# CURRICULUM VITAE

# JORGE IVÁN VELEZ

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## BACKGROUND

Biomedical and computational trained engineer and statistician, with more than ten years of experience in the application of statistical methods (i.e., inference, simulation, modelling and graphical representation) to genetic, industrial, demographic and financial data, and in the development of new methodologies to analyse and represent this information. Strong bases and knowledge in engineering, genetics (including statistical, population and quantitative genetics, and genetic epidemiology), statistical computing, database management and finance, as well as an in-deep understanding of the computational, mathematical, and statistical theories and methodologies involved. Altogether, these components have allowed me to work as part of interdisciplinary groups in academia (including teaching) and research in Colombia, the United States and Australia.

## EDUCATION

2016 **Ph.D. (Genomics and Predictive Medicine)**, John Curtin School of Medical Research, Australian National University, Canberra, ACT, Australia, August 2016.

2008 **M.Sc. (Statistics)**, Department of Statistics, National University of Colombia at Medellín, Medellín, Colombia, July 2008.

2005 **B.Sc. (Industrial Engineering)**, Faculty of Mines, National University of Colombia at Medellín, Colombia, September 2005.

## PROFESSIONAL SKILLS

- Bioinformatics
- Biostatistics
- Statistical Computing
- Statistical Genetics
- Statistical Inference and Probability
- Statistical Analysis of High Dimensional Data
- High-throughput genome sequencing
- Genetic Epidemiology
- Genomics
- Quantitative Genetics
- Genome-wide Association Studies
- Genomics and Predictive Medicine
- Data Science and Predictive Modelling
- Bayesian Statistics and Hierarchical Models
- Econometrics
- Generalized and Linear Mixed Models
- Multivariate Analysis
- Stylometrics

## APPOINTMENTS

**Universidad del Norte, Barranquilla, Colombia**
Assistant (Faculty) Professor, Department of Industrial Engineering, Division of Engineering (March 2018-Present)
Research Professor, Department of Industrial Engineering, Division of Engineering (January 2016-March 2018)

**John Curtin School of Medical Research, Australian National University, Canberra, Australia**
Research Assistant – The Arcos-Burgos Group (May 2015-September 2015)
Graduate Student – Genomics and Predictive Medicine Group (September 2012-June 2015)

**idata S.A.S., Medellín, Colombia**
Datametrics and BI Professional (July 2012-December 2014)

**National Institutes of Health, Bethesda, MD, USA**
Visiting Fellow – Medical Genetics Branch, National Human Genome Research Institute (August 2007 – August 2012)

**Grupo Bancolombia S.A., Medellín, Colombia**
Analyst II, Quantification Risk Section (October 2006 – July 2007)

**University of Antioquia, Medellín, Colombia**
Instructor, Department of Industrial Engineering, Faculty of Engineering (September 2006 – March 2007)

**Industrias HACEB S.A., Copacabana, Colombia**
Consultant in Quality Control and Reliability (May 2006 – October 2006)

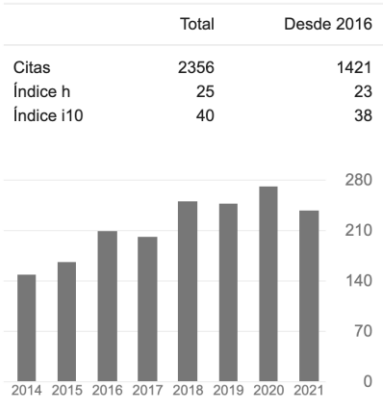
**National University of Colombia at Medellín, Colombia**
Teaching Assistant, Department of Statistics (January 2006 – June 2006)

**Industrias HACEB S.A., Copacabana, Colombia**
Engineering Intern (January 2005 – January 2006)

**National University of Colombia at Medellín, Colombia**
Undergraduate Teaching Assistant, Department of Statistics (August 2003 – December 2004)

## PUBLICATIONS

As of August 6, 2021, I have authored or have been a co-author of more than 70 peer reviewed manuscripts, $h_{\text{index}}$=25 and 2356 citations:




### Articles Published in Peer-Reviewed and Indexed Journals in English

1. Martinez-Banfi, M., **Vélez, J.I.**, Mebarak Chams, M.R., Arcos-Holzinger, M., Acosta-López, J.E., García, R., Perea, M.V., Arcos-Burgos, M., Ladera, V. Utility of a Short Neuropsychological Protocol for Detecting HIV-Associated Neurocognitive Disorders in Patients with Asymptomatic HIV-1 Infection. **Brain Sciences,** 11(8), 1037, 2021 [website]

2. Sebastian Racedo, Ivan Portnoy, **Jorge I. Vélez**, Homero San-Juan-Vergara, Marco Sanjuan, Eduardo Zurek. A new pipeline for structural characterization and classification of RNA-Seq microbiome data, **BioData Mining**, 14 (31), 2021 [website]
3. M.L. Cervantes-Henriquez, J.E. Acosta-López, M. Ahmad, M. Sánchez-Rojas, G. Jiménez-Figueroa, W. Pineda-Alhucema, M.L. Martinez-Banfi, L.M. Noguera-Machacón, E. Mejía-Segura, M. De La Hoz, M. Arcos-Holzinger, D.A. Pineda, P.J. Puentes-Rozo, M. Arcos-Burgos, **J.I. Vélez**. *ADGRL3*, *FGF1* and *DRD4*: Linkage and Association to Working Memory and Perceptual Organization Endophenotypes in ADHD. **Brain Sciences**, 11(7), 854, 2021 [website]
4. Luis F. Machado-Domínguez, Carlos D. Paternina-Arboleda, **J.I. Vélez**, Agustín Barrios-Sarmiento. An adaptative bacterial foraging optimization algorithm for solving the MRCPSP with discounted cash flows, **TOP**, 2021 [website]
5. Martha L. Cervantes-Henríquez, Johan E. Acosta-López, Ariel F. Martinez, Mauricio Arcos-Burgos, Pedro J. Puentes-Rozo, **Jorge I. Vélez**. Machine Learning Prediction of ADHD Severity: Association and Linkage to *ADGRL3*, *DRD4*, and *SNAP25*. **J Atten Disord**, 2021 [website]
6. **Vélez JI**, Samper LA, Arcos-Holzinger M, Espinosa LG, Isaza-Ruget MA, Lopera F, Arcos-Burgos M. A Comprehensive Machine Learning Framework for the Exact Prediction of the Age of Onset in Familial and Sporadic Alzheimer's Disease. **Diagnostics** 2021, *11*, 887 [website]
7. Vélez, J. I. (2021). Machine Learning Psychology: Advocating for a Data-Driven Approach. **Intern J of Psych Research**,14(1), 6–11 [website]
8. Diego Sepulveda-Falla, Lucia Chavez-Gutierrez, Erik Portelius, **Jorge I. Vélez**, Simon Dujardin, et al. A multifactorial model of pathology for age of onset heterogeneity in familial Alzheimer's disease. **Acta Neuropathologica** [website]
9. Jose L. López-Prado, **Jorge I. Vélez**, Guisselle A. García-Llinás Reliability Evaluation in Distribution Networks with Microgrids: Review and Classification of the Literature. **Energies** 23 (13), pp. 1-31 [website]
10. Maria Camila Navarro, Fernando Marmolejo-Ramos, Valentina Vásquez, Bárbara Carrea, **Jorge I Vélez**, Moisés Mebarak Chams. An Exploratory Study for Assessment of Multimodal Semantic Memory in Colombian Children. **Intern J of Psych Research**, 13 (2), pp. 49-58 [website]
11. Marcela Henriquez-Henriquez*, Maria T. Acosta*, Ariel F. Martinez*, **Jorge I. Vélez***, Francisco Lopera, David Pineda, Juan D. Palacio, Teresa Quiroga, Tilla S. Worgall, Richard J. Deckelbaum, Claudio Mastronardi, Brooke S. G. Molina, the MTA Cooperative Group, Mauricio Arcos-Burgos, Maximilian Muenke. Mutations in sphingolipid metabolism genes are associated with ADHD. **Translational Psychiatry,** 2020. (*Equal contribution)[website]
12. Oscar M. Vidal*, Jorge Acosta-Reyes, Jesús Padilla, Edgar Navarro-Lechuga, Elsa Bravo, Diego Viasus, Mauricio Arcos-Burgos*, **Jorge I. Vélez***. Chikungunya outbreak (2015) in the Colombian Caribbean: Latent classes and gender differences in virus infection. **PLoS Neglected Tropical Diseases,** 2020. (*Equal contribution)[website]
13. Isabel Suarez, Carlos De Los Reyes Aragón, Elisa Díaz, Tania Iglesias, Ernesto Barceló, **Jorge Iván Velez**, Laurence Casini. How is Temporal Processing Affected in Children with Attention-deficit/Hyperactivity Disorder?. **Developmental Neuropsychology** 2020, 1-16. [website]
14. **Vélez JI***, Lopera F*, Silva CT, Villegas A, Espinosa LG, Vidal OM, Mastronardi CA*, Arcos-Burgos M*. Familial Alzheimer's Disease and Recessive Modifiers. **Mol Neurobiol**. 2019 Oct 29. doi: 10.1007/s12035-019-01798-0. (*Equal contribution) [website]
15. Mebarak Chams M*, Tinoco L, Mejia-Rodriguez D, Martinez-Banfi ML, Preuss H, Hammerle F, Vélez JI*, Kolar DR*. The Spanish Body Image State Scale: Factor Structure, Reliability and Validity in a Colombian Population. **Front Psychol**. 2019 Nov 22,10:2553. doi: 10.3389/fpsyg.2019.02553. (*Equal contribution) [website]
16. Pedro J. Puentes-Rozo*, Johan E. Acosta-López, Martha L. Cervantes-Henríquez, Martha L. Martínez-Banfi, Elsy Mejia-Segura, Manuel Sánchez-Rojas, Marco E. Anaya-Romero, Antonio Acosta-Hoyos, Guisselle A. García-Llinás, Claudio A. Mastronardi, David A. Pineda, F. Xavier Castellanos, Mauricio Arcos-Burgos*, **Jorge I. Vélez***. Genetic Variation Underpinning ADHD Risk in a Caribbean Community. **Cells** 8(8), 2019 (*Equal contribution) [website]
17. Mauricio Arcos-Burgos*, **Jorge I. Vélez***, Ariel F. Martinez*, Marta Ribasés, *et al.*: *ADGRL3* (*LPHN3*) variants predict substance use disorder. **Translational Psychiatry** 9(1), Jan, 2019 , pp. 42 (*Equal contribution) [website]
18. Pineda-Alhucema, W., Aristizabal, E., Escudero-Cabarcas, J, Acosta-López JE, **Vélez JI**: Executive Function and Theory of Mind in Children with ADHD: a Systematic Review. **Neuropsychol Rev** 2018 Aug [website]

19. **Jorge I. Vélez***, Francisco Lopera*, Penelope K. Creagh*, Laura B. Piñeros, *et al.*: Targeting Neuroplasticity, Cardiovascular, and Cognitive-Associated Genomic Variants in Familial Alzheimer's Disease. **Molecular Neurobiology** 2018 Aug pp 1-9. (*Equal contribution) [website]
20. Cervantes-Henríquez ML*, Acosta-López JE*, Martínez-Banfi ML*, **Vélez JI***, Mejía-Segura E, Lozano-Gutiérrez SG, *et al*: ADHD Endophenotypes in Caribbean Families. **J Atten Disord.** 2018 Mar 1:1087054718763741. doi:10.1177/1087054718763741. (*Equal contribution) [website]
21. San-Juan-Vergara H, Zurek E, Ajami NJ, Mogollon C, Peña M, Portnoy I, **Vélez JI**, Cadena-Cruz C, *et al.* A Lachnospiraceae-dominated bacterial signature in the fecal microbiota of HIV-infected individuals from Colombia, South America. **Sci Rep.** 2018 Mar 14,8(1):4479. doi: 10.1038/s41598-018-22629-7. [website]
22. Trejos-Herrera AM, Bahamón MJ, Alarcón-Vásquez Y, **Vélez JI**, Vinaccia S. Validity and Reliability of the Multidimensional Scale of Perceived Social Support in Colombian Adolescents. **Psychosocial Intervention** Apr2018, Vol. 27 Issue 1, p56-63. 9p. [website]
23. Martínez-Banfi M, **Vélez JI**, Perea MV, García R, Puentes-Rozo PJ, Mebarak Chams M, Ladera V. Neuropsychological performance in patients with asymptomatic HIV-1 infection. AIDS Care. 2018 May,30(5):623-633. doi: 10.1080/09540121.2018.1428728. [website]
24. Fernando Marmolejo-Ramos, Carlos Tirado, Edward Arshamian, **Jorge I. Vélez,** Artin Arshamian. The allocation of valenced concepts onto 3D space, **Cognition and Emotion 2017,** 1-10 [website]
25. J Licinio, M Arcos-Burgos, S Liu, **J Vélez** *et al. PHF21B* gene: Association with Major Depressive Disorder and Modulation of the Stress Response, Proceedings **Australian and New Zealand Journal of Psychiatry**, 51, pp. 105-105 [website]
26. **Vélez, JI** & Marmolejo-Ramos, F. Extension of a graphical diagnostic test for contingency tables. **Chilean Journal of Statistics** 2017 8(1), 53-65 [website]
27. Andrews SJ, Eramudugolla R, **Vélez JI**, Cherbuin N, Easteal S, Anstey KJ. Validating the role of the Australian National University Alzheimer's Disease Risk Index (ANU-ADRI) and a genetic risk score in progression to cognitive impairment in a population-based cohort of older adults followed for 12 years. **Alzheimers Res Ther.** 2017 Mar 4,9(1):16. doi: 10.1186/s13195-017-0240-3. [website]
28. G Jiménez-Figueroa*, C Ardila-Duarte, DA Pineda, JE Acosta-López, ML Cervantes-Henríquez, W Pineda-Alhucema, J Cervantes-Gutiérrez, M Quintero-Ibarra, M Sánchez-Rojas, **JI Vélez*,** PJ Puentes-Rozo*. Prepotent response inhibition and reaction times in children with attention deficit/hyperactivity disorder from a Caribbean community. **Atten Defic Hyperact Disord**. 2017 Feb 25. doi:10.1007/s12402-017-0223-z. [Epub ahead of print] (Equal contribution) [website].
29. Wong ML*, Arcos-Burgos M*, Liu S, **Vélez JI,** Yu C, Baune BT, Jawahar MC, Arolt V, Dannlowski U, Chuah A, Huttley GA, Fogarty R, Lewis MD, Bornstein SR, Licinio J. The *PHF21B* gene is associated with major depression and modulates the stress response. **Mol Psychiatry**. 2016 Oct 25. doi: 10.1038/mp.2016.174. [Epub ahead of print] (Equal contribution) [website].
30. **Vélez JI**, Lopera F, Patel HR, Johar AS, *et al.* Mutations modifying sporadic Alzheimer's disease age of onset. **Am J Med Genet B Neuropsychiatr Genet.** 2016 Aug 30. [Epub ahead of print] [website]
31. Das D, **Vélez JI**, Acosta MT, Muenke M, Arcos-Burgos M, Easteal S. Retrospective assessment of childhood ADHD symptoms for diagnosis in adults: validity of a short 8-item version of the Wender-Utah Rating Scale. **Atten Defic Hyperact Disord**. 2016 Aug 10. [Epub ahead of print] [website]
32. CA Mastronardi*, E Pillai*, DA Pineda*, AF Martinez, F Lopera, **JI Velez**, JD Palacio *et al.*: Linkage and association analysis of ADHD endophenotypes in extended and multigenerational pedigrees from a genetic isolate (* equal contribution) (to appear, **Molecular Psychiatry**)[website]
33. Johar A, Sarmiento-Monroy JC, Rojas-Villarraga A, Silva-Lara MF, Patel HR, Mantilla RD, **Velez JI**, Schulte KM, Mastronardi C, Arcos-Burgos M, Anaya JM. Definition of mutations in polyautoimmunity. **J Autoimmun.** 2016 Aug,72:65-72. doi:10.1016/j.jaut.2016.05.003
34. **JI Vélez***, F Lopera*, D Sepulveda-Falla*, HR Patel, AS Johar, *et al.*: *APOE*E2* Allele Delays Age of Onset in *PSEN1* E280A Alzheimer's Disease (* equal contribution) **Molecular Psychiatry**, Jul, 21(7):916-24.
35. **JI Vélez**, D Rivera, CA Mastronardi, HR Patel, C Tobón, *et al.*: A mutation in *DAOA* modifies the Age-of-Onset in *PSEN1* E280A Alzheimer's disease (to appear, **Neural Plasticity**)[website]
36. F Marmolejo-Ramos*, **JI Vélez***, X Romao: Automatic detection of discordant outliers via the Ueda's method, **Journal of Statistical Distributions and Applications**, 2015 Oct 2(8): 1-14 (*equal contribution) [website].
37. **JI Vélez**, JC Correa & F Marmolejo-Ramos: A new approach to the Box-Cox transformation. **Frontiers in Applied Mathematics and Statistics**, Article 12, October 30, 2015[website]

38. Angad S. Johar, Claudio Mastronardi, Adriana Rojas-Villarraga, Hardip R. Patel, Aaron Chuah, Kaiman Peng, Angela Higgins, Peter Milburn, Stephanie Palmer, Maria Fernanda Silva, **JI Vélez**, Dan Andrews, *et al.*: Novel and Rare Functional Genomic Variants in Multiple Autoimmune Syndrome and Sjögren's syndrome. **Journal of Translational Medicine**, 2015 Jun 2,13:173. [website]
39. **JI Vélez**, JC Correa: A modified Q-Q plot for large sample sizes, **Comunicaciones en Estadística,** 8 (2), 163-172 [website]
40. **JI Vélez**, JC Correa: Bootstrap-based parameter estimation for grouped data, **Revista Facultad de Ciencias**, 4 (2), 74-82, 2015 [website]
41. **JI Vélez**, F Marmolejo-Ramos and JC Correa: A graphical diagnostic test for two-way contingency tables (to appear, **Colombian Journal of Statistics**) [download]
42. **Jorge I. Vélez**, Cameron A. Jack, Aaron Chuah, Bob Buckley, Juan C. Correa, Simon Easteal and Mauricio Arcos-Burgos: Cross validation of pooling/resampling GWAS using the WTCCC data. **Molecular Biology and Genetic Engineering,** 2015, 3, Article 1. [website]
43. **Jorge I. Vélez**, Juan Carlos Correa and Mauricio Arcos-Burgos: A new method for detecting significant *p*-values with applications to genetic data. **Colombian Journal of Statistics**, 2014, 37(1):69-78. [website]
44. **Jorge I. Vélez** and Juan Carlos Correa: Should we think of a different median estimator?. **Comunicaciones en Estadística**, 2014,7(1):11-17 [website]
45. Minig L, **Vélez JI**, Trimble EL, Biffi R, Maggioni A, Jeffery DD. Changes in short-term health-related quality of life in women undergoing gynecologic oncologic laparotomy: an associated factor analysis. **Support Care Cancer.** 2013 Mar,21(3):715-26 [PubMed]
46. Walsh KS, **Vélez JI**, Kardel PG, Imas DM, Muenke M, Packer RJ, Castellanos FX, Acosta MT. Symptomatology of autism spectrum disorder in a population with neurofibromatosis type 1. **Dev Med Child Neurol**. 2013 Feb,55(2):131-8 [PubMed]
47. Mauricio Arcos-Burgos, Ana C. Londoño, David A. Pineda, Francisco Lopera, Juan D. Palacio, Andres Arbelaez, Maria T. Acosta, **Jorge I. Vélez**, F. Xavier Castellanos, and Maximilian Muenke: Analysis of Brain Metabolism by Proton-Magnetic-Resonance-Spectroscopy ($^1$H-MRS) in Attention-Deficit/Hyperactivity Disorder Suggests a Generalized Differential Ontogenic Pattern from Controls. **Atten Defic Hyperact Disord.** July 20, 2012 [PubMed]
48. **Jorge I. Vélez***, Settara C. Chandrasekharappa, *et al.*: Pooling/Bootstrap-based GWAS (*pb*GWAS) Identifies New Loci Modifying the Age of Onset in *PSEN1* p.Glu280Ala Alzheimer's Disease (* equal contribution). **Molecular Psychiatry**, May 2013. [PubMed]
49. Mauricio Camargo, Dora Rivera, Lina Moreno, Andrew C. Lidral, Ursula Harper, Marypat Jones, Benjamin D. Solomon, Erich Roessler, **Jorge I. Vélez**, Ariel F. Martinez, Settara C. Chandrasekharappa, and Mauricio Arcos-Burgos: GWAS Reveals New Recessive Loci Associated with Non-Syndromic Facial Clefting. **European Journal of Medical Genetics**, June 27 2012. [website]
50. Mauricio Arcos-Burgos, **Jorge I. Vélez**, Benjamin D. Solomon, Maximilian Muenke: A Common Genetic Network Underlies Substance Use Disorders and Disruptive or Externalizing Disorders. **Human Genetics** Apr 11, 2012. [PubMed]
51. Diego A. Salazar, **Jorge I. Vélez** and Juan Carlos Salazar: Comparison between SVM and Logistic Regression: which one is better to discriminate? **Colombian Journal of Statistics**, 2012. [website]
52. Erich Roessler*, **Jorge I Vélez*,** Nan Zhou and Maximilian Muenke: Utilizing prospective sequence analysis of *SHH*, *ZIC2*, *SIX3* and *TGIF* in holoprosencephaly probands to describe the parameters limiting the observed frequency of mutant gene x gene interactions. **Molecular Genetics and Metabolism**. 2012 Jan 12. [Epub ahead of print] (* equal contribution) [PubMed]
53. Pineda D.A., Lopera F., Puerta I.C., Trujillo-Orrego N., Aguirre-Acevedo, D.C., Hincapié-Henao L., Arango P., Acosta M.T., Martinez A.F., Holzinger S.I., Palacio J.D., Pineda-Alvarez D.E., **Vélez J.I.**, Lewis J.E., Muenke M., and Arcos-Burgos M.: Potential Cognitive Endophenotypes in Multigenerational Families: Segregating ADHD from a Genetic Isolate**. Atten Defic Hyperact Disord.** 2011 Jul 16. [PubMed]
54. Francisco J. Viciana, Carlos J. Gil Bellosta, Oscar Perpinan Lamigueiro, Emilio Torres Manzanera, Vicente David Canto Casasola, **Jorge I. Vélez**: pxr: An R package for reading and writing PC-Axis files with R. Official R-Forge website
55. Maria T. Acosta*, **Jorge I. Vélez***, M. Leonor Bustamante*, Joan Z. Balog, Mauricio Arcos-Burgos, Maximilian Muenke: A Two-Locus Genetic Interaction between *LPHN3* and 11q Predicts ADHD Severity and Long-Term Outcome. **Translational Psychiatry** (2011) **1**, e17, doi:10.1038/tp.2011.14. (*equal contribution) [PubMed]

56. Jain M, **Vélez JI**, Acosta MT, Palacio LG, Balog J, Roessler E, Pineda D, *et al.* A cooperative interaction between *LPHN3* and 11q doubles the risk for ADHD. **Molecular Psychiatry**. 2011 May 24. [Epub ahead of print] [PubMed]
57. Keaton A, Solomon BD, Kauvar EF, El-Jaick KB, Gropman AL, Zafer Y, Meck JM, Bale SJ, Grange DK, Haddad BR, Gowans GC, Clegg NJ, Delgado MR, Hahn JS, Pineda-Alvarez DE, Lacbawan F, **Vélez JI**, Roessler E, Muenke M.: Mutations in *TGIF* in human holoprosencephaly: correlation between genotype and phenotype. **Mol Syndromol** 1:211-222, 2010.[website]
58. Benjamin D. Solomon, Daniel E. Pineda-Alvarez, Manu S. Raam, Sophia M. Bous, Amelia Keaton, **Jorge I. Vélez**, Derek A.T. Cummings: VACTERL Association: Analysis of Component Findings in 79 Patients. **Am J Med Genet, Part A**. 2010 Aug 3. [PubMed]
59. Minig L, Velazco A, Lamm M, **Vélez JI**, Venturini NC, Testa R. Evaluation of laparoscopic management of gynecologic emergencies by residents. **Int J Gynaecol Obstet**. 2010 Jun 24. [PubMed]
60. Arcos-Burgos M., Jain M, Acosta MT, Shively S, Stanescu H, Wallis D, Domené S, **Vélez JI**, Karkera JP, *et al.* A Common Variant of Latrophilin 3, *LPHN3,* Gene Confers Susceptibility to ADHD and Predicts Effectiveness of Stimulant Medication. **Molecular Psychiatry**, February 2010 [PubMed]
61. Benjamin D. Solomon, Sandra Mercier, **Jorge I. Vélez**, Daniel E. Pineda-Alvarez, Sylvie Odent *et al*: Emerging Genotype-Phenotype Correlations in Human Holoprosencephaly. **Am J Med Genet C Semin Med Genet.** 2010 Feb 15,154C(1):133-41. [PubMed]
62. Solomon BD, Lacbawan F, Mercier S, Clegg NJ, Delgado MR, Rosenbaum K, Dubourg C, David V, Olney AH, Wehner LE, Hehr U, Bale S, Paulussen A, Smeets HJ, Hardisty E, Tylki-Szymanska A, Pronicka E, Clemens M, McPherson E, Hennekam RC, Hahn J, Stashinko E, Levey E, Wieczorek D, Roeder E, Schell-Apacik CC, Booth CW, Thomas RL, Kenwrick S, Cummings DA, Bous SM, Keaton A, Balog JZ, Hadley D, Zhou N, Long R, **Vélez JI**, Pineda-Alvarez DE, Odent S, Roessler E, Muenke M. Mutations in ZIC2 in human holoprosencephaly: description of a novel ZIC2 specific phenotype and comprehensive analysis of 157 individuals. **J Med Genet.** 2010 Aug,47(8):513-24. Epub 2009 Dec 2. [PubMed]
63. Maggioni A., Minig L., Zanagnolo V., Bocciolone L., Colombo N., Landoni F., Peiretti M., Sanguineti F., **Vélez J.I.**: Robotic Surgery for Cervical Cancer: Comparison with Laparotomy. A case control study. **Gynecol Oncol** 2009 Oct, 115(1): 60-4. Epub 2009 Jul 28. [PubMed]
64. Erich Roessler*, Kenia B. El-Jaick*, Christèle Dubourg*, **Jorge I. Vélez**, Benjamin D. Solomon, *et al.*: The mutational spectrum of holoprosencephaly-associated changes within the *SHH* gene in humans predict loss-of-function through either key structural alterations of the ligand or its altered synthesis. **Hum Mutat.** 2009 Oct, 30(10): E921-35. (* equal contribution) [PubMed]
65. Erich Roessler, Wuhong Pei, Maia V. Ouspenskaia, Jayaprakash D. Karkera, **Jorge I. Vélez**, Sharmilla Banerjee-Basu, *et al.*: Cumulative ligand activity of NODAL mutations and modifiers are linked to human heart defects and holoprosencephaly. **Mol Genet Metab.** 2009 Sep-Oct, **98**(1-2):225-34. Epub 2009 May 27.[PubMed]
66. Yanjanin NM, **Vélez JI**, Gropman A, King K, *et al.*: Linear Clinical Progression, Independent of Age of Onset, in Niemann–Pick Disease, Type C. **Am J Med Genet B Neuropsytr Genet.** 2010 Jan 5,153B(1):132-40. [PubMed]
67. Lacbawan, F.*, Solomon, B.*, Roessler, E., El-Jaick, K, Domené, S., **Vélez, J.I.**., Zhou, N., *et al.*: Clinical spectrum of *SIX3*-associated mutations in holoprosencephaly: correlation between genotype, phenotype and function. **J Med Genet** 46 (6): 389-98, 2009 (* equal contribution). [PubMed]
68. Domené S., Roessler E., El-Jaick K.B., Snir M., Brown J.L., **Vélez J.I.**, Bale S., Lacbawan F., Muenke M., Feldman B.: Mutations in the human *SIX3* gene in holoprosencephaly are loss-of-function. **Hum. Mol. Genet.**, 17, 24: 3919-3928, 2008. [PubMed]
69. Roessler E.*, Ouspenskaia M.V.*, Karkera J.D.*, **Vélez J.I.**, Kantipong A., Lacbawan F., Bowers P., *et al.*: Reduced NODAL signaling strength via mutation of several pathway members including *FOXH1* is linked to human heart defects and holoprosencephaly. **Am. J. Hum. Genet.** 83, 18-29, 2008. (* equal contribution) [PubMed]

## Articles Published in Peer-Reviewed and Indexed Journals in Spanish

70. **JI Vélez** & F Marmolejo-Ramos: Los Secretos de Cien Años de Soledad: Una Aproximación Estilométrica para la Investigación en Psicolingüística [The Secrets of One Hundred Years of Solitude: A Stylometric Approach for Psycholinguistic Research], **Revista Colombiana de Psicología**, 25 (2), 265-288 [website]

71. D González-Gómez, **JI Vélez** & JC Correa: Comparación de 13 intervalos de confianza para los parametros de la distribución multinomial [Comparison of 13 confidence intervals for the parameters of the multinomial distribition], **Revista Facultad de Ciencias**, 4 (2), 150-163, 2015 [website]
72. Correa, J.C. & **Vélez, J. I.** (2014) Una nota de cuidado sobre el efecto de datos parcialmente faltantes en la prueba de independencia $\chi^2$ [A cautionary note on the effect of partially-missing data in the $\chi^2$ test of independence], **Comunicaciones en Estadística** 7(2), 189-199 [web]
73. **Vélez, J. I.** & Correa, J. C. (2014), Estimación bayesiana del parámetro de la distribución Poisson censurada sin ceros [Bayesian estimation of the non-zero censored poisson distribution parameter], **Cuadernos de Estadística Aplicada** 1 (1), 1-9.
74. **Jorge I. Vélez** and Juan Carlos Correa: Una prueba de independencia completa basada en la FDR [A test for complete independence based on FDR] **Comunicaciones en Estadística**, Diciembre 2013, Vol. 6, No 2. [web]
75. **Jorge I. Vélez**, Jairo A. Angel and Juan Carlos Correa: Cuantificación de variants genéticas utilizando Modelos Jerárquicos Bayesianos [Quantification of genetic variants using Bayesian Hierarchical Models] **Comunicaciones en Estadística**, Junio 2013, Vol. 6, No 1. [web]
76. **Jorge I. Vélez** and Juan Carlos Correa: Comparación de procedimientos FDR para la selección de parámetros en Regresión Poisson [Comparison of FDR-based procedures to select parameters in Poisson Regression] **Comunicaciones en Estadística**, Junio 2013, Vol. 6, No 1. [web]
77. **Jorge I. Vélez** and Juan Carlos Correa: Carta al Editor [Letter to the Editor] **Comunicaciones en Estadística**, Junio 2012, Vol. 4, No. 2. [web]
78. **Vélez, J.I.,** Correa, J.C.: Tasa de Falsos Positivos en Microarreglos [False Discovery Rate in Microarrays]. Proceedings of the VII Regional Colloquium in Statistics: Applied Statistics. Medellin, Colombia, July 20-23, 2010.
79. Ángel-Guzmán, J., **Vélez, J.I.,** Correa, J.C.: Un test de diagnóstico de variable agregada para Regresión Poisson [An added variable diagnostic test in Poisson Regression]. Proceedings of the XIX Statistics Symposium: Official Statistics, Medellin, Colombia, July 16-20, 2009.
80. **Vélez, J.I.,** Correa, J.C.: Some problems with Principal Component Analysis when the number of variables is greater than the number of observations. Proceedings of the XIX Statistics Symposium: Official Statistics, Medellin, Colombia, Colombia, July 16-20, 2009.
81. Araújo, L., Ángel, J., **Vélez, J.I.**: Estimation of the Proportion of Defective Product and Inspection Plans in Assembly Processes. Proceedings of the XVIII Statistics Symposium: Statistics in Industry and Business, Cartagena, Colombia, August 11-15, 2008.
82. **Vélez, J.I.,** Correa J.C.: Comparison of *t*, Bonferroni and FDR procedures to select linear correlation coefficients. Proceedings of the XVIII Statistics Symposium: Statistics in Industry and Business. Cartagena, Colombia, August 11-15, 2008.
83. **Vélez, J.I.**: Comparación de 4 procedimientos FDR para la selección de parámetros en Regresión Poisson [Comparison of 4 FDR procedures to select parameters in Poisson Regression]. M.S. dissertation. National University of Colombia at Medellín. Medellín, Colombia, July 2008. [Abstract in Spanish].
84. **Vélez, J.I.**, Hernández-Barajas F.: Comparison of Wald and Deviance statistics to include one variable in a Poisson Regression model. Proceedings of the VI Regional Colloquium in Statistics and 6th CEAES Summer School. National University of Colombia at Medellín and University EAFIT, Medellín, Colombia, July 23-25, 2008.
85. **Vélez, J.I.,** Correa J.C.: Estimation of time of firing in the process of polyurethane injection of Industrias HACEB S.A. Proceedings of the XVII Symposium in Statistics and 3rd Binational Meeting Colombia-Venezuela. Bucaramanga, Colombia. July 30-August 3, 2006.
86. **Vélez, J.I.** Reduction of inspection levels to verify one continue variable in an assembly process. Proceedings of the 3rd Regional Colloquium in Statistics, National University of Colombia at Medellín, 2005.

## RESEARCH PROJECTS

1. Detección de Variantes de Efecto Mayor en Enfermedades Complejas. Principal Investigator. Financed by Universidad del Norte. 2017-2018. COP$20,000,000.
2. Variantes genéticas y mutaciones genómicas identificadas por secuenciación de última generación (NGS) en familias Colombianas: en busca de marcadores comunes de tautología autoinmune. Coinvestigator. Financed by COLCIENCIAS. 2018-2020. COP$299,004,175.

3. Identificación de marcadores tempranos de tipo neurológico, neurofisiolófico, neurocognitivo y neuropsiquiátrico en población presintomática con riesgo de enfermedad de Huntington en el Departamento del Atlántico. Coinvestigator. Financed by COLCIENCIAS. 2018-2020. COP$399,995,241.
4. Nuevos ARN no codificantes exosomales y su papel en la patogénesis de la Enfermedad de Alzheimer. Financed by COLCIENCIAS. 2020-2022. COP$349,977,076.

## PRESS RELEASES

1. *La edad de inicio del Alzheimer: un enigma que abre puertas a la genética*, Revista Intellecta, Edición #5, October 2020 [website]
2. *Identifican siete grupos de pacientes con Chikunguña en Barranquilla,* Univesidad del Norte, June 19, 2020 [website]
3. *Una mirada a la Medicinal del Futuro*, Revista Intellecta, Edición #4, 2020 [website]
4. *La detección del TDAH ya tiene hoja de ruta en Barranquilla*, El Heraldo, September 8, 2019 [website]
5. *¿Qué relación guardan nuestros genes con el trastorno de déficit de atención e hiperactividad?*, Universidad del Norte, Agosto 16, 2019 [website]
6. *Las variantes genéticas y sus efectos en torno al TDAH,* El Heraldo, February 11, 2019 [website]
7. *Predecir si un niño con déficit de atención consumirá drogas sería posible,* El Espectador, February 9, 2019 [website]
8. *Genética ayudará a tratar pacientes con trastorno de déficit de atención e hiperactividad*, Universidad del Norte, February 8, 2019 [website]
9. *Grupo de investigación identifica marcadores genéticos que retrasan edad de inicio del Alzheimer*, Universidad del Norte, September 10, 2018 [website]
10. *Referentes mundiales en estudio de Trastorno de Déficit de Atención e Hiperactividad se dieron cita en Uninorte*, Universidad del Norte, November 15, 2017 [website]
11. *Profesor de Industrial Participa en investigación sobre enfermedades genéticas*, Universidad del Norte, May 11, 2016 [website]
12. *Tras los genes de la enfermedad del olvido*, Revista Intellecta, Edición #2, 2017 [website]
13. *Quiere saber si va a sufrir de Alzheimer?*, Revista Semana, June 15, 2017 [website]
14. *Scientists isolate genes that delay Alzheimer's Disease*, Australian National University Press, December 2, 2015 [website]
15. *Gene which delays Alzheimer's Disease by 17 years discovered by scientists*, The Telegraph, December 1, 2015 [website]
16. *Scientists find "gene that delays Alzheimer's"*, National Health Service, UK, December 2, 2015 [website]

## UNIVERSITY HONORS and AWARDS

1. **Medalla Orden al Mérito Científico [Scientific Merit Medal],** Universidad del Norte, Barranquilla, Colombia. November 2020. This recognition is given to the professor who has done important work in the field of research and science with national and international recognition, and published his/her scientific activities.
2. **Outstanding Research Award,** Division of Engineering, Universidad del Norte, Barranquilla, Colombia. January 15, 2019. This award recognizes the outstanding publishing record of up to five Professors/Researchers of the Division of Engineering during the previous academic year.
3. **Visitor Researcher**, Genomics and Predictive Medicine Group, John Curtin School of Medical Research, The Australian National University, Canberra, ACT, Australia. April 11, 2016-date.
4. **Eccles Scholarship in Medical Sciences** (1279/2010), The Australian National University, Canberra, ACT, Australia. This scholarship is awarded to International Students to pursue a full-time program of study for the degree of Doctor of Philosophy of the Australian National University within the John Curtin School of Medical Research.
5. **Fenner Merit Scholarship** (1369/2010), The Australian National University, Canberra, ACT, Australia. The scholarship is named in honour of Professor Frank Fenner, and its purpose is to attract students of high calibre to pursue postgraduate research for a PhD degree at the John Curtin School of Medical Research.
6. **ANU Higher Degree Research (HDR) Merit Scholarship**, The Australian National University, Canberra, ACT, Australia. This scholarship covers tuition fees for the standard duration of the PhD program.
7. **Intramural Research Training Award** (IRTA), Muenke Lab, Medical Genetics Branch, National Human Genome Research Institute, National Institutes of Health, Bethesda, MD, USA. August 2007–August 2012.

8. **Scholarship** to attend the *4th International Colloquium in Statistics: Statistics in Finances and Industry* at the National University of Colombia at Medellín and the Faculty of Financial Engineering, University of Medellín. Medellín, July 27-29, 2006.
9. **Scholarship** to attend the Graduate course *"Statistics Genetics and Bioinformatics"* by the NHGRI, the Corporación para Investigaciones Biológicas, the University of Antioquia and the National University of Colombia at Medellín. Medellín, Colombia, June 1-9, 2006.
10. **Scholarship** for the Master in Statistics Program, School of Statistics, National University of Colombia at Medellín, 2006.
11. **Scholarship** for the Industrial Engineering Program of the National University of Colombia at Medellín, 2000–2005.

## TEACHING EXPERIENCE

1. Applied Data Analytics. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2021-30.
2. Applied Data Analytics. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2021-10.
3. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2021-10.
4. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2020-30.
5. Design of Experiments. PhD and MSc programs in Industrial Engineering, Universidad del Norte, Barranquilla, Colombia. Semester 2020-30.
6. Bioinformatics I. PhD Program in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2020-10.
7. Advanced Statistics IV. MSc Program in Applied Statistics, Department of Mathematics & Statistics, Universidad del Norte, Barranquilla, Colombia. Semester 2020-10.
8. Population Genetics. MSc Program in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2020-10.
9. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2020-10.
10. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2019-30.
11. Design of Experiments. PhD and MSc programs in Industrial Engineering, Universidad del Norte, Barranquilla, Colombia. Semester 2019-30.
12. Bioinformatics I. PhD Program in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2019-10.
13. Population Genetics. MSc Program in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2019-10.
14. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2019-10.
15. Design of Experiments. MSc and PhD Programs in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2019-10.
16. Design of Experiments. PhD and MSc programs in Industrial Engineering, Universidad del Norte, Barranquilla, Colombia. Semester 2018-30.
17. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2018-30.
18. Design of Experiments. PhD Program in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2018-10.
19. Bioinformatics I. PhD Program in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2018-10.
20. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2018-10.

21. Design of Experiments. PhD and MSc programs in Industrial Engineering, Universidad del Norte, Barranquilla, Colombia. Semester 2017-30.
22. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2017-30.
23. Data Analysis in Engineering I. Universidad del Norte, Barranquilla, Colombia. Semester 2017-20.
24. Population Genetics. PhD Program in Medical Sciences, Faculty of Medicine, Universidad del Norte, Barranquilla, Colombia. Semester 2017-10.
25. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2017-10.
26. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2016-30.
27. Data Analysis in Engineering II. Industrial Engineering Program, Universidad del Norte, Barranquilla, Colombia. Semester 2016-10.
28. Bayesian Statistics. Master in Epidemiology Program, Universidad CES, Medellín, Colombia. November-December 2015.
29. Statistical Computing with R, Department of Statistics, National University of Colombia at Medellín, Medellín, Colombia. October-November 2013.
30. Human Genetics Computer Labs, BIOL3204, Research School of Biology, The Australian National University, Canberra, Australia. March-May 2013.
31. Statistical Genetics and Bioinformatics. NHGRI, NIH, Bethesda, MD, US. October-December 2011.
32. R Workshop. Basic Sciences Center. Universidad Pontificia Bolivariana at Montería, Montería, Colombia. March 25, 2008. [In Spanish]
33. Statistical Genetics. NHGRI, NIH, Bethesda, MD, USA. August-December 2007.
34. Mathematical Statistics I (Probability and Inference). Faculty of Engineering, University of Antioquia, Medellín, Colombia, September 2006 – March 2007. [In Spanish]
35. Statistics I (Probability and Inference). Department of Statistics, National University of Colombia at Medellín. Medellín, Colombia, January–June 2006. [In Spanish]
36. Statistical Process Control with Applications in Excel®. Universidad Pontificia Bolivariana at Medellín. September 8-9, 16-17, 2006. Medellín, Colombia [In Spanish]
37. Introduction to LaTeX: Building high quality articles, reports, books and documents. Basic Sciences Center, Universidad Pontificia Bolivariana at Montería, June 27-30, 2006. Montería, Colombia [In Spanish]
38. Statistics and Operations Research Applied to Transportation Systems. Master in Science Program in Infrastructure and Transport Systems. School of Mines, National University of Colombia at Medellín, 2006 [In Spanish]
39. Basic Statistics to Make Decisions at Industrial Level. Industrias HACEB S.A., 2005. [In Spanish]

## PRESENTATIONS, POSTERS and ABSTRACTS

**Platform**

1. **Jorge I. Vélez:** A World Full of Data: Now What? From the Mean to AI-based Systems. Engineering Research Day, Universidad del Norte, Barranquilla, Colombia. May 27, 2021.
2. **Jorge I. Vélez:** Statistics in the Genomic Era: where we were, where we are and where we want to be. XXIX International Symposium in Statistics, Universidad del Norte, Barranquilla, Colombia. July 16-19, 2019.
3. **Jorge I. Vélez**: *APOE*E2* allele interacts with *ASTN2* and *SNTG1* to delay age of onset in Familial Alzheimer's disease. XV Colombian & IX International Congress of Human Genetics. Barranquilla, Colombia, September 26-29, 2018.
4. **Jorge I. Vélez**: *AGDRL3* (*LPHN3*) variants and their association with ADHD. 1st International Symposium on Neuroscience, Genomics and Education of Attention Deficit/Hyperactivity Disorder. Barranquilla, Colombia, November 8-11, 2017.
5. **Jorge I. Vélez**: Statistics, Genomics and Neuroscience: An Unconventional Marriage, Universidad Simón Bolívar, Barranquilla, Colombia, March 4, 2017.
6. **Jorge I. Vélez**, Rolando A. Escobar-Posada: Selection of Linear Regression Models using Genetic Algorithms, XI Colloquium in Statistics, National University of Colombia at Medellín, Medellín, Colombia, July 21-23, 2016.

7. Freddy Hernández Barajas, Olga Úsuga, **Jorge I. Vélez**: Impact of misspecified random effects distribution on the variance component test in GLMM, 31th International Workshop on Statistical Modelling, Rennes, France, July 4-8, 2016.
8. **Jorge I. Vélez**: Extreme phenotype sampling: the case of Alzheimer's disease, Universidad del Norte Hospital, Barranquilla, Colombia, January 21, 2016.
9. **Jorge I. Vélez**: Taking the bull by the horns: Engineering in Alzheimer's disease, Department of Industrial Engineering, Universidad del Norte, Barranquilla, Colombia, October 29, 2015.
10. **Jorge I. Vélez**: Alzheimer's disease age of onset modifier genes in the world's largest pedigree, PhD dissertation, John Curtin School of Medical Research, Australian National University, Canberra, ACT, April 2, 2015.
11. **Jorge I. Vélez**: Age of onset modifiers in Alzheimer's disease, National Youth Science Forum, Canberra, ACT, January 29, 2015.
12. **Jorge I. Vélez**: Translational Genomics of Complex Traits: Attention Deficit/Hyperactivity Disorder and Alzheimer's disease, Program in Human Genetics, University of Chile School of Medicine, Santiago, Chile, July 1, 2013.
13. **Jorge I. Vélez**: *pb*GWAS: A novel method for identifying genetic variants and its application to Alzheimer's disease. VII Congreso Internacional Cerebro y Mente and I Congreso Antioqueño de Neurología y Neuropediatría, August 22-25, 2012. Botanic Garden, Medellin, Colombia.
14. Juan Carlos Correa & **Jorge I. Vélez**: Pruebas de Independencia Completa vía FDR [Testing Complete Independence via FDR]. IX International Colloquium in Statistics: "Métodos Estadísticos Aplicados a Finanzas y Salud". National University of Colombia at Medellín, June 29-July 2, 2012, Medellín, Colombia.
15. **Jorge I. Vélez** & Juan Carlos Correa: Estimation of Confidence Intervals in Poisson Regression. IX International Colloquium in Statistics: "Métodos Estadísticos Aplicados a Finanzas y Salud". National University of Colombia at Medellín, June 29-July 2, 2012, Medellín, Colombia.
16. **Jorge I. Vélez**, Mohammed R. Chowdhury, Juan Carlos Correa: A new method for detecting significant p-values and its application to genetic data. IX International Colloquium in Statistics: "Métodos Estadísticos Aplicados a Finanzas y Salud". National University of Colombia at Medellín, June 29-July 2, 2012, Medellín, Colombia.
17. Ehidy K. García Cruz, Juan Carlos Correa, **Jorge I. Vélez**: Combinación de pruebas de hipótesis independientes para proporciones: un estudio de simulación [Comparison of independent hypothesis for proportions: a simulation study]. IX International Colloquium in Statistics: "Métodos Estadísticos Aplicados a Finanzas y Salud". National University of Colombia at Medellín, June 29-July 2, 2012, Medellín, Colombia.
18. Nadja Kadom*, **Jorge I. Vélez**, Nabila Hai, Rhea Udyavar, Amir Noor, Gilbert Vezina, Maria Acosta: Cingulate Gyrus MRI Sign in Pediatric NF1 Patients: A Novel Imaging Marker. Society of Pediatric Radiology (SPR) Annual Meeting 2012, San Francisco, CA.
19. **Jorge I. Vélez***: On Digenic Inheritance, Genetic Modifiers and Functional Studies in Holoprosencephaly. Medical Genetics Branch Monthly Meeting, NHGRI, NIH, Bethesda, MD, February 6, 2012.
20. Salazar, D.A.*, **Vélez, J.I.,** Salazar, J.C.: SVM vs. Regresión Logística. ¿Cuál es más recomendable para discriminar? [SVM vs. Logistic Regression. Which one is better to discriminate?]. XXI Symposium in Statistics: Regression Models. Bogota, Colombia, July 21-24, 2011.
21. Ángel-Guzmán, J.A.*, **Vélez J.I.**, Ángel-Arrieta, A.: Comparación de Algunas Ténicas de Clasificación con Aplicaciones en Quimiometría [Comparison of Some Classification Techniques with Applications to Chemometrics]. XXI Symposium in Statistics: Regression Models. Bogota, Colombia, July 21-24, 2011.
22. Londoño, C.A.*, Lopera, M, **Vélez, J.I.**: Una Aproximación a los Modelos de Precios en el Mercado de Valores Colombiano vía Redes Neuronales Artificiales [An Approach to Pricing Models in the Colombian Stock Exchange via Artificial Neural Networks]. VIII Regional Colloquium in Statistics: Statistics in Finance. Medellin, Colombia, June 28-July 1, 2011.
23. **Jorge I. Vélez*,** Mauricio Arcos-Burgos: Pooling-bootstrap GWAS: A new methodology to identify disease-associated genetic variants. Medical Genetics Branch Meeting, NHGRI, NIH, Bethesda, MD, June 6, 2011.
24. **Jorge I. Vélez***: Identification of Genetic Variants using a DNA Pooling/Bootstrap-Based Strategy in Alzheimer's disease. Muenke Lab Meeting, NHGRI, NIH, Bethesda, MD, May 17, 2011.
25. Bustamante, ML*, **Vélez, J.I.***: Association Study for Severity of Symptoms in ADHD. Muenke Lab Meeting. NHGRI, NIH, Bethesda, MD, November 30, 2010.
26. **Vélez, J.I. ***: Phenotype Derivation and Genetics Analysis: An Example with Stimulant Medication in ADHD. Graduate Student Seminar, Department of Statistics, The George Washington University, Washington, DC,

October 1, 2010.

27. **Vélez, J.I. *,** Ángel, J.A., Correa, J.C.: Inferencia Bayesiana en Estudios Funcionales [Bayesian Inference in Functional Studies]. XX Symposium in Statistics. Santa Marta, Colombia, Colombia, August 11-15, 2010.
28. **Vélez, J.I. *,** Correa, J.C.: Tasa de Falsos Positivos en Microarreglos [False Discovery Rate in Microarrays]. VII Regional Colloquium in Statistics: Applied Statistics. Medellin, Colombia, July 20-23, 2010.
29. **Vélez, J.I. ***: Does Medicine *speak* Statistics? Instituto Médico de Alta Tecnologia (IMAT), Monteria, Colombia, Junio 23, 2010.
30. **Vélez, J.I.** *: Epidemiology of Holoprosencephaly. Holoprosencephaly Retreat, January 21, 2010. Bethesda, MD, US.
31. **Vélez, J.I.** *: *LPHN3* Predicts Effectiveness of Stimulant Medication in ADHD. Medical Genetics Branch Monthly Meeting, NHGRI, NIH, Bethesda, MD, US, December 7, 2009.
32. **Vélez, J.I.** *: Statistical Genetics and Multiple Testing. Institutional Seminar, Department of Statistics, National University of Colombia at Medellín, Medellin, Colombia, August 14, 2009. [in Spanish]
33. **Vélez, J.I.** *: Statistics, Genetics and Bioinformatics: Some Applications. Basic Sciences Center, Universidad Pontificia Bolivariana at Montería, Montería, Colombia, Agosto 20, 2009. [in Spanish]
34. Ángel-Guzmán, J.*, **Vélez, J.I.,** Correa, J.C.: An added variable diagnostic test in Poisson Regression. XIX Statistics Symposium: Official Statistics. Medellin, Colombia, July 16-20, 2009. [In Spanish]
35. **Vélez, J.I.,** Correa, J.C*.: Some problems with Principal Component Analysis when the number of variables is greater than the number of observations. XIX Statistics Symposium: Official Statistics, Medellin, Colombia, Colombia, July 16-20, 2009.[In Spanish]
36. **Vélez, J.I.***: Is 1+1=3? Illustrating the Effects of Variable Categorization. NHGRI, NIH, Bethesda, MD, March 31, 2009.
37. **Vélez, J.I.***: Response to Stimulant Medication in ADHD: Some Findings in our US Sample. NHGRI, NIH, Bethesda, MD, February 16, 2009.
38. Yanjanin, N.M.*, **Vélez, J.I.**, Gropman A., King, K., Brewer, C.C., Solomon, B., Pavan, B., Arcos-Burgos, M., Patterson, M.C., and Porter, F.D.: Disease Progression in Niemann-Pick Disease, type C: Development of a Clinical Severity Score. Platform Session # 42, 58th Annual Meeting of the American Society of Human Genetics, Philadelphia, PA, November 11-15, 2008.
39. **Vélez, J.I.**, Hernández-Barajas F.*: Comparison of Wald and Deviance statistics to include one variable in a Poisson Regression model. VI Regional Colloquium in Statistics and 6th CEAES Summer School. National University of Colombia at Medellín and University EAFIT, Medellín, Colombia, July 23-25, 2008. [In Spanish]
40. **Vélez, J.I.***: What to do with Statistics: Some Examples in Engineering. 3rd Journey of Research, Transference and Environment, "La ciencia y tecnología al servicio del cuidado ambiental y el desarrollo social". Centro Integrado para el Desarrollo de la Investigación - CIDI, Universidad Pontifica Bolivariana at Montería. Montería, Colombia. March 26, 2008. [In Spanish]
41. **Vélez, J.I.***: Engineering and Statistics: Perfect Complement? Basic Sciences Center's 2008 Cycle of Conferences. Universidad Pontificia Bolivariana at Montería. Montería, Córdoba, Colombia. March 25, 2008. [In Spanish]
42. **Vélez, J.I.***: Functional Assessment of Brain Activity by MRI in Attention Deficit Hyperactivity Disorder. NHGRI, NIH, Bethesda, MD, January 9, 2008.
43. **Vélez, J.I.***: Industrial Statistics using R. Conference in ColCerámica S.A. Envigado, Antioquia, Colombia. August 25, 2006. [In Spanish]
44. **Vélez, J.I.***: Estimation of Time of Firing in the Process of Polyurethane Injection of Industrias HACEB S.A. using a Gamma Regression. XVI Symposium in Statistics and 3rd Binational Meeting Colombia-Venezuela. July 30-August 3, 2006. Bucaramanga, Colombia. [In Spanish]
45. **Vélez, J.I.***: Inspection levels reduction to verify one continue variable in an assembly process. 3rd Regional Colloquium in Statistics, National University of Colombia at Medellín, 2005. [In Spanish]
46. **Vélez, J.I.***: Statistical Methods applied to determinate hard-measure standards. Case: Polyurethane injection process of Industrias HACEB S.A. School of Statistics, National University of Colombia at Medellín, 2005. [In Spanish]
47. **Vélez, J.I.***: Applying regression methods to production programming. Faculty of Engineering, University of San Buenaventura at Medellín, 2005. [In Spanish]

* Speaker

**Posters**

1. **Jorge I. Vélez**, Claudio Mastronardi, Hardip R. Patel, Angad S. Johar, Francisco Lopera & Mauricio Arcos-Burgos: A novel oligogenetic framework identifies age of onset modifying mutations in Alzheimer's disease, Poster 1068T, 65th Annual Meeting of the American Society of Human Genetics Annual Meeting, Baltimore, MD, US. October 6-10, 2015.
2. Fernando Marmolejo-Ramos* & **Jorge I. Vélez**: A new approach to the Box-Cox transformation, Poster H4, 30th Anniversary Conference of the Journal of Official Statistics, Stockholm, Sweden, June 10-12, 2015.
3. Hardip R. Patel*, Angad S. Jogar, **Jorge I. Vélez** and Mauricio Arcos-Burgos: Novel and Rare Functional Genomic Variants in Multiple Autoimmune Syndrome and Sjögren's syndrome. Human Genome Meeting, Kuala Lumpur, Malaysia. March 14-17, 2015.
4. Sung-Kook Hong*, **Jorge I. Vélez**, Wuhong Pei, Maximilian Muenke, Erich Roessler and Benjamin Feldman*: A Strategy for Quantifying the Functionality of Variant Alleles. 10th International Zebrafish Genetics and Development. June 20-24, 2012. Madison, WI, USA.
5. M. Leonor Bustamante*, **Jorge I. Vélez**, Ariel F. Martinez, Mauricio Arcos-Burgos, Maria T. Acosta, and Maximilian Muenke: Integrating Clinical and Genetic Information for Personalized Evaluation and Treatment of Attention-Deficit/Hyperactivity Disorder. Medical Genetics Branch Site Visit, June 14, 2012. NIH, Bethesda, MD, USA.
6. Ariel F. Martinez*, **Jorge I. Vélez**, Mauricio Arcos-Burgos, and Maximilian Muenke: Identification of New Allelic Variants with Potential Functional Implicationsfor Attention Deficit/Hyperactivity Disorder. Medical Genetics Branch Site Visit, June 14, 2012. NIH, Bethesda, MD, USA.
7. Erich Roessler*, Sung-Kook Hong, **Jorge I. Vélez**, Benjamin Feldman, and Maximilian Muenke: Applying Nanostring and Cell-based Analysis to Functionally Test Variations in Hedgehog Signaling Pathway Factors. Medical Genetics Branch Site Visit, June 14, 2012. NIH, Bethesda, MD, USA.
8. **Jorge I. Vélez***, Ariel F. Martinez, Ursula Harper, Settara C. Chandrasekharappa, Maximilian Muenke, Mauricio Arcos-Burgos: A Sequential Test Algorithm for DNA Pooling/Bootstrap-Based Studies Identifies New Loci for Attention Deficit Hyperactivity Disorder. 7th Graduate Partnership Program Research Symposium, National Institutes of Health, January 12, 2011, Bethesda, MD, USA.
9. Mauricio Arcos-Burgos, Ariel F. Martinez*, Maria T. Acosta, **Jorge I. Vélez***, Deeann Wallis, Jose de Leon, Francisco X. Castellanos, Maximilian Muenke. *LPHN3* Variants are Associated with Comorbid Disruptive Behavior Disorders and Substance Use Disorder. Poster B17, NHGRI Scientific Retreat, Cambridge, MD, November 15-16, 2010.
10. **Vélez, J.I.***, Arcos-Burgos M: A Sequential Test Algorithm for DNA Pooling/Bootstrap-Based Studies. Poster 2830/W, Statistical Genetics and Genetic Epidemiology Poster Session, 60th Annual Meeting The American Society of Human Genetics, Washington, DC, November 2-6, 2010.
11. **Vélez, J.I.***, Domené, S., Roessler, E., Feldman, B., Muenke, M.: Functional Activity Quantification of Mutations in the Human *SIX3* Gene in Holoprosencephaly. Graduate Partnership Program Research Symposium, Bethesda, MD, November 10, 2009.
12. **Vélez J.I.***, Acosta, M.T., Arcos-Burgos M., Muenke, M.: Pharmacogenetic of ADHD Response to Stimulant Medication: Conditional LCC and Genes of Susceptibility. NHGRI Scientific Retreat, Gettysburg, PA, October 20-21, 2008.
13. Roessler E.*, Ouspenskaia M.V., Karkera J.D., Pei W., **Vélez J.I.**, Kantipong A., Bowers P., Belmont J.W., Towbin J.A., Goldmuntz E., Feldman B., and Muenke M.: Reduced NODAL signaling strength via mutation of several pathway members is linked to human heart defects and holoprosencephaly. Medical Genetics Branch Site Visit, June 2008.
14. Acosta M.T.*, **Vélez J.I.**, Arcos-Burgos M., and Muenke M.: Recruitment, Phenotypic Dissection, and Genetic Analysis of Two Large, Complementary ADHD Family Samples. Medical Genetics Branch Site Visit, June 2008.
15. Jain M.*, Arcos-Burgos M., Shively S., **Vélez J.I.**, Wallis D., Domené S., Acosta M.T., Balog J., Roessler E., Vortmeyer A., Castellanos F.X., Bailey-Wilson J., and Muenke M.: Common Variation in *LPHN3* Underlies Susceptibility to ADHD. Medical Genetics Branch Site Visit, June 2008.
16. Acosta M.T.*, **Vélez J.I.**, Arcos-Burgos M., and Muenke M.: Pharmacological Response to Stimulant Medication in Patients with ADHD: Conditional Latent Class Clusters Transitions as a Phenotype for Pharmacogenetic Trials. 36th Annual Meeting of the International Neuropsychological Society, Waikoloa, HI, February 6-9, 2008.

* Speaker/Presenter

## OTHER PROFESSIONAL QUALIFICATIONS

**In Australia**

1. 2nd EMBL Australia PhD Course in Bioinformatics, Developmental Biology, Genomics, Systems Biology and Regenerative Medicine, Australian National University, Canberra, ACT, Australia. June 30-July 11, 2014.
2. The 5th Bootes Course on Translational Medicine: The Pathway from Discovery to Healthcare. Australian National University, Canberra, ACT, Australia, July 14-17, 2014.

**In USA**

1. Computing for Statistical Genetics, 14th Summer Institute in Statistical Genetics, June 15-18, 2009. University of Washington at Seattle, WA, US.
2. Crash Course: R & BioConductor. Bioinformatics and Computational Biosciences Branch, NIAID, NIH, OSMO, OCICB. Bethesda, MD, US.
3. Google for Researchers. NIH Clinical Center. NIH, Bethesda, MD, US.
4. Improving Spoken English. Intramural Training Office, NHGRI, NIH, Bethesda, MD, US.
5. Writing About Science. Intramural Training Office, NHGRI, NIH, Bethesda, MD, US.
6. ENGL304, spring 2008. Course of Advanced Conversational English II. Foundation for Advanced Education in the Sciences (FAES), NIH, Bethesda, MD, US.
7. GENE500M, spring 2008. Course of Medical Genetics II. FAES, NIH, Bethesda, MD, US.
8. Bioinformatics 101. NHGRInside Research Program. NIH, Bethesda, MD. October 30, 2007.
9. ENG250, fall 2007. Course of Intermediate English I. FAES, NIH, Bethesda, MD, US.
10. GENE500, fall 2007. Course of Medical Genetics I. FAES, NIH, Bethesda, MD, US.
11. Statistical Analysis of DNA Microarray Data. Center for Information Technology, NIH, Bethesda, MD, US.

**In Colombia**

1. Diplomat in Quantification Risk. Department of Statistics, National University of Colombia at Medellin. 2007.
2. An overview of response surface methodology. XVI Symposium in Statistics and 3rd Binational Meeting Colombia-Venezuela. Bucaramanga, Colombia, July 30-August 3, 2006.
3. Principles in factorial arrays and response surfaces. XVI Symposium in Statistics and 3rd Binational Meeting Colombia-Venezuela. Bucaramanga, Colombia, July 30-August 3, 2006.
4. Single Minute Exchange of Die (SMED). Direction of Human Resources of Industrias HACEB S.A. and Productiva de Colombia Ltda. Medellín, Colombia, 2006.
5. Diplomat in Statistical Process Control. Continue Education Center. University EAFIT. Medellín, Colombia, 2005.
6. Basic Technology in Rigid Polyurethane Foam Formulation for the Refrigeration Industry: properties and variables to control. The Dow Chemical Company. Bogotá, Colombia, 2005.
7. Quality Management Systems under NTC-ISO 9001:2000. School of Process and Energy, National University of Colombia at Medellín, 2004.
8. Intern Auditor Formation under NTC-ISO 9001:2000. School of Process and Energy, National University of Colombia at Medellín, 2004.

**Professional and Community Service**

1. **Reviewer,** ADHD Attention Deficit/Hyperactivity Disorder Journal. December 2018-January 2020.
2. **Reviewer,** Journal of Applied Statistics. January 2015-date.
3. **Member**, Scientific Committee, Revista Comunicaciones en Estadística. May 2014-date.
4. **Reviewer**, Revista Comunicaciones en Estadística. February 2015-date.
5. **Member**, Editorial Board, Journal of Modern Applied Statistical Methods. May 2014-date.
6. **Member**, Neuroscience Research Group, University of Antioquia, Medellín, Colombia. August 2012.
7. **Member** of stackoverlflow, a website featuring questions and answers on a wide range of topics in computer programming, January 2011–Present.

8. **Member**, American Statistical Association, June, 2010-Present.
9. **Reviewer** for Revista de Ingenieria de la Universidad de Antioquia, Medellin, Colombia. [here the official website]
10. **Reviewer** for Revista DYNA, Faculty of Mines, National University of Colombia at Medellin. Medellin, Colombia. [here the official website]
11. **Member** of R-SIG-Mac, R-help mailing lists for Mac users. December 2009–Present. [here the official website].
12. **Member** of the Research Group in Statistics, Department of Statistics, National University of Colombia at Medellín, November 2009-date. [here the official website]
13. **Cofounder, Member and Moderator** of R-help-es, an R help mailing list for Spanish speakers. March 2009–Present. [here the official website].
14. **Member** of R-help, an international help mailing list for R, a language and environment for statistical computing and graphics. September 2007– Present [see some of my posts here].
15. **Member of the Colombian Community of Statistics.** 2006– date.

## REFERENCES*

*Under request