

Walter Gutierrez, Ph.D.

Postdoctoral Research Associate

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EDUCATION

DOCTOR OF PHILOSOPHY (PH.D.) IN MECHANICAL ENGINEERING.

Texas Tech University, Whitacre College of Engineering, Lubbock, Texas, U.S.A.

September 2013 – December 2017.

- *Dissertation*: “Low-Level Jet — Wind Turbine Interactions and their Impacts on Performance, Power Production and Mechanical Responses: A Numerical Approach.”
- *Committee chair*: Dr. Luciano Castillo.
- *Committee members*: Dr. Arquimedes Ruiz-Columbie, Dr. Murat Tutkun, Dr. Carsten Westergaard, Dr. Andy Swift, Dr. Chris Pattison, Dr. Burak Aksak.
- *GPA*: 3.724 / 4.000.

MASTER OF SCIENCE (M.SC.) IN DATA SCIENCE.

Texas Tech University, Rawls College of Business, Lubbock, Texas, U.S.A.

September 2013 – December 2016.

- *GPA*: 3.833 / 4.000.

ACADEMIC CERTIFICATE IN WIND ENERGY GRADUATE CREDENTIAL – TECHNICAL TRACK.

Texas Tech University, National Wind Institute, Lubbock, Texas, U.S.A.

September 2013 – December 2015.

- *GPA*: 4.000 / 4.000.

ACADEMIC CERTIFICATE IN WIND ENERGY GRADUATE CREDENTIAL – MANAGERIAL TRACK.

Texas Tech University, National Wind Institute, Lubbock, Texas, U.S.A.

September 2014 – December 2015.

- GPA: 4.000 / 4.000.

BACHELOR OF ENGINEERING (B.E.) WITH HONORS IN MECHANICAL ENGINEERING.

Technological University of Havana, College of Energy, Havana, Cuba.

September 1981 – July 1986.

- Thesis: “Computer Program to Calculate Thermal Balances of Power Plants in Personal Computers.”
- Thesis Advisor: Engineer Blas de la Cruz.
- GPA: 4.86 / 5.00 (Golden Diploma, best GPA).

OTHER COURSEWORK

ALL CREDITS OF MASTER IN COMPUTER-AIDED DESIGN (13 courses).

Technological University of Havana, Faculty of Industrial Engineering, Havana, Cuba.

September 1996 – July 1998.

- GPA: A.

MOST CREDITS OF BACHELOR IN COMPUTER SCIENCE (40 courses passed/transferred).

Technological University of Havana, Faculty of Industrial Engineering, Havana, Cuba.

September 1993 – July 1998.

- GPA: 4.38 / 5.00.

PUBLICATIONS

PEER-REVIEWED JOURNALS AND HIGH-CIRCULATION MAGAZINES

1. J. A. O'Donnell, H. Bocanegra Evans, A. Doosttalab, W. Gutierrez, S. Abedi, D. Warsinger, D. Niyogi and L. Castillo, "Socioeconomic Equality through Clean Energy Access," *Energy Policy*, pp. 1-18, In preparation.
2. W. Gutierrez and L. Castillo, "Auspicious Locations in the United States for Population Development with the Support of Renewable Energy," *Renewable and Sustainable Energy Reviews*, In preparation.

3. W. Gutierrez, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "The structural response of a wind turbine under operating conditions with a low-level jet," *Renewable and Sustainable Energy Reviews*, vol. 108, pp. 380-391, 2019.
4. L. Castillo and W. Gutierrez, "Non-renewable energy's other environmental problem: water waste," *Axios*, 21 December 2018.
5. L. Castillo, W. Gutierrez and J. Gore, "Renewable Energy Saves Water and Creates Jobs," *Scientific American Online*, 7 August 2018.
6. W. Gutierrez, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Impacts of the low-level jet's negative wind shear on the wind turbine," *Wind Energy Science*, vol. 2, no. 2, pp. 533-545, 20 November 2017.
7. W. Gutierrez, G. Araya, P. Kiliyanpilakkil, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Structural impact assessment of low level jets over wind turbines," *Journal of Renewable and Sustainable Energy*, vol. 8, no. 2, p. 023308, 2016.

CONFERENCE PROCEEDINGS

8. W. Gutierrez, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Impact of the Low-Level Jets Negative Wind Shear on the Wind Turbine's Blades," in *The 15th LACCEI International Multi-Conference for Engineering, Education and Technology: Conference Proceedings*, Presented at LACCEI 2017, Boca Raton, Florida, USA, Florida: Latin American and Caribbean Consortium of Engineering Institutions (LACCEI), 2017, pp. 1-5.
9. W. Gutierrez, G. Araya, S. Basu, A. Ruiz-Columbie and L. Castillo, "Toward Understanding Low Level Jet Climatology over West Texas and its Impact on Wind Energy," *Journal of Physics: Conference Series*, vol. 524, no. 1, p. 012008, June 2014.
10. W. Gutierrez Rodriguez, "Analysis of Low Level Jets (LLJs) and Its Implications for Wind Energy," in *Proceedings for the 2013 Symposium on Frontiers of Fluid Dynamics, A Legacy*, Presented at the 2013 Symposium on Frontiers of Fluid Dynamics, San Juan, Puerto Rico, 2013, 2 November.

PRESENTATIONS

ORAL PRESENTATIONS

1. H. A. Esquivel-Puentes*, A. Vacca, L. P. Chamorro, J. Garcia-Bravo, H. Bocanegra-Evans, D. Warsinger, W. Gutierrez and L. Castillo, "Experimental comparison of HAWTs with hydrostatic and regular transmissions," in *Bulletin of the American Physical Society*, Presented at the 72nd Annual Meeting of the APS Division of Fluid Dynamics, Seattle, Washington, USA, 2019, 24 November.
2. A. Doosttalab*, D. Siguenza, J. O'Donnell, W. Gutierrez, V. Pulletikurthi, Y. Jin, L. P. Chamorro and L. Castillo, "Positive effect of a synthetic low-level jet on the mean power and momentum transport of a wind-turbine array," in *Bulletin of the American Physical Society*, Presented at the 72nd Annual Meeting of the APS Division of Fluid Dynamics, Seattle, Washington, USA, 2019, November 25.

3. W. Gutierrez* and L. Castillo, "Drought Index and Renewable Energies," in *Research Study Abroad Experience in Peru during December 12-20, 2018*, Presented at Universidad Nacional de San Antonio Abad del Cusco, Cusco, Peru, 2018, 14 December.
4. D. Siguenza*, A. Doosttalab, J. O'Donnell, W. Gutierrez-Rodriguez, V. Pulletikurthi, Y. Jin, A. Ruiz-Columbie, L. P. Chamorro and L. Castillo, "Effect of a synthetic low-level jet on the mean power and momentum transport of a model wind-turbine array," in *Bulletin of the American Physical Society*, Presented at the 71th Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, Georgia, USA, 2018, 19 November.
5. M. Karimi*, A. Ruiz-Colombie, W. Gutierrez and L. Castillo, "On the mechanism of low-level jets formation," in *Bulletin of the American Physical Society*, Presented at the 71th Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, Georgia, USA, 2018, 18 November.
6. W. Gutierrez* and L. Castillo, "Renewable Energies Save Water and Create Jobs," in *National Week of Sciences 2018*, Presented at the National Week of Sciences 2018, Huancayo, Peru, 2018, 5 November.
7. M. Karimi*, W. Gutierrez, A. Ruiz-Columbie and L. Castillo, "Formation Mechanism of the Low-level Jets: A DNS Study of the Nocturnal Boundary Layers," in *iTi Conference on Turbulence*, Presented at the iTi Conference 2018, Bertinoro, Italy, 2018, 4 September.
8. W. Gutierrez, A. Ruiz-Columbie, M. Tutkun and L. Castillo*, "Propagation of low-level jet's signals across the wind turbine structures," in *Bulletin of the American Physical Society*, Presented at the 70th Annual Meeting of the APS Division of Fluid Dynamics, Denver, Colorado, USA, 2017, 21 November.
9. L. Castillo* and W. Gutierrez, "The case for wind energy on water security," in *International Conference on Future Technologies for Wind Energy*, Presented at WindTech 2017, Boulder, Colorado, USA, 2017, 26 October.
10. W. Gutierrez*, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Impact of the Low-Level Jets Negative Wind Shear on the Wind Turbine's Low-Speed and High-Speed Shafts," in *North America Wind Energy Academy (NAWEA) Symposium 2017*, Presented at NAWEA Symposium 2017, Ames, Iowa, USA, 2017.
11. L. Castillo* and W. Gutierrez, "Grand Challenge #4: The Case for Wind Energy in Food Security," in *2017 Borlaug Summer Institute on Global Food Security*, West Lafayette, Indiana, USA, 2017, 8 June.
12. W. Gutierrez, A. Ruiz-Columbie, M. Tutkun and L. Castillo*, "Impact of the Low-Level Jet's Negative Wind Shear on the Wind Turbine's Nacelle and Tower," in *International Conference Windfarms2017*, Madrid, Spain, 2017, 2 June.
13. W. Gutierrez*, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Assessing the Impacts of Low Level Jets' Negative Wind Shear over Wind Turbines," in *Bulletin of the American Physical Society*, Presented at the 69th Annual Meeting of the APS Division of Fluid Dynamics, Portland, Oregon, USA, 2016, 20 November.
14. W. Gutierrez*, "Assessing the Impacts of Low Level Jets' Negative Wind Shear over Wind Turbines," in *WINDINSPIRE virtual meeting*, 2016, 9 September.
15. W. Gutierrez Rodriguez*, G. Araya, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Assessing the Impacts of Low Level Jets over Wind Turbines," in *Bulletin of the American Physical Society*, Presented at the 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, Massachusetts, USA, 2015, 23 November.

16. W. Gutierrez*, "Structural Impact Assessment of Low Level Jets over Wind Turbines," in *WINDINSPIRE virtual meeting*, 2015, 23 July.
17. W. Gutierrez, G. Araya, P. Kiliyanpilakkil, A. Ruiz-Columbie*, M. Tutkun and L. Castillo, "Structural Impact of Different Low Level Jet Types over Wind Turbines in West Texas," in *WINDFARMS 2015. International Colloquium on "Large wind-power plants: interaction, control and integration"*, Leuven, Belgium, 2015.
18. W. Gutierrez*, G. Araya, P. Kiliyanpilakkil, S. Basu, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Assessing the Structural Impact of Low Level Jets over Wind Turbines," in *North American Wind Energy Academy 2015 Symposium Collection [82]*, Presented at the North America Wind Energy Academy (NAWEA) Symposium 2015, Blacksburg, Virginia, USA, 2015, 11 June.
19. W. Gutierrez*, G. Araya, P. Kiliyanpilakkil, S. Basu, A. Ruiz-Columbie and L. Castillo, "Thermal transport processes in stable boundary layers," in *Bulletin of the American Physical Society*, Presented at the 67th Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics, San Francisco, California, USA, 2014, 24 November.
20. V. P. Kiliyanpilakkil*, G. Araya, S. Basu, A. Ruiz-Columbie, W. Gutierrez and L. Castillo, "Identifying turbulent coherent structures during LLJ events," in *Bulletin of the American Physical Society*, Presented at the 67th Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics, San Francisco, California, USA, 2014.
21. W. Gutierrez*, G. Araya, P. Kiliyanpilakkil, S. Basu, A. Ruiz-Columbie and L. Castillo, "Toward Understanding Low Level Jet Climatology over West Texas and its Impact on Wind Energy," in *WINDINSPIRE & SEP workshop on Wind Energy*, Baltimore, Maryland, USA, 2014, 30 June.
22. W. Gutierrez*, G. Araya, S. Basu, A. Ruiz-Columbie and L. Castillo, "Toward a Low Level Jet Climatology over West Texas," in *Texas Fluid Dynamics Meeting*, Burnet, Texas, USA, 2014, 12 April.

POSTERS

23. W. Gutierrez, A. Ruiz-Columbie*, M. Tutkun and L. Castillo, "Wind Turbine Streamwise Tip Deflection Polar Cardioid-like Patterns due to Blade-Tower Interactions Under Wind Shears," in *AWEA WINDPOWER 2018 Conference & Exhibition*, Presented at WINDPOWER 2018, Chicago, Illinois, USA, 2018, 9 May.
24. W. Gutierrez*, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Impact of the Low-Level Jets Negative Wind Shear on the Wind Turbine's Blades," in *The 15th LACCEI International Multi-Conference for Engineering, Education and Technology: Conference Proceedings*, Presented at LACCEI 2017, Boca Raton, Florida, USA, Florida: Latin American and Caribbean Consortium of Engineering Institutions (LACCEI), 2017, pp. 1-5.
25. W. Gutierrez, A. Ruiz-Columbie*, M. Tutkun, K. Rozsavolgyi and L. Castillo, "Understanding Wind Turbine Mechanical Responses to Low Level Jet Shears and the possible impacts on power production," in *AWEA WINDPOWER 2017 Conference & Exhibition*, Presented at WINDPOWER 2017, Anaheim, California, USA, 2017, 24 May.
26. W. Gutierrez*, A. Ruiz-Columbie, M. Tutkun and L. Castillo, "Microstructure of a Low Level Jet," in *International Colloquium on wind-power plants WIND FARMS 2016*, Presented at WIND FARMS 2016, Richardson, Texas, USA, 2016, 24 May.

27. W. Gutierrez*, G. Araya, S. Basu, A. Ruiz-Columbie and L. Castillo, "Toward Understanding Low Level Jet Climatology over West Texas and its Impact on Wind Energy," in *Journal of Physics: Conference Series*, Presented at The Science of Making Torque from Wind, 2014, Copenhagen, Denmark, 2014, 19 June.
28. W. Gutierrez Rodriguez*, "Analysis of Low Level Jets (LLJs) and Its Implications for Wind Energy," in *Proceedings for the 2013 Symposium on Frontiers of Fluid Dynamics, A Legacy*, Presented at the 2013 Symposium on Frontiers of Fluid Dynamics, San Juan, Puerto Rico, 2013, 2 November.

(asterisk * indicates presenter)

PEER-REVIEW ACTIVITIES

1. WIND ENERGY SCIENCE, published by the European Academy of Wind Energy (EAWC): 1 review.
2. JOURNAL OF SOLAR ENERGY ENGINEERING, published by The American Society of Mechanical Engineers (ASME): 3 reviews.
3. QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY: 1 review.

ACADEMIC PROJECTS

1. W. Gutierrez, "Fracture and Failure Analysis: Forensic Engineering Investigation of the Failure of a Grinding Wheel," Texas Tech University, Lubbock, TX, USA, 2016.
2. M. Bommareddy, S. Dudapu, W. Gutierrez and J. Setterlund, "Data Science: Amazon Fine Food Reviews," Texas Tech University, Lubbock, TX, USA, 2016.
3. W. Gutierrez, V. Praturi, S. Dhoble and P. Dsilva, "Prescriptive Analytics: Prescriptive Analytics: Apache Corporation," Texas Tech University, Lubbock, TX, USA, 2016.
4. M. Bommareddy, S. Dudapu, W. Gutierrez and J. Setterlund, "Data and Text Mining: Classification and clustering to understand buying patterns of customers," Texas Tech University, Lubbock, TX, USA, 2016.
5. C. Taylor, J. Setturlund, O. Osunsan and W. Gutierrez, "Predictive Analytics: Data Driven Competition: Fog Net Prediction," Texas Tech University, Lubbock, TX, USA, 2016.
6. C. Taylor, J. Setturlund, O. Osunsan and W. Gutierrez, "Predictive Analytics: Kaggle competition: Titanic Disaster: Machine Learning," Texas Tech University, Lubbock, TX, USA, 2016.
7. O. Osunsan, W. Gutierrez and J. Setturlund, "Business Intelligence: Business Intelligence: Car Sales and CPI," Texas Tech University, Lubbock, TX, USA, 2016.

8. O. Osunsan and W. Gutierrez, "Big Data Strategy: Big Data and the Financial Crisis of 2007/08," Texas Tech University, Lubbock, TX, USA, 2016.
9. W. Gutierrez, "Multivariate Analysis: Kaggle Competition: Facial Keypoints Detection," Texas Tech University, Lubbock, TX, USA, 2015.
10. W. Gutierrez and Y. Wang, "Scripting Languages: Statistical Analysis of Uncertainty in Air Flow Using Python," Texas Tech University, Lubbock, TX, USA, 2015.
11. W. Gutierrez, "Atmospheric Boundary Layer: Scale analysis using the Fourier spectral method," Texas Tech University, Lubbock, TX, USA, 2015.
12. P. Bjerck, T. Pereira, D. Martin, W. Gutierrez, A. Buchok and A. Jeffreys, "Managerial Wind Energy: Financial Due Diligence: A 50 MW Wind Power Plant in Iringa, Tanzania," Texas Tech University, Lubbock, TX, USA, 2015.
13. W. Gutierrez, "Managerial Wind Energy: Selection of a Research Site for a Concrete Tower Wind Turbine," Texas Tech University, Lubbock, TX, USA, 2014.
14. W. Gutierrez, "Databases: Development of a Database. Database Analysis Illustration," Texas Tech University, Lubbock, TX, USA, 2014.
15. W. Gutierrez Rodriguez, "Technical Wind Energy: Wind Measurement and Characterization," Texas Tech University, Lubbock, TX, USA, 2014.
16. W. Gutierrez Rodriguez, "Technical Wind Energy: Annual Energy Production and Capacity Factor of a Wind Turbine," Texas Tech University, Lubbock, TX, USA, 2013.

WORK EXPERIENCE

PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA, U.S.A.

POSTDOCTORAL RESEARCH ASSOCIATE.

January 2019 – present.

- Investigated the relations between energy use, natural resources, and social inequality.

PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA, U.S.A.

VISITING SCHOLAR.

July 2018 – December 2018.

- Investigated the relations between water use for the production of energy and sustainable development.
- Presented collaboration opportunities in events in three universities in Peru.
- Published results in science magazine and newsletters.

TEXAS TECH UNIVERSITY, LUBBOCK, TEXAS, U.S.A.

POSTDOCTORAL RESEARCH ASSOCIATE.

January 2018 – November 2018.

- Researched the optimization of electric power flows in electrical networks.

TEXAS TECH UNIVERSITY, LUBBOCK, TEXAS, U.S.A.

RESEARCH ASSISTANT.

September 2013 – December 2017.

- Researched atmospheric low-level jets (LLJ) and their impacts on wind turbines.
- Investigated the relations between water use for the production of energy and sustainable development.
- Presented results in 20 national and international conferences and events.
- Published results in two per-review journals and in two conference proceedings.

DIXIE ELECTRIC, DENVER CITY, TEXAS, U.S.A.

TECHNICIAN.

August 2012 – September 2013.

- Installed automation systems for the petroleum company XTO Energy.

UPWORK, MIAMI, FLORIDA, U.S.A.

INDEPENDENT CONSULTANT.

March 2012 – May 2013.

- Created 16 ITIL document templates for online client.
- Achieved excellent customer's satisfaction scores: (average 5.00 / 5.00).
- Provided technical support.

NEW HORIZONS PERU, LIMA, PERU.

INSTRUCTOR.

March 2010 – November 2011.

- Trained near 1000 IT professionals and business managers working in leading companies in IT, mining, banking, education, tourism, military, etc.
- Lectured 77 courses of Information Technology, Best Practices, and design, configuration and administration of enterprise-wide infrastructures based on Windows Server, Exchange Server and System Center.
- Achieved excellent customer's satisfaction scores (average 8.38 / 9.00).

QBAN CONSULTING, LIMA, PERU.

PRODUCT MANAGER.

October 2009 – October 2010.

- Directed improvement of clients' IT infrastructures with Best Practices guidance.
- Led the Department of Information Technology Products
- Engineered with success virtualization solutions for clients.
- Administered the company's computer network.

SYNERGY SOLUTIONS, SANTA CRUZ, BOLIVIA.

INSTRUCTOR.

July 2009 – September 2009.

- Trained with success IT professionals and business managers in Information Technology Infrastructure Library and IT Best Practices.

GRUPO COGNOS, SANTA CRUZ, BOLIVIA.

INSTRUCTOR.

August 2007 – June 2009.

- Trained IT professionals in enterprise-wide server technologies.
- Taught courses of IT administration with Windows Server and Exchange Server.
- Obtained excellent customer's satisfaction scores.

THOMPSON COMMUNICATIONS, SANTA CRUZ, BOLIVIA.

TECHNICIAN.

February 2005 – September 2008.

- Supported the Event Recording System of the country's main railway company.
- Designed mechanical solutions in support of the Event Recording System.
- Eliminated expensive service requests abroad.
- Administered the company's computer network.

ALCATEL COPAL, HAVANA, CUBA.

COMPUTER AND INFORMATION SYSTEMS MANAGER.

December 2001 – January 2005.

- Led with success the Alcatel Project Management System (PMS) in the country.
- Instituted strict information processes to strengthen resources control, resulting in 10 % reduction in company costs.
- Managed Visual FoxPro database.
- Designed and led implementation of the network/communication infrastructure.
- Oversaw network installations at approximately 10 locations.

CIMEX CORPORATION, DIVISION OF INVESTMENTS, HAVANA, CUBA.

COMPUTER AND INFORMATION SYSTEMS MANAGER.

February 1998 – December 2001.

- Promoted the aggressive implementation of new network and system technologies, becoming a key player in the Division's success.
- Overhauled the hardware infrastructure: the number of equipment was increased by 210%, the ratio computers-to-employee was increased from 1-to-4 to 1-to-1.4, the average hardware age was reduced in 2.5 years.
- Led the design, installation and administration of the physical and logical networks, servers and corporate systems.
- Led the information acquisition and the design of the presentations of the Division's Director to the Corporation's Board of Directors.
- Obtained excellent results in IT audits from national and international authorities.

CIMEX CORPORATION, DIVISION OF INVESTMENTS, HAVANA, CUBA.

SOFTWARE DEVELOPER.

March 1997 – February 1998.

- Programmed new accounting system for the Division.
- Provided Tier III technical support for the Division's IT network and systems.

MY COMPANY, HAVANA, CUBA.

SOFTWARE DEVELOPER.

January 1994 – March 1996.

- Developed software for several national and international companies using Delphi, Visual Basic, C and FoxPro.
- Installed network components and provided technical support.
- Hired and supervised team that designed a computer-generated 3D animation for a Spanish company in the Havana International Fair.

EIPIB, HAVANA, CUBA.

PROJECT SPECIALIST.

March 1991 – January 1994.

- Led the data processing team in the multi-company research entitled, "Technology for the use of national heavy fuels by means of emulsion in water," which received the 1992 Award of the National Academy of Science.
- Researched pollution in the capital city with the Department of Community Health of the National Institute of Hygiene, Epidemiology and Microbiology.

EIPIB, HAVANA, CUBA.

PROJECT DESIGNER.

December 1989 – March 1991.

- Selected as key member of team of skilled mechanical and nuclear engineers, tasked with the creation of a computer system for the static and dynamic analysis of pipeline systems in a nuclear power plant.
- Formulated theoretical analyses and performed quality assurance.
- Selected to visit the Nuclear Power Plant "Laguna Verde" in Veracruz, Mexico.

EIPIB, NUCLEAR POWER PLANT, CIENFUEGOS, CUBA.

NUCLEAR TECHNICIAN.

January 1989 – December 1989.

- Oversaw a workforce composed of 35 workers.
- Planned and organized the installation of pipeline systems in the Turbine Hall.
- Ordered the importation of parts.
- Certified by the Russian standard authority to perform technical roles in nuclear power plants.
- Expedited processes by establishing close connections with investors, suppliers and service providers.

EIPIB, Havana, Cuba.

PROJECT TECHNICIAN.

March 1987 – January 1989.

- Programmed computer systems in Pascal to perform power plants thermal balances, city-wide pollution prediction, boiler's exhaust gases calculation, etc.
- Contributed isometric drawings for a nuclear power plant under construction.
- Performed "as-built" updates to projects in gas plants and power plants.
- Awarded the national medal "Builders of the Future" of the Youth Technical Brigades as outstanding young innovator.
- Results evaluated as "exceptionally positive" in the annual evaluations of the company.

HONORS AND AWARDS

- 1 Golden Diploma in Bachelor of Mechanical Engineering (1986).
- 2 Medal "Builders of the Future" of the Youth Technical Brigades (Cuba) as outstanding young innovator (1989).
- 3 Annual Award of the National Academy of Science (Cuba) in the category Technical Sciences (1992).
 - *Research:* "Technology for the use of national heavy fuels by means of emulsion in water. Project Varamulsion."
 - *Role:* Head of the Data Processing Group.
 - *Principal Investigator:* Miguel Delgado Enrique.

VOLUNTEERING SERVICE

- More than 1000 hours of volunteering work in tutoring, housing construction, agricultural programs, and school and neighborhood services (Cuba).
- Blood donations (Cuba).

CERTIFICATIONS

ACTIVE

1. EXIN Information Technology Infrastructure Library (ITIL) v3 Foundation.
2. Microsoft Certified Professional (MCP).
3. Microsoft Certified Solutions Associate (MCSA) Windows Server 2008.
4. Microsoft Certified IT Professional (MCITP) Enterprise Administrator on Windows Server 2008.
5. Microsoft Office Specialist (MOS) Outlook 2007.
6. Microsoft Certified Technology Specialist (MCTS) Windows Server 2008 Active Directory, Configuration (Charter).
7. Microsoft Certified Technology Specialist (MCTS) Windows Server 2008 Network Infrastructure, Configuration (Charter).
8. Microsoft Certified Technology Specialist (MCTS) Windows Server 2008 Applications Infrastructure, Configuration (Charter).

HISTORY

9. Microsoft Certified Trainer (MCT) 10 years.
10. Microsoft Certified Technology Specialist (MCTS) System Center Operations Manager 2007, Configuration.
11. Microsoft Certified IT Professional (MCITP) Server Administrator on Windows Server 2008.
12. Microsoft Certified Technology Specialist (MCTS) Windows Vista, Configuration.
13. Microsoft Certified IT Professional (MCITP) Enterprise Messaging Administrator on Exchange 2007.
14. Microsoft Certified Technology Specialist (MCTS) Exchange Server 2007, Configuration.
15. Microsoft Certified System Engineer (MCSE) Windows Server 2003.
16. Microsoft Certified System Administrator (MCSA) Windows Server 2003.
17. Microsoft Certified System Administrator (MCSA) Messaging on Windows Server 2003.
18. NComputing Certified Professional.
19. IBM Tivoli Automation Solution Sales Professional v2.
20. IBM Tivoli Security Solution Sales Professional v2.
21. IBM Tivoli Storage Solution Sales Professional v2.
22. IBM Tivoli Enterprise Asset Management Solution Sales Professional v1.

MEMBERSHIPS

- 1 AMERICAN PHYSICAL SOCIETY (APS): 1 October 2013 – present.
- 2 GOLDEN KEY INTERNATIONAL HONOUR SOCIETY: 18 September 2016 – present.
- 3 COLLEGE OF ENGINEERS OF PERU (CIP): 25 February 2011 – present.

SKILLS

HARD SKILLS

- Mechanical Engineering, Data Science, Scientific Research.
- Fossil, Nuclear and Renewable Energies; Atmospheric Boundary Layer (ABL); Low-Level Jets (LLJ); Finite Element Analysis (FEA), Power Plants.
- Information Systems, Big Data, Descriptive Analytics, Predictive Analytics, Prescriptive Analytics, Data Mining, Text Mining, Clustering.
- Information Technology Infrastructure Library (ITIL); IT Best Practices; IT Processes; Network Design and Administration; Database Management Systems (DBMS); Relational DBMS; Lightweight Directory Access Protocol (LDAP); Data Warehouse; Extract, Transform, Load (ETL).
- Geographical Information Systems (GIS).

SOFT SKILLS

- Leadership, Mentoring, Delegation, Responsibility, Planning, Cultural Intelligence, Flexibility, Ethics.
- Creative Thinking, Problem Solving, Self-confidence, Critical Thinking, Perseverance, Technology Oriented, Lifelong Learning, Polymath.
- Bilingual (English, Spanish), Technical Writing.

TOOLS

- MS Windows Server, MS Exchange Server, MS System Center, MS Windows Clients, MS Office, MS Project, MS Visio, Active Directory.
- R, Python, Tableau, C#, C++, Visual Basic, Delphi, Fortran, ASM, SQL Server, Pentaho, Virtualization, TCP/IP.
- Homer Pro, NREL FAST, Abacus, MATLAB, MATPOWER, AutoCAD, LaTeX.