José A. Restrepo

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MAIN RESEARCH INTERESTS	Power electronics and intelligent control algorithms, power quality, electronic converters, diagnostics of electric machines and signal processing, fault tolerant converters and controllers.
HIGHER EDUCATION	Philosophy Doctor 1996, University of Manchester Institute of Science and Technology (UMIST) Manchester, UK Area: Power Electronics Thesis title: "Improved control of induction machines" Master of Electronics Engineering 1991, Universidad Simón Bolívar, Caracas, Venezuela Area: Signal Processing Thesis Title: "Comparative Study of Time-Frequency Distributions" Electronics Engineer (5 year professional engineer degree program) 1988, Universidad Simón Bolívar, Caracas, Venezuela
PROFESSIONAL SOCIETIES	Member of the following IEEE societies: • Power Electronics • Industrial Electronics • Industry Applications Galilean Society member since 1997, Universidad Simón Bolívar
REVIEWER FOR JOURNALS AND CONFERENCES	Reviewer for the following Technical Journals • IEEE Transactions on Power electronics • IEEE IAS Publications • IEEE Transactions on Industrial Electronics • IEEE Transactions on Neural Networks and Learning Systems • IEEE Latin America Transactions • International Journal of Adaptive Control and Signal Processing (Wiley) Reviewer for the following Conferences • IEEE Energy Conversion Congress & Expo (ECCE) • IEEE International Caribbean Conference on Devices, Circuits and Systems (ICCDCS) • Annual Conference of the IEEE Industrial Electronics Society (IECON) • International Symposium on Industrial Electronics (ISIE) • IEEE International Conference on Industrial Technology (ICIT) • International Joint Conference on Neural Networks (IJCNN) Technical Co-Chair for the 2012 IEEE-ANDESCON, Cuenca, Ecuador
HONORS AND AWARDS	Overseas Research Student Award (UK), 1993-1996 CONICIT scholarship (Venezuela) for PhD studies, 1992-1995 Universidad Simón Bolívar: *Cum Laude*, Honors in Electronics, 1988

TEACHING EXPERIENCE	At Universidad Simón Bolívar **Graduate Teaching Assistant** (Jan. 1988-Jul. 1991): Undergraduate level Electronics Engineering courses. Responsible for lectures, exams, homework assignments, and grading. **Assistant Professor** (Sep. 1991-Sep. 1992 and Jan. 1996-Dec. 1998): Undergraduate and Master's level Electronics Engineering. Responsible for lectures, exams, homework assignments, and grading. **Associate Professor** (Jan. 1999-Dec. 2001 and Jan. 2003-Dec. 2004): Undergraduate and graduate, (Master's and Ph.D) level Electronics Engineering course. Full responsibility for lectures, exams, homework assignments, and grading. **Full Professor** (Jan. 2005-present): Undergraduate and graduate, (Master's and Ph.D) level Electronics Engineering course. Full responsibility for lectures, exams, homework assignments, and grading. At Georgia Institute of Technology **Visiting Professor** (Jan. 2002-Dec. 2002 and Jan. 2010-Dec. 2010): Research activities at Georgia Institute of Technology's Electrical Energy Group.
ADVISING	Ph.D. Theses • José Vivas (expected Dec-2014), *"Uso de Convertidores Multinivel para aplicaciones de FACT"* **("Multilevel converters for FACT applications").** • Gabriel Noriega (Oct-2009), *"Forraje Bacterial para Identificación de Parámetros en Línea de una Máquina Sincrónica con DTC Predictivo"* **("Online Synchronous Machine Parameter Identification for predictive DTC")**. • Alexis Cabello (Feb-2008), *"Controlador Directo de Par Mediante Lógica Difusa Aplicado a Máquinas de Inducción y de Reluctancia Conmutada"*, **("Fuzzy-DTC for Induction Machines and Switched Reluctance Machines")**. • Julio C. Viola (Jan-2008), "Control Adaptativo de Sistemas Electrónicos de Potencia con Redes Neuronales y Criterio de Estabilidad de Lyapunov", ("Adaptive Control of Electronic Systems Using ANNs with Lyapunov based training"). Master's Theses • Alberto Berzoy (Oct-2008) • Marcel Ortega (Jan-2005) • Carlos Betencourth (Dec-2000) • Alexis Cabello (Dec-1999) Professional Engineer Final Projects • Adrian Zambrano (Oct-2011) • Juan Colmenares (Nov-2011) • Ciro Sosa (Nov-2011) • Ken Harima (Feb-2002) • Jimmy Rodríguez (Aug-2002) • José Rodríguez (Aug-2002) • A. Armesto (Feb-2002) • L. López (Feb-2002) • Iván Torres L. (Mar-1997) • José Camacho (Mar-1997)

ADMINISTRATIVE APPOINTMENTS AT UNIVERSIDAD SIMÓN BOLÍVAR	• Director of the Electronics Laboratory (Jan-2011- present) • Coordinator of Graduate Studies in Electronics Engineering (Sep 2006 – Sep 2009)
PUBLICATIONS	I- Journal Articles in English 1. Du, L.; Restrepo, J.; Yang, Y.; Harley, R.; Habetler, T.; "Nonintrusive, Self-Organizing, and Probabilistic Classification and Identification of Plug Electric Loads in Smart Buildings". IEEE TRANSACTIONS ON SMART GRIDS, Vol. 4, pp. 1371 – 1380, 2013. http://dx.doi.org/10.1109/TSG.2013.2263231 2. Bueno, A.; Aller, J.; Restrepo, J.; Harley, R.; Habetler, T.; "Harmonic and Unbalance Compensation based on Direct Power Control for Electric Railway Systems". IEEE TRANSACTIONS ON POWER ELECTRONICS, Vol. 28, pp. 5823 – 5831, 2013. http://dx.doi.org/10.1109/TPEL.2013.2253803 3. Liang, J.; Howard, D.; Restrepo, J.; Harley, R.; "Feed-Forward Transient Compensation Control for DFIG Wind Turbines during both Balanced and Unbalanced Grid Disturbances". IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, Vol. 49, pp. 1452 - 1463. 2013. http://dx.doi.org/10.1109/TIA.2013.2253439 4. Grubic, S.; Restrepo, J.; Habetler, T.; 2013. "Online Surge Testing Applied to an Induction Machine with Emulated Insulation Breakdown". IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS, Vol. 49, pp. 1358 – 1366, 2013. http://dx.doi.org/10.1109/TIA.2013.2253535. 5. Cheng, S.; Du, Y.; Restrepo, J.; Zhang, P.; Habetler, T.; "A Nonintrusive Thermal Monitoring Method for Induction Motors fed by Closed-loop Inverter Drives". IEEE TRANSACTIONS ON POWER ELECTRONICS. Vol. 27, pp. 4122 - 4131. 2012. http://dx.doi.org/10.1109/TPEL.2012.2188045 6. Restrepo, J.; Berzoy, A.; Ginart, A.; Aller, J.; Harley, R.; Habetler, T.; "Switching Strategies for Fault Tolerant Operation of Single DC-link Dual Converters". IEEE TRANSACTIONS ON POWER ELECTRONICS. Vol. 27, pp. 509 - 518. 2012. http://dx.doi.org/10.1109/TPEL.2011.2161639 7. Noriega, G.; Restrepo, J.; Bueno, A.; Aller, J.; Giménez, M.; Guzmán, V.; "Classic, fuzzy and predictive DTC strategies for the PMSM using the bacterial foraging algorithms an online parameter estimator". (ANTIOQUIA UNIVERSITY, FACULTY OF ENGINEERING MAGAZINE) REVISTA FACULTAD DE INGENIERÍA UNIVERSIDAD DE ANTIOQUIA. Vol. 64, pp. 182 - 194. 2012. 8. Berzoy, A.; Viola, J.; Restrepo, J.; "Voltage space vector's computation for current control in three phase converters". (ANTIOQUIA UNIVERSITY, FACULTY OF ENGINEERING MAGAZINE) REVISTA FACULTAD DE INGENIERIA-UNIVERSIDAD DE ANTIOQUIA. Vol. 64, pp. 45 -56. 2012. 9. Restrepo, J.; Aller, J.; Bueno, A.; Viola, J. C; Berzoy, A.; Harley, R.; Habetler, T.; "Direct Power Control of a Dual Converter Operating as Synchronous Rectifier". IEEE TRANSACTIONS ON POWER ELECTRONICS. Vol. 26, pp. 1410 - 1417. 2011. http://dx.doi.org/10.1109/TPEL.2010.2084106 10. Restrepo, J.; Aller, J.; Bueno, A.; Guzmán, V.; Giménez, M.; "Generalized Algorithm for Pulse Width Modulation using a Two-Vectors Based Technique". EPE JOURNAL. Vol. 21, No-1, pp. 30 - 39. 2011. 11. Restrepo, J.; Aller, J.; Viola, J. C.; Bueno, A.; Guzmán, V.; Giménez, M.; "Switching Strategies for DTC on Asymmetric Converters". EPE JOURNAL. Vol. 21, No-2, pp. 35 - 42. 2011. 12. Grubic, S.; Restrepo, J.; Aller, J. M; Lu, B.; Habetler, T.; "A New Concept for Online Surge Testing for the Detection of Winding Insulation Deterioration". IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS. Vol. 47, pp. 2051 - 2058. 2011. http://dx.doi.org/10.1109/TIA.2011.2161972 13. Restrepo, J; Guzmán, V.; Giménez, M; Bueno, A; Aller, J.; "Parallelogram Based Method for Space Vector Pulse Width Modulation". (ANTIOQUIA UNIVERSITY, FACULTY OF ENGINEERING MAGAZINE) REVISTA FACULTAD DE INGENIERIA-UNIVERSIDAD DE ANTIOQUIA. Vol. 52, pp. 161 - 171. 2010. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-62302010000200014&lng=en&nrm=iso

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19. Rajagopalan, S.; Aller, J. M.; Restrepo, J. A.; Habetler, T. G.; Harley, R. G.; "Analytic-Wavelet-Ridge-Based Detection of Dynamic Eccentricity in Brushless Direct Current (BLDC) Motors Functioning Under Dynamic Operating Conditions". IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, Vol. 54, pp. 1410 - 1419. 2007. http://dx.doi.org/10.1109/TIE.2007.894699
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II- Journal Articles in Spanish

25. Noriega, G. M.; Restrepo, J. A.; Aller, J. M.; Giménez, M. I.; Guzmán, V. M.; "Utilización del algoritmo de forraje bacterial para identificar en línea los parámetros de un sistema eléctrico". UNIVERSIDAD, CIENCIA Y TECNOLOGÍA. Vol. 54, pp. 45 - 54. 2010.

26. M. Ortega, J. A. Restrepo, J. C. Viola, M. I. Giménez and V. M. Guzmán; "Direct torque control of induction machines with current limitation and ripple reduction using fuzzy logic (Control directo de par de máquinas de inducción con limitación de corriente y reducción del rizado mediante lógica difusa)". REVISTA TÉCNICA DE LA FACULTAD DE INGENIERÍA UNIVERSIDAD DEL ZULIA. Vol. 31, pp. 190 - 198. 2008.
http://www.scielo.org.ve/pdf/rtfiuz/v31n2/art10.pdf
J. M. Aller, A. Bueno, J. A. Restrepo and G. Noriega; "Control Directo de Potencia Activa y Reactiva mediante Vectores Espaciales". REVISTA DE LA FACULTAD DE INGENIERÍA DE LA UNIVERSIDAD CENTRAL DE VENEZUELA, Vol. 21, pp. 67 - 73. 2006. ISSN: 07984065
27. J. C. Viola, M. Strefezza and J. A. Restrepo; "Mejoramiento de la Respuesta de un Sistema de Emulación Activa de Carga Mediante el uso de un Sistema de Inferencia Difuso". REVISTA IEEE AMÉRICA LATINA. Vol. 3, pp. 57 - 61. 2005.
28. J. M. Aller, A. Bueno, J. A. Restrepo, V. M. Guzman and M. I. Giménez; "Hybrid control of induction machine without speed sensors [Técnica combinada de control de la máquina de inducción sin sensores de velocidad]". REVISTA DE LA FACULTAD DE INGENIERÍA DE LA UNIVERSIDAD CENTRAL DE VENEZUELA. Vol. 19 - No.2, pp. 63 - 73. 2004. ISSN: 07984065
29. V. M. Guzmán, M. I. Giménez, J. A. Restrepo, J. M. Aller, A. Bueno and J. C. Regidor; "Modified three-junction model for gate turn off thyristor simulation with SPICE [Modelo de tres junturas modificado para simular tiristores apagados por compuerta en SPICE]". REVISTA INTERNACIONAL DE INFORMACIÓN TECNOLÓGICA, Vol 10, n. 5, pp. 149-157. 1999.
http://www.scopus.com/inward/record.url?eid=2-s2.0-0033350056&partnerID=MN8TOARS
30. A. Bueno, J. M. Aller, J. A. Restrepo, M. I. Giménez and V. M. Guzmán; "Vector control of induction machines using neural networks with parametric adaptation in real time [Control vectorial de las maquinas de inducción utilizando redes neuronales con adaptación paramétrica en tiempo real]". REVISTA INTERNACIONAL DE INFORMACIÓN TECNOLÓGICA, Vol 10, n. 2, pp. 337-344. 1999.
http://www.scopus.com/inward/record.url?eid=2-s2.0-0032665515&partnerID=MN8TOARS

III- Papers in conference proceedings

1. Viola, Julio; Baethge, Erick; Berzoy, Alberto; Restrepo, Jose; Quizhpi, Flavio, "DC voltage estimation methods for multilevel converter operating with reduced number of sensors," CIRCUITS AND SYSTEMS (LASCAS), 2014 IEEE 5TH LATIN AMERICAN SYMPOSIUM ON, pp.1,4, 25-28 Feb. 2014.
http://dx.doi.org/10.1109/LASCAS.2014.6820249
2. Rengifo, Johnny; Aller, Jose; Berzoy, Alberto; Restrepo, Jose, "Predictive DTC algorithm for induction machines using Sliding Horizon Prediction," CIRCUITS AND SYSTEMS (LASCAS), 2014 IEEE 5TH LATIN AMERICAN SYMPOSIUM ON, pp.1,4, 25-28 Feb. 2014
http://dx.doi.org/10.1109/LASCAS.2014.6820265
3. Pesantez, J.; Quizhpi, F.; Restrepo, J., Sanchez, M.; Viola, J.; "Analysis of a Four-Phase Induction Machine with Direct Torque Control". EPE 2009 15th EUROPEAN CONFERENCE ON POWER ELECTRONICS AND APPLICATIONS. Lille, France, pp. 1-9. 2013.
http://dx.doi.org/10.1109/EPE.2013.6631884
4. Aller, J.; Bueno, A.; Delgado D.; Restrepo, J.; Viola, J.; "Model of the Induction Machine including Saturation". EPE 2009 15th EUROPEAN CONFERENCE ON POWER ELECTRONICS AND APPLICATIONS. Lille, France, pp. 1-8. 2013.
http://dx.doi.org/10.1109/EPE.2013.6631883
5. Dang, J.; Haghbin, S.; Du, Y.; Bednar, C.; Liles, H.; Restrepo, J.; Harley, R.; Mayor, R.; "Electromagnetic Design Considerations for a 50,000 rpm 1kW Switched Reluctance Machine using a Flux Bridge". IEEE INTERNATIONAL ELECTRIC MACHINES AND DRIVES CONFERENCE (IEMDC 2013), Chicago, USA, pp. 325 – 331, 2013.
http://dx.doi.org/10.1109/IEMDC.2013.6556271

6. Du, L.; He, D.; Yang, Y.; Restrepo, J.; Lu, B.; Harley, R.; Habetler, T.; “Self-organizing classification and identification of miscellaneous electric loads”. POWER AND ENERGY SOCIETY GENERAL MEETING, IEEE. San Diego, USA. pp. 1 - 6. 2012. http://dx.doi.org/10.1109/PESGM.2012.6343927
7. Millán, A.; Villanueva, C.; Restrepo, J.; Aller, J.; Guzmán, V.; Giménez, M.; Viola, J. C.; “Comparing Parameter Identification Strategies for a Saturated Model of an Induction Motor”. IEEE-ANDESCON 2012. Cuenca, Ecuador. Noviembre 2012. "IEEEXplore". pp. 123 - 126. 2012. http://dx.doi.org/10.1109/Andescon.2012.37
8. Berzoy, A.; Baethge, E.; Restrepo, J.; Viola, J. C.; “Fuzzy Control System for Maximum Power Point Tracking in Solar Panels Based On DC-DC Converter PI Current Control”. IEEE-ANDESCON 2012. Cuenca, Ecuador. Noviembre 2012. "IEEEXplore". pp. 119 - 122. 2012. http://dx.doi.org/10.1109/Andescon.2012.36
9. Rengifo, J.; Aller, J.; Bueno, A.; Viola, J.; Restrepo, J.; “Parameter Estimation Method for Induction Machines Using the Instantaneous Impedance during a Dynamic Start-Up”. IEEE-ANDESCON 2012. Cuenca, Ecuador. Noviembre 2012. "IEEEXplore". pp. 11 - 14. 2012. http://dx.doi.org/10.1109/Andescon.2012.13
10. Bueno, A.; Aller, J.; Berzoy, A.; Restrepo, J.; “Esquema de Compensación para Sistemas Eléctricos Ferroviarios por Control de Potencia Instantánea”. III CONGRESO VENEZOLANO DE REDES Y ENERGÍA ELÉCTRICA. Caracas, Venezuela. "CIGRE". pp. 1 - 8. 2012.
11. Berzoy, A.; Restrepo, J.; Zambrano, A.; Rengifo, J.; “Modulación generalizada por ancho de pulso utilizando una representación en vectores espaciales implementada en el FPGA VirtexPro”. III CONGRESO VENEZOLANO DE REDES Y ENERGÍA ELÉCTRICA. Caracas, "CIGRE". pp. 1 - 6. 2012.
12. Cheng, S.; Du, Y.; Restrepo, J.; Zhang, P.; Habetler, T.; “A Nonintrusive Thermal Monitoring Method for Closed-loop Drive-fed”. THIRD IEEE ENERGY CONVERSION CONGRESS AND EXPOSITION. Phoenix, USA. pp. 714 - 721. 2011. http://dx.doi.org/10.1109/ECCE.2011.6063840
13. Howard, D.; Restrepo, J.; Smith, T.; Starke, M.; Dang, J.; Harley, R.; “Calculation of Fault Current Contribution of Type I Wind Turbine-Generators”. IEEE POWER & ENERGY SOCIETY GENERAL MEETING. Detroit, USA. pp. 1 - 7. 2011. http://dx.doi.org/10.1109/PES.2011.6039767
14. Grubic, S.; Harley, R.; Habetler, T.; Restrepo, J.; “Experimental Emulation of Stator Turn Insulation Breakdown During a Surge Test”. IEEE - IEMDC INTERNATIONAL ELECTRIC MACHINES AND DRIVES CONFERENCE (IEMDC 2011), May 2011. Niagara Falls, Canada. "IEEExplore". pp. 498 - 503. 2011. http://dx.doi.org/10.1109/IEMDC.2011.5994648
15. Grubic, S.; Restrepo, J.; Habetler, T.; “Online Surge Testing Applied to an Induction Machine with Emulated Insulation Breakdown”. THIRD IEEE ENERGY CONVERSION CONGRESS AND EXPOSITION. Phoenix, USA. Vol. 1. pp. 449 - 456. 2011. http://dx.doi.org/10.1109/ECCE.2011.6063804
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19. Bueno, A; Aller, J; Restrepo, J; Habetler, T.; “Dual Converter Active Filter and Balance Compensation on Electric Railway Systems using the Open Delta Transformer Connection”. IEEE ENERGY CONVERSION CONGRESS & EXPO, ECCE 2010. Atlanta, US. pp. 1185-1190. 2010. http://dx.doi.org/10.1109/ECCE.2010.5617835

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21. Bueno, A; Aller, J; Giménez, M; Restrepo, J; Guzmán, V.; "Active Harmonic Filters and Balance Compensation on Electric Railway Systems using the Open Delta Transformer Connection". EPE 2009 13th EUROPEAN CONFERENCE ON POWER ELECTRONICS AND APPLICATIONS. Barcelona, Spain. 2009. ISBN: 978-1-4244-4432-8
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24. J. A. Restrepo, J. M. Aller, J. C. Viola, A. Bueno.; "A simplified voltage vector selection for direct power control". IEEE INTERNATIONAL CARIBBEAN CONFERENCE ON DEVICES, CIRCUITS AND SYSTEMS, Cancún, Mexico. 2008. http://dx.doi.org/10.1109/ICCDCS.2008.4542611
25. V. Guzmán, M. Giménez, J. A. Restrepo, G. Ceglia, J. Walter, A. Cabello.; "Active Energy Recovering Snubber for the Asymmetric Inverter". IEEE INTERNATIONAL CARIBBEAN CONFERENCE DEVICES, CIRCUITS AND SYSTEMS, Cancún, Mexico. 2008. http://dx.doi.org/10.1109/ICCDCS.2008.4542615
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EXTERNALLY FUNDED RESEARCH PROJECTS	Funding body: Inter-American Development Bank's Program for New Technologies in Venezuela (BID-CONICIT) Dates: 1997-2002 Amount: US$ 100,000.00 Description: Construction of modular converters for Educational and Industrial use. The converter design used a Digital Signal Processor for number crunching, and three sub-cards: 1) An interface board for data gathering and control signal delivery. 2) A protection card for emergency stop of the power stage. 3) A sensor board with plastic fiber isolation for the acquisition converters. The power stage was designed for up to 20 kW applications. Funding body: Planning office for higher studies in Venezuela (OPSU ALMA-MATER) Dates: (2001-2006) Amount: US$ 68,630.00 Description: Funding for equipment, materials and improvement of research laboratories.

	Funding body: Venezuelan National Fund for Science and Technology (FONACIT) Dates: 2012-2013 Amount: US$ 688,884.00 Description: Design methodology for multilevel converters with fault tolerant capability to be used for renewable power delivery to the grid with up to 500 kW power level. Funding body: Universidad Simón Bolívar's Dean for research and development (DID-USB) Dates: 1996-2012 Amount: US$ 192,000.00 Description: Funding for research activities performed by the Power Electronics Group. Master and PhD research students are separately funded by the state, and are not included in the projects described above.
INVITED TECHNICAL TALKS	• Georgia Institute of Technology, Application of time frequency technique for sensorless control of induction machines, Atlanta-US, Mar-2002, duration 1 hour. • Georgia Institute of Technology, Design of an Adaptable DSP based converter for research, Atlanta-US, Sep-2002, duration 1 hour. • Georgia Institute of Technology, Harmonic and Balance Compensation using Instantaneous Active and Reactive Power Control on Electric Railway Systems, Atlanta-US, Feb-2010, duration 1 hour. • Universidad Autónoma de Occidente, Machine Diagnostics (Insulation fault detection), Cali-Colombia Aug. 2012, duration 2 hours. • Universidad del Valle, Design of an Adaptable Test-rig for Industrial Applications, Cali-Colombia Sep. 2012, duration 3 hours.
	• IEEE-ANDESCON2012, Technical course in Power Electronics, Cuenca-Ecuador, Nov-2012, duration 2 days. • Universidad Autónoma de Occidente, Machine Diagnostics (Stator temperature measurement using DC current injection), Cali-Colombia Aug. 2013, duration 2 hours.

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