CURRICULUM VITAE

Manuel Raul Pelaez-Samaniego

Faculty of Chemical Sciences, Universidad de Cuenca
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Google Scholar: https://scholar.google.com/citations?user=cQug4PEAAAAJ&hl=en
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Researchgate: https://www.researchgate.net/profile/Mr_Pelaez-Samaniego/contributions

Educational Qualifications:

Postdoctoral Research Associate, Civil and Environmental Engineering Department and Department of Biological Systems Engineering, Washington State University, Pullman, WA, USA, 2014–2015.

Ph.D. Biological and Agricultural Engineering, Washington State University, Pullman, WA, USA. 2014. Dissertation tittle: Thermochemical pretreatment of underutilized woody biomass for manufacturing wood composites (GPA 3.91/4). Supervisor: Dr. Vikram Yadama.

M.S. Planning of Energy Systems, State University of Campinas (UNICAMP), Campinas, SP, Brazil, 2007. Thesis tittle: Use of bio-fuel obtained from the fast pyrolysis of sugarcane trash in an Otto engine (GPA 3.90/4). Supervisor: Dr. Luis A. Barbosa Cortez.

B.S. Mechanical Engineering, University of Orient, Santiago de Cuba, Cuba, 1996 (GPA 4.89/5, Rank 1/144). Gold Degree and *Summa cum Laude*.

Expertise and Research Interests:

- Thermochemical processes to convert biomass into fuels, energy, and bioproducts
- Planning of energy systems
- Wood composites manufacture and testing
- Energy efficiency
- Energy management and Auditing
- Chemical conversion of biomass to fuels
- Electrolytic Hydrogen (production, use, planning)
- Materials Strength
- Design of Machine elements
- Industrial Equipment
- Thermal Machines and Power Plants
- Use of analytical techniques/equipment for materials' characterization and processing: *SEM (Scanning Electron Microscopy), AFM (atomic force microscopy), Confocal and optical microscopy, GC (Gas Chromatography), Py-GC/MS (Pyrolysis-Gas Chromatography/Mass Spectrometer), IC (Ion Chromatography), HPLC (High Performance Liquid Chromatography), TG/DTG (thermogravimetry/differential thermogravimetry), FTIR (Fourier Transform Infrared Spectrometry), DSC (differential scanning calorimetry), Elemental analysis equipment (CHNS), Bomb calorimeter, Equipment for mechanical testing (bending, tension, compression; impact), Rotational and torque rheometers, X-ray diffractometry, UV-Vis Spectrometry, X-ray density profile analyzer, DCAA (dynamic contact angle analysis), Auger and tube furnace pyrolysis reactors, High pressure reactors (e.g., Parr reactors), Equipment/processes for biomass characterization (extractives, lignin, and carbohydrates content; ash and moisture content; calorific value; particle size), Industrial equipment (e.g., hydraulic presses, welding machines, hydraulic pumps, heat exchangers), Machine tools (lathe, drill, planner milling, and CNC lathe).*

Employment:

2015–present: Professor, University of Cuenca, Cuenca, Ecuador.
2007–2015: Associate Professor, University of Cuenca, Cuenca, Ecuador.

2001–2007: Part time Assistant Professor, University of Cuenca, Cuenca, Ecuador.
1996–2001: Part time Lecturer, Salesian Polytechnic University, Cuenca, Ecuador.
1996–2005: Production Manager at INDALUM Ltd., Cuenca, Ecuador.

Publications:

1. **Pelaez-Samaniego, M.R.,** Hummel, R.L., Liao, W., Ma, J., Jensen, J., Kruger, C., Frear, C., 2017. Approaches for adding value to anaerobically digested dairy fiber, *Renewable and Sustainable Energy Reviews*, 72: 254-268. DOI: 10.1016/j.rser.2017.01.054.
2. Garcia-Nunez J.A., **Pelaez-Samaniego M.R.**, Garcia-Perez M.E., Fonts I., Abrego J., Westerhoof R.J.M., Garcia-Perez M., 2017. Historical Developments of Pyrolysis Reactors: A Review, *Energy and Fuels,* DOI: 10.1021/acs.energyfuels.7b00641
3. Perez, J.F., **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., 2017, Characterization of fast-growing Colombian wood species and potential for the production of bioenergy and bioproducts, submitted to *Waste and Biomass Valorization*.
4. **Pelaez-Samaniego, M.R.**, Englund, K.R., 2016. Wood waste materials for sugars production via enzymatic hydrolysis, *Waste and Biomass Valorization*, 8(3), 883-892. doi:10.1007/s12649-016-9652-8.
5. Oasma, A., Fonts, I., **Pelaez-Samaniego, M.R.**, Garcia-Perez, E., Garcia-Perez, M., 2016. Pyrolysis-oil multiphase behavior and phase stability: A review, *Energy and Fuels 30* (8): 6179–6200.
6. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., Lowell, E., Zhu, R., Englund, K., 2016, Interrelationship between lignin-rich dichloromethane extracts of hot water-treated wood fibers and high-density polyethylene (HDPE) in wood plastic composite (WPC) production, *Holzforschung* 70(1): 31–38, DOI: 10.1515/hf-2014-0309.
7. Ferraz, G. P., Frear, C., **Pelaez-Samaniego, M.R.**, Englund, K., Garcia-Perez, M., 2016. Hot Water Extraction of Anaerobic Digested Dairy Fiber for Wood Plastic Composite Manufacturing, *BioResources*. 11(4): 8139–8154.
8. Ramos, S., Pérez, J.F., **Pelaez-Samaniego, M.R.,** Barrera, R., Garcia-Perez, M., 2016. Effect of torrefaction temperature on properties of Patula Pine, *Maderas: Ciencia y Tecnologia* 19(1). DOI:10.4067/S0718-221X2017005000004.
9. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., Lowell, E., 2015. Abundance and Characteristics of Lignin Liquid Intermediates in Wood (*Pinus ponderosa* Dougl. ex Laws.) during Hot Water Extraction, *Biomass and Bioenergy*, 81: 127–128.
10. Hilbers, T., Wang, Z., Pecha, B.M., Westerhof, R.J.M, Kersten, S.R.A., **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., 2015. Cellulose-Lignin Interactions during Fast Pyrolysis, *Journal of Analytical and Applied Pyrolysis,* 114: 197–207.
11. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., E. Lowell, McDonald, M., 2014, Effect of torrefaction temperature on the formation of lignin liquid intermediates, *Journal of Analytical and Applied Pyrolysis* 109: 222–233, doi: 10.1016/j.jaap.2014.06.008.
12. Zhou, S., Westerho, R., **Pelaez-Samaniego, M.R.**, Pecha, B., Garcia-Perez, M., 2014. Understanding the Role of Primary and Secondary Pyrolysis Reactions on the Formation of Mono-Phenols and Lignin Derived Oligomers from Lignocellulosic Materials, *XXIV Congreso Iberoamericano de Catalisis*, CICat 2014. ISBN: 978-958-8848-98-3, 15-19 September 2014, Medellin-Colombia, Proceedings.
13. **Pelaez-Samaniego, M.R.**, Riveros-Godoy, G., Torres-Contreras, S., Garcia-Perez, T., Albornoz, E, 2014. Production and use of electrolytic hydrogen in Ecuador towards a low carbon economy, *Energy*, 64: 626–631.
14. Mesa-Pérez, J.M., Cortez, L.A.B., Marín-Mesa, H.R., Rocha, J.D., **Pelaez-Samaniego, M.R.**, Cascarosa, E., 2014. A statistical analysis of the auto thermal fast pyrolysis of elephant grass in fluidized bed reactor based on produced charcoal, *Applied Thermal Engineering* 65(1-2): 322–329.
15. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, T., Lowell, E., Amidon, T., 2014. Effect of hot water extraction on particleboard produced from hardwood and softwood, *Holzforschung* 68(7): 807–815, DOI 10.1515/hf-2013-0150.

16. **Pelaez-Samaniego, M.R.**, Yadama, V., Lowell E, Espinoza-Herrera R, 2013. A review of wood thermal pretreatments to improve wood composite properties, *Wood Science and Technology*, 47: 1285–1319.
17. **Pelaez-Samaniego, M.R.**, Yadama, V., Lowell, E., Amidon, T., Chaffee, T.L., 2012. Hot water extracted wood fiber for production of wood plastic composites (WPCs), *Holzforschung* 67(2): 193–200.
18. **Pelaez-Samaniego, M.R.**, Mesa-Perez, J., Rocha, J. D., Cortez, L. A. B., Sanchez, C. G., Mesa, H. M., 2011. Use of blends of gasoline with biomass pyrolysis-oil derived fractions as fuels in an Otto engine, *Energy for Sustainable Development* 15: 376–381.
19. **Pelaez-Samaniego, M.R.,** Garcia-Perez, M., Cortez, L.B., Rosillo-Calle, F., Mesa, J., 2008. Improvements of Brazilian Carbonization Industry as Part of the Creation of a Global Biomass Economy. *Renewable and Sustainable Energy Reviews* 12: 1063–1086.
20. **Pelaez-Samaniego, M.R.,** Garcia-Perez, M., Cortez, L.A.B., Oscullo, J., Olmedo, G., 2007. Energy Sector in Ecuador: Current Status. *Energy Policy* 35: 4177–4189.
21. **Pelaez-Samaniego, M.R.**, García Pérez, T., Energy Efficiency in Ecuador: Status and alternatives to improve energy efficiency, *Journal of the Faculty of Chemical Sciences*, 7, July 2009, University of Cuenca, Cuenca, Ecuador, ISSN 13901869 (In Spanish).
22. **Pelaez Samaniego, M.R.**, T. Garcia Perez, Quantification of the energy potential of some biomass resources in Ecuador and potential uses, *Journal of the Faculty of Chemical Sciences*, 6: 45–60, 2008, University of Cuenca, Ecuador, ISSN 13901869 (In Spanish).
23. **Pelaez Samaniego, M.R.**, Uses of biomass for the production of energy, *Journal of the Faculty of Chemical Sciences*, 5: 21–30, 2007, University of Cuenca, Ecuador, ISSN 13901869 (In Spanish).
24. Guillén Gordín, R., Martínez Reyes, A., Villar Vázquez, I., **Pelaez Samaniego**, R., 2005. Simulation of heat and mass transfer in self-ventilated cooling towers, *Revista Tecnología Química*, 25(1): 73–80 (In Spanish).

Papers in preparation

1. **Pelaez-Samaniego, M.R.**, Smith, M., Zhao, Q.Z., Garcia-Perez, T., M., Frear, C., Garcia-Perez, M., 2017. Use of biochar from AD fiber to remove hydrogen sulfide from biogas, to be submitted to *Bioresource Technology*.
2. **Pelaez-Samaniego, M.R.**, Espinoza-Abad, J.L., Garcia-Perez, T., Jara-Alvear, J., 2017, Renewable energies in Ecuador: Current status and prospects, in preparation for submitting to *Energy Policy*.
3. **Pelaez-Samaniego, M.R.** 2017. Products distribution from the fast pyrolysis of tropical wood species using Py-GC/MS, in preparation for submitting to *Maderas: Ciencia y Tecnologia*.
4. **Pelaez-Samaniego, M.R.**, Garcia-Perez, T., Garibay, A., Perez, J.F., Stankovic, F., Yadama, V., 2017. Characterization and Torrefaction of Some South American Wood Species, in preparation for submitting to *Wood Science and Technology*.

Conference presentations and posters (O-oral presentation, P-poster)**:**

1. **Pelaez-Samaniego, M.R.**, Sustainability, Business Models and Techno-economic Analysis of Biomass Pyrolysis Technologies, I Workshop on Development of Theoretical and Experimental Advances on Thermochemical Processes, Universidad Nacional de Medellin, Colombia, 6-10 March, 2017 **(O)**.
2. Ramos Carmona, S., **Pelaez-Samaniego, M.R.**, Perez, J.F., Characterization of pyrolysis products of torrefied biomass with dendroenergy potential in Colombia, 6th International Symposium on Energy from Biomass and Waste VENICE 2016. 14-17 Nov., Venice-Italy.
3. **Pelaez-Samaniego, M.R**., Englund, K., Schneider, G., Wood waste from MSW/C&D as a biofuel feedstock, 2nd Northwest Wood-Based Biofuels + Co-Products Conference, Seattle, May 3-4, 2016 **(O)**.
4. **Pelaez-Samaniego, M.R.**, Yadama, V., Lowell, E., Amidon, T., Perez-Bayer, J., Garcia-Perez, T., Adoption of biorefinery concepts in wood composite facilities by means of wood thermochemical pretreatment operations, Proceedings of the VIII CIADICYP, The VIII

IberoAmerican Congress on Pulp and Paper Research, Nov. 26-28, 2014, Medellín, Colombia (ISSN 978-958-764-211-7) (http://www.riadicyp.org) **(P)**.

5. Garibay-Garcia, G.A., **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., Espinoza-Herrera, R., Torrefacción de la biomasa del Eucalyptus nitens utilizando Nitrógeno, 3ra Reunión Anual de la División de Materia Condensada, Universidad Autónoma de México, Campus Morelia, Morelia, 24-26 Sept. 2014 **(O)**.
6. **Pelaez-Samaniego, M.R**., Englund, K., 2014, Characterization of waste wood materials for the production of biofuels, NARA Renewables Annual Meeting, Seattle, Sept. 15-15, 2014. **(P).**
7. **Pelaez-Samaniego, M.R**., Yadama, V., Zhu, R., Garcia-Perez, M., Englund, K., 2014, Contribution of lignin to the rheology of wood plastic composites produced with hot water extracted wood, 68th International Forest Product Society (FPS) 2014 Convention, Quebec, Canada, Aug.10-13, 2014. **(O).**
8. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., Zhu, R., Lowell, E., Amidon, T.E., Abundance and properties of lignin on hot water extracted wood surface and impact on the production of bioproducts and biofuel, Northwest wood-based biofuels + coproducts conference, Seattle, WA, Apr. 28–30 2014 **(P)**.
9. Lowell E., **Pelaez-Samaniego M.R.**, V.Yadama, T.E.Amidon, T.L.Chaffee, *Advantages of hot-water extraction pre-treatment in the manufacture of wood composites*, 67th Convention co-organized by the Forest Products Society and the Society of Wood Science and Technology, June 11–13th, 2013, Austin, TX **(O)**.
10. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Adding value to wood residues through thermochemical processes*, National Convention of the Society of American Foresters, October 24–28, 2012, Spokane, WA **(P)**.
11. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, *Integration of hot-water extraction into wood composite manufacturing process for value added products*, International Conference on "Future of Panel Industry-Challenges and Key Issues", 26–28th September 2012, IPIRTI, Bangalore, India **(O)**.
12. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Effect of Hot-Water Extraction on Wood-Plastic Composites Properties*, Forest Products Society's 66th International Convention, June 3–5, 2012, Washington, DC, USA **(O)**.
13. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Wood-based composites from hot-water extracted biomass*, Forest Products Society's 66th International Convention, June 3–5, 2012, Washington, DC, USA **(P)**.
14. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Integration of hot water extraction in particleboard production***,** Technical presentation, International Wood Composites Symposium, April 11–13th, 2012, Seattle, WA, USA **(P)**.
15. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Wood plastic composites produced from hot-water extracted pine,* Technical presentation, International Wood Composites Symposium, April 11–13th, 2012, Seattle, WA, USA **(P)**.
16. Cortez, L.A.B.; Mesa Pérez, J.M.; Rocha, J. D.; **Pelaez-Samaniego, M.R**.; Mesa, H. R. M.; Jordan, R. A.; *Obtenção de biocombustível pela esterificação de ácidos carboxílicos gerados na pirólise de palha de cana e capim elefante*, 11/2009*,* III Congresso da Rede Brasilieira de Tecnologia de Biodiesel, 3: 765–767, Brasilia, DF, Brasil, 2009 **(O)**.
17. Riveros-Godoy, G., **Pelaez-Samaniego M.R.**, Cavaliero K.C., *Reduction of emissions by the substitution of Diesel vehicles by Fuel-cells in the public transport*, First International Congress in Environment, 27-30 November 2007, University of Cuenca, Cuenca–Ecuador **(O)**.
18. Mesa Pérez, J., R. Viltre Rodríguez, J. Marin Mesa, J D Rocha, **M.R. Peláez-Samaniego**, L.A.B. Cortez, *Bio-flex obtained from the biomass pyrolisis as fuel use*, AGRENER 2006, Unicamp, June 2006 **(O)** (http://www.proceedings.scielo.br/pdf/agrener/n6v1/029.pdf)
19. Martínez A., Brito A., **Peláez Samaniego M.R**., *Exergetic balance of the RETO CV 25-18 boiler with horizontal whirlwind oven*, Third Iberoamerican Congress of Mechanical Engineering CICIM 97 (23–26 of September of 1997), Havana, Cuba **(O).**
20. Martínez A., **Peláez Samaniego, M.R,** Brito A., *Calculation of the irreversibilities of the RETO CV 25-18 boiler*, Third International Conference of Sugar Mill Thermoenergetics (18–20 of November of 1996), Villa Clara, Cuba **(O)**.

21. **Peláez Samaniego M.R.**, *Mathematical Modeling of Self-ventilated Cooling Towers*, Eighth National Forum of University Students and Technical Sciences, Villa Clara, Cuba (26–29 June 1996) **(O).**

Books:

Pelaez-Samaniego, M.R., Espinoza-Abad, J.L., 2015. Editors of the book: Renewable Energies in Ecuador: Current status, tendencies and perspectives (Energías renovables en el Ecuador: Situación actual, tendencias y perspectivas), Universidad de Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9.

Peer reviewed book chapters:

1. Garcia-Perez, M., Garcia-Nunez, J.A., **Pelaez-Samaniego, M.R.**, Kruger, C.E., Fuchs, M.R., Flora, G., 2015. *Sustainability, Business Models and Techno-economic Analysis of Biomass Pyrolysis Technologies*. Chap. 10, In: Innovative Solutions in Fluid-Particle Systems and Renewable Energy Management, Ed. Katia Tannous, (pp. 1-316). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-8711-0 (http://www.igi-global.com/chapter/sustainability-business-models-and-techno-economic-analysis-of-biomass-pyrolysis-technologies/132889).
2. Rocha, J.D., Mesa-Pérez, J.M., Cortez, L.A.B., de Brito, O., Marin-Mesa, H., **Pelaez-Samaniego, M.R.**, "*Alternative uses for residual trash in seed pastures production*", Editors: F.H.D. de Souza, E.B. Pott, O. Primavesi, A.C.C. Bernardi e A.A. Rodrigues, ISBN 85-86764-09-4 EMBRAPA, São Carlos-SP, 241p. 2006, Chap. 7: Potentials for using residual trash of elephant grass pasture to produce energy, p. 121-142 (In Portuguese).
3. **Peláez-Samaniego, M.R.**, García-Pérez, M., Barriga, A., Martí Herrero, J., Montero, A., Mayer, F.D., García-Nuñez, J., 2015. *Estado de uso de la biomasa lignocelulósica para la producción de bioenergía, biocombustibles y bioproductos en Ecuador*, In: Renewable Energies in Ecuador: Current status, tendencies and perspectives, M.R.Pelaez-Samaniego and J.L.Espinoza Abad, Editors. U. Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9, Ch. 2, p. 29-115.
4. **Peláez-Samaniego, M.R.,** Riveros Godoy, G., Torres-Contreras, S., García-Pérez, T., García-Renté, M., Albornoz-Vintimilla, E., 2015. *Hidrógeno electrolítico: perspectivas de producción y uso en Ecuador*, In: In: Renewable Energies in Ecuador: Current status, tendencies and perspectives, M.R.Pelaez-Samaniego and J.L.Espinoza Abad, Editors. U. de Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9, Ch. 4, p. 159-211.
5. Aguilera-Ortiz, E., **Peláez-Samaniego, M.R.**, 2015. *Estado de la energía geotérmica en Ecuador*, In: Renewable Energy in Ecuador: Current status, tendencies and perspectives. M.R.Pelaez-Samaniego and J.L.Espinoza Abad, Editors. U. de Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9, Ch. 8, p. 384-406.

Research Experience, Consultancy, and Funded Projects:

12/2016-08/2017: Co-PI of the project *Study of the potential of cogeneration and trigeneration in Ecuador,* sponsored by CELEC E.P.-UCuenca E.P.

05/2016-05/2018: Researcher for the project *Upflow anaerobic sludge blanket (UASB) reactors engineering at laboratory scale*, sponsored by University of Cuenca.

08/2014-07/2015: Researcher for the *Northwest Advanced Renewables Alliance* (NARA) (https://nararenewables.org/). In charge of evaluating the feasibility of producing sugars for bio-isobutanol using waste wood materials, via acid pretreatment followed by enzymatic hydrolysis.

09/2011-07/2014: Researcher in the project *Converting low value forest biomass to higher value by-products including biofuels, biopolymers, and specialty composites using hot water based biorefinery*, sponsored by the USDA Forest Service Research and Development Woody Biomass, Bioenergy, and Bioproducts 2009 Grant.

2009: PI of the project *Study of the feasibility of producing electrolytic hydrogen in the Hidropaute Unit of Business,* sponsored by CELEC E.P. Unidad de Negocio Hidropaute.

2009: PI of the project *Biochar production in the Southern Ecuadorian Highlands*, sponsored by the University of Cuenca.

2007/08: Private consultant, project *Combustion of rice-husk to produce energy in Ecuador*, sponsored by the Ministry of Electricity and Renewable Energy of Ecuador

2006/2007: Researcher in the project *Feasibility of using sugar-cane trash to produce pyrolysis bio-oil*, UNICAMP, Brazil, sponsored by The State of São Paulo Research Foundation (FAPESP).

Courses taught:

Undergraduate level

- Design of Machine Elements (more than 10 terms)
- Machine Tools (more than 10 terms)
- Industrial Equipment (6 terms)
- Calculus & Differential Equations (4 terms)
- Thermodynamics (2 terms)
- Heat Transfer (4 terms)
- Thermal Machines (2 terms)
- Heat Exchangers (2 terms)
- Dynamics of Automobiles (4 terms)

Graduate level

- Renewable Energies (U. de Cuenca) (2 terms)
- Energy Management (Polytechnic School of the Army (ESPE), Quito and U. Cuenca) (2 terms)
- Energy Efficiency (ESPE, Quito and U. Cuenca) (1 term)
- Oxygenated and High Performance Fuels (U. de Cuenca) (1 term)

MS thesis and diploma works supervised:

- Four MS thesis supervised
- More than twelve diploma works supervised so far

PhD dissertations, MS thesis, and diploma works evaluation committee

- One PhD dissertation (Universidad Nacional de Colombia, Medellin-Colombia)
- Five MS thesis (Universidad de Cuenca)
- More than twenty diploma works

Academic honors, scholarships, and prizes:

2013: Alfred & Genevieve Gallucci Scholarship for Graduate Studies Achievement Award in Biological Systems Engineering, Washington State University, Pullman, WA, USA.

2012: Scholar from Washington State University, PhD Program in Biological and Agricultural Engineering.

2010/12: Fulbright (Faculty Development) – USDOS Scholarship holder to study a PhD in Biological and Agricultural Engineering at Washington State University (Pullman, WA, USA).

2004: First Ecuadorian citizen that received a Global Sustainable Energy Partnership Scholarship (http://www.globalelectricity.org/en/) (former e8 Group) for studying Renewable Energies, under the program Education for Sustainable Energy Development (ESED), used for conducting an MS program at UNICAMP, Brazil.

2004: Beneficiary of a scholarship (not used) from the Quebec Government (Canada) for studying an MS program in Bioenergy at the Laval University.

2004: Beneficiary of a scholarship (not used) from the IECE (Ecuadorian Institute of Educational Loans and Scholarships) (www.iece.fin.ec) for studying an MS program in Bioenergy at the Laval University.

1996: Beneficiary of a scholarship (not used) from the Universidad de Oriente, Santiago de Cuba, for pursuing an MS program in Energy (Mechanical Engineering) at the same university.

1996: First Prize and Special Mention in the Mechanical Engineering Committee of the XII National Forum of University Students in the Technical Sciences, Central University of Las Villas, Cuba, with the work entitled “Mathematical modeling of self-ventilated cooling towers”.

1996: Gold Degree and best graduating class (*Summa Cum Laude*). Faculty of Mechanical Engineering, University of Orient, Santiago de Cuba (GPA 4.89/5, Rank 1/144).
1991/96: Scholar from the IECE (Ecuadorian Institute of Educational Loans and Scholarships) (www.iece.fin.ec) for studying Mechanical Engineering at the University of Orient, Cuba.
1990: Flag bearer and best graduating class (GPA 20/20). Franciscan Private High-School. Ecuador.

Other professional and academic experience:

2016/06-2016/09: Director of the School of Industrial Engineering, U. de Cuenca, Cuenca-Ecuador.
2015/08-2016-07: Member of the Board of Directors of the School of Industrial Engineering, U. de Cuenca
2013/06: Short stage at the EMSL/PNNL (Environmental Molecular Science Laboratory, Pacific Northwest National Laboratory), Richland, WA, USA. Topic: Characterization of torrefied wood using TOF/SIMS (Time of Flight/Secondary Ion Mass Spectrometry).
2012/08-2014/07: Graduate Research Associate, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA, USA.
2012: Member of the Scientific Board of the First Ecuadorian Congress of Sustainable Energy, 26-28 September, 2012, University of Cuenca, Cuenca-Ecuador.
2010: Organizer of the Master's program in Planning and Management of Energy Systems, University of Cuenca, Ecuador.
2008-2015: Invited speaker at various academic events in Cuenca (Ecuador), related with Energy and Sustainability and Environment.

Former and current affiliations and involvement in professional societies and organizations:

- Society of American Foresters (SAF).
- Member of the International Biochar Initiative (http://www.biochar-international.org/)
- State Alumni Member: Bureau of Educational and Cultural Affairs International Exchange Alumni (Fulbright Scholarship).
- WSU Alumni Association.
- Biomass Engineering Club (Washington State University).
- Association of Mechanical Engineers of Ecuador (Azuay), member since 2007.

Reviewer of journals:

- Energy Conversion and Management
- Biomass and Bioenergy (12 papers revised)
- International Journal of Hydrogen Energy
- Journal of Industrial and Engineering Chemistry
- Journal of Polymers and the Environment
- BioResources
- Maderas: Ciencia y Tecnología
- Revista DYNA Industria e Ingeniería
- International Journal of Sustainable Energy
- International Journal of Renewable Energy Technology
- AIMS Energy
- Ingenieria y Universidad: Engineering for Development (Colombia)
- CIT Información Tecnológica, Chile
- Revista Internacional de Contaminación Ambiental (UNAM, México)
- Revista Energética (Universidad Nacional de Colombia, Manizales)
- Revista Tecnológica ESPOL, Guayaquil-Ecuador
- Revista de la Facultad de Ciencias Químicas, U. de Cuenca, Ecuador.

More than 45 papers reviewed so far.

Editor of journal:

- Revista de la Facultad de Ciencias Químicas, U. de Cuenca, Ecuador.

Reviewer of book chapters:

- Reviewer of a chapter in the book "Production of Biofuels and Chemicals from Lignin" (2016), edited by Profs. Smith and Fang, Springer-Verlag book series "Biofuels and Biorefineries" (http://www.springer.com/us/book/9789401796118).

Languages skills & Level of proficiency (B–Basic; **I–**Intermediate; **P–**Proficient)**)**

English:	Speaking **P**	Reading **P**	Writing **P**
Portuguese:	Speaking **P**	Reading **P**	Writing **P**
French:	Speaking **B**	Reading **I**	Writing **B**
Spanish:	Mother Tongue		