathematical models for decision making.* PI: Jorge Martín Arevalillo

- 01/2018−. BBVA Continental. *Implementation of Models for Commercial Intelligence.* PI: Jorge Martín Arevalillo

- 04/2016 − 12/2017. BBVA Continental. *On the Implementation of Data Mining Models for Commercial Intelligence.* PI: Jorge Martín Arevalillo

- 12/2015−02/2017. Biomedica Molecular Medicine. *Detection of functional interactions using networks in bladder cancer proteomic data. Preliminary results.* PI: Hilario Navarro

- 11/2014−10/2015. BBVA Continental. *Knowledge Transfer for the Construction of Commercial Intelligence Models.* PI: Jorge Martín Arevalillo

- 03/2013 − 10/2013. BBVA Continental. *Data Mining and Statistical Modeling for Customer Churn Management.* PI: Jorge Martín Arevalillo

- 07/2010 − 06/2015. NIH NIAID $1U19AI090873 − 01$. *Severe Enteric Disease: Pathogenesis and Response.* PI: James B Paker, James P Nataro

- 10/2011 − 04/2013. CDTI ($IDI − 20110617$). Spanish Ministry of Innovation and Science. *Sistema Inteligente de Buzziness.* PI: Anselmo Sánchez

- $09/2010 - 12/2011$. Project #67 of Innovation for Education. *The use of R Statistical Software in Teaching Methods and Methodologies related to the Analysis of Phenomena in Random Scenarios*. PI: Paloma Maín

- $08/1996 - 09/1996$. INTERCAMPUS #1849 granted by the Spanish Foreign Office. *Approximation of Functions*. PI: Felipe Zó

Review service for scientific journals

- Journal of Multivariate Analysis. Journal of Nonparametric Statistics. Journal of Universal Computer Science

Awards

- UNED-Santander Bank Research Transference Awards. 2018

- Awarded to the best Bachelor of Science degree in maths. 1995/1996 academic course at UNED

- Awarded to the best undergraduate student of 1994/1995 academic course in maths at UNED

Other merits

- Positive evaluation of the research activity for period $2009 - 2014$ by CNEAI agency. 2015

- Positive evaluation of ANECA agency for Assistant Professor Ph.D contracts. 2012

- Positive evaluation of ANECA agency for Assistant Professor as collaborator contracts. 2005

- Positive evaluation of ANECA agency for Teaching Assistant Ph.D contracts. 2004

Computer skills

- TEX programming. Word. Power Point. Front Page

- Data Science and Machine Learning: R / RStudio. Python (*Pandas, Numpy, Scikit-learn*) Statistical and data mining software: SPSS. IBM SPSS Modeler. Salford Predictive Modeling Suite (CART, Random Forests, MARS and TreeNet).