Curriculum Vitae

Name: Hugo F. Posada-Quintero, PhD
Present Rank: Assistant Professor, University of Connecticut, Storrs, Connecticut
E-mail: h.posada@uconn.edu

Education

PhD   Biomedical Engineering. University of Connecticut. 2012-2016. Dissertation Title: <u>Electrodermal Activity: What it can contribute to the Assessment of the Autonomic Nervous System</u>

MS   Electronics and Computer Engineering. Universidad de los Andes, Bogotá, Colombia. 2006–2008. Dissertation Title: <u>Design of a System for Blood Pressure Estimation based on the Morphology of Photoplethysmographic Signals</u>

BS   Electronic Engineer. Universidad Distrital Francisco José de Caldas, Bogotá, Colombia. 1999–2005.

Professional Experience – Academic

2021–	Assistant Professor, Department of Biomedical Engineering, University of Connecticut, Storrs, Connecticut USA.
2019–2021	Assistant Research Professor, Department of Biomedical Engineering, University of Connecticut, Storrs, Connecticut USA.
2017–2019	Postdoctoral Research Associate, University of Connecticut, Storrs, Connecticut USA.
2014–2016	Graduate Research Assistant, University of Connecticut, Storrs, Connecticut USA.
2008–2012	Assistant Professor, Universidad Antonio Nariño, Bogotá, Colombia.
2009–2012	Lecturer, Universidad Militar Nueva Granada, Bogotá, Colombia.
2007–2008	Graduate Research Assistant, Universidad de los Andes, Colombia.

Professional Experience - Industry

2008–2009	Assistant to the President – Research Director, Red i5 S.A., Bogotá, Colombia. Real estate market analysis.

Honors and Awards

2021   *Sensors 2020 Outstanding Reviewer Award*

2020   *IOP trusted reviewer status*. For reviewers that have demonstrated a high level of peer review competence, with the ability to critique scientific literature to an excellent standard.

2019   *Top 1% peer reviewer in cross-field*. Global Peer Review Awards – Publons.

2018   *Outstanding Reviewer Award 2018*. IOP Publishing. In recognition of the high quality and timeliness of the reviews for Physiological Measurement.

2016   *PhD Student Research Award*. Department of Biomedical Engineering at the University of Connecticut. 2nd place.

2012   *"Francisco José de Caldas" Doctoral Scholarship*. Colombian Administrative Department of Science, Technology and Innovation – COLCIENCIAS.

2012   Fulbright – Colombia, University Development Doctoral Scholarship.

2010   Science Alliance Summer Research Fellowship. University of Tennessee – Knoxville, Department of Physics and Astronomy and Oak Ridge National Laboratory.

2008   Recognition for Outstanding M.Sc. Thesis. Department of Electrical and Electronic Engineering, Universidad de los Andes, Colombia.

2004   Honorable Mention from the National Government and Ministry of Education of Colombia, for belonging to the Best Students of Electronic Engineering in Government Test (ECAES).

Professional and Scientific Society Memberships

— Institute of Electrical and Electronics Engineers, IEEE, Member.
— IEEE Engineering in Medicine and Biology Society, EMBS, Member.
— American Physiological Society.

Patents

- 'Fabrication and Use of Epidermal Electrodes' K Chon, J Bales, AJ Swiston, BA Reyes, **HF Posada-Quintero**.

Grants and Funding

Diver individualized vitals advanced algorithm (DIVAA)
National Institute for Undersea Vehicle Technology (NIUVT)
2021-2023 $490,000   Co-PI
We aim to perform detection of reduction in diver performance in real time, and to determine the most influential physiological parameters that may be linked to performance degradation in a quantitative and automated way.

Automated machine learning classification of electrodermal activity for prediction and detection of symptoms related to the central nervous system oxygen toxicity including seizures
Office of Naval Research
2021-2024 $638,000   Co-PI
Based on the evidence that we have found of the feasibility of CNS-OT detection based on EDA, the aim of this proposal is to develop machine and deep learning methods for automated detection of only the clean data segments amid motion-corrupted EDA signals.

Physiological Metrics to Track Operational Performance in Cold Environments
Military Operational Medicine Research Program (MOMRP)
2020-2022 $914,000   Co-PI
The goal of the study is to optimize and sustain health, operational readiness, and physiological/cognitive performance in extreme environments, and develop accurate physiological status-monitoring to reduce non-battle injury risk.

Feasibility of electrodermal activity for detecting seizures elicited by central nervous system oxygen toxicity under the water
Office of Naval Research (ONR)
2019-2020 $300,000   Co-PI

The main aim of this project is to test if EDA can be used to detect and/or predict the onset of seizures caused by CNS-OT under the water.

Diabetic Cardiovascular Autonomic Neuropathy Detection Using Principal Dynamic Mode and Electrodermal Activity
Start Preliminary Proof-of-Concept Fund
University of Connecticut
2018-2019 $10,000   Team Member
We proposed to use an electrodermal activity and photoplethysmographic signals from a wearable device to monitor autonomic nervous system activities in diabetic and prediabetic individuals.

Exploration of New Methods and Techniques to Improve the Diagnosis of Diseases of the Cardiovascular System
Universidad Antonio Nariño, institutional research support.
2010–2012   Posada-Quintero (PI) COP$122,534,000 (USD $63,000 at that time)
The goal of this project was proposing and validating algorithms for assessing the autonomic nervous system based on photoplethysmographic signals.

Publications

Journal Papers, peer reviewed

1. **Hugo F. Posada-Quintero**, Carol S. Landon, Nicole M. Stavitzski, Jay B. Dean, and Ki H. Chon. "Seizures Caused by Exposure to Hyperbaric Oxygen in Rats Can Be Predicted by Early Changes in Electrodermal Activity." *Frontiers in Physiology* 12 (2022): 2319.
2. Newlin Lew, Kelley, Tracey Arnold, Catherine Cantelmo, Francky Jacque, **Hugo F. Posada-Quintero**, Pooja Luthra, and Ki H. Chon. "Diabetes Distal Peripheral Neuropathy: Subtypes and Diagnostic and Screening Technologies." *Journal of Diabetes Science and Technology*, January 7, 2022, 19322968211035376.
3. Hossain, Md-Billal, **Hugo F. Posada-Quintero**, Youngsun Kong, Riley McNaboe, and Ki H. Chon. "Automatic Motion Artifact Detection in Electrodermal Activity Data Using Machine Learning." *Biomedical Signal Processing and Control* 74 (April 1, 2022): 103483.
4. Hernando, Alberto, **Hugo F. Posada-Quintero**, María Dolores Peláez-Coca, Eduardo Gil, and Ki H. Chon. "Autonomic Nervous System Characterization in Hyperbaric Environments Considering Respiratory Component and Non-Linear Analysis of Heart Rate Variability." *Computer Methods and Programs in Biomedicine* 214 (February 1, 2022): 106527.
5. Kong, Youngsun, **Hugo F. Posada-Quintero**, David Gever, Lia Bonacci, Ki H. Chon, and Jeffrey Bolkhovsky. "Multi-Attribute Task Battery Configuration to Effectively Assess Pilot Performance Deterioration during Prolonged Wakefulness." *Informatics in Medicine Unlocked* 28 (January 1, 2022): 100822.
6. **Hugo F. Posada-Quintero**, Youngsun Kong, and Ki H. Chon. "Objective Pain Stimulation Intensity and Pain Sensation Assessment Using Machine Learning Classification and Regression Based on Electrodermal Activity." *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology* 321, no. 2 (August 1, 2021): R186–96.
7. Kong, Youngsun, **Hugo F. Posada-Quintero**, and Ki H. Chon. "Real-Time High-Level Acute Pain Detection Using a Smartphone and a Wrist-Worn Electrodermal Activity Sensor." *Sensors* 21, no. 12 (January 2021): 3956.

8. Kong, Y., **Hugo F. Posada-Quintero**, and K. Chon. "Sensitive Physiological Indices of Pain Based on Differential Characteristics of Electrodermal Activity." *IEEE Transactions on Biomedical Engineering*, 2021, 1–1.
9. Kong, Youngsun, **Hugo F. Posada-Quintero**, Matthew S. Daley, Jeffrey Bolkhovsky, and Ki H. Chon. "Machine-Learning-Based Closed-Set Text-Independent Speaker Identification Using Speech Recorded During 25 Hours of Prolonged Wakefulness." *IEEE Access* 9 (2021): 96890–97.
10. Kong, Youngsun, **Hugo F. Posada-Quintero**, Matthew S. Daley, Ki H. Chon, and Jeffrey Bolkhovsky. "Facial Features and Head Movements Obtained with a Webcam Correlate with Performance Deterioration during Prolonged Wakefulness." *Attention, Perception, & Psychophysics*, November 17, 2020.
11. Sinha, Sneh K., **Hugo F. Posada-Quintero**, Yeonsik Noh, Christopher Allen, Robert Daniels, Ki H. Chon, Laurie Sloan, and Gregory A. Sotzing. "Integrated Dry Poly(3,4-Ethylenedioxythiophene):Polystyrene Sulfonate Electrodes on Finished Textiles for Continuous and Simultaneous Monitoring of Electrocardiogram, Electromyogram and Electrodermal Activity." *Flexible and Printed Electronics* 5, no. 3 (September 2020): 035009.
12. Parra-Hernández, Ronald M., Jorge I. Posada-Quintero, Orlando Acevedo-Charry, and **Hugo F. Posada-Quintero**. "Uniform Manifold Approximation and Projection for Clustering Taxa through Vocalizations in a Neotropical Passerine (Rough-Legged Tyrannulet, Phyllomyias Burmeisteri)." *Animals* 10, no. 8 (August 2020): 1406.
13. **Posada-Quintero, Hugo F.**, Youngsun Kong, Kimberly Nguyen, Cara Tran, Luke Beardslee, Longtu Chen, Tiantian Guo, Xiaomei Cong, Bin Feng, and Ki H. Chon. "Using Electrodermal Activity to Validate Multilevel Pain Stimulation in Healthy Volunteers Evoked by Thermal Grills." *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology* 319, no. 3 (July 29, 2020): R366–75.
14. **Posada-Quintero, Hugo F.**, Natasa Reljin, Aurelie Moutran, Dimitrios Georgopalis, Elaine Choung-Hee Lee, Gabrielle E. W. Giersch, Douglas J. Casa, and Ki H. Chon. "Mild Dehydration Identification Using Machine Learning to Assess Autonomic Responses to Cognitive Stress." *Nutrients* 12, no. 1 (January 2020): 42.
15. **Posada-Quintero, Hugo F.**, Paula N. Molano-Vergara, Ronald M. Parra-Hernández, and Jorge I. Posada-Quintero. "Analysis of Risk Factors and Symptoms of Burnout Syndrome in Colombian School Teachers under Statutes 2277 and 1278 Using Machine Learning Interpretation." *Social Sciences* 9, no. 3 (March 2020): 30.
16. Daley, Matthew S., David Gever, **Hugo F. Posada-Quintero**, Youngsun Kong, Ki Chon, and Jeffrey B. Bolkhovsky. "Machine Learning Models for the Classification of Sleep Deprivation Induced Performance Impairment During a Psychomotor Vigilance Task Using Indices of Eye and Face Tracking." *Frontiers in Artificial Intelligence* 3 (2020).
17. **Posada-Quintero, Hugo F.**, and Ki H. Chon. Innovations in Electrodermal Activity Data Collection and Signal Processing: A Systematic Review. *Sensors* 20, no. 2 (January 2020): 479.
18. **Posada-Quintero, Hugo F.**, Natasa Reljin, Aurelie Moutran, Dimitrios Georgopalis, Elaine Choung-Hee Lee, Gabrielle E. W. Giersch, Douglas J. Casa, and Ki H. Chon. Mild Dehydration Identification Using Machine Learning to Assess Autonomic Responses to Cognitive Stress. *Nutrients* 12, no. 1 (January 2020): 42.
19. **Posada-Quintero, H. F.**, Reljin, N., Bolkhovsky, J. B., Orjuela-Cañon, A. D., and Chon, K. H. (2019). Brain Activity Correlates with Cognitive Performance Deterioration During Sleep Deprivation. *Frontiers in Neuroscience*, 13:1001.
20. **Posada-Quintero, H. F.**, & Bolkhovsky, J. B. (2019). Machine Learning models for the Identification of Cognitive Tasks using Autonomic Reactions from Heart Rate Variability and Electrodermal Activity. *Behavioral Sciences*, 9(4), 45.

21. **Posada-Quintero, H. F.**, Dimitrov, T., Moutran, A., Park, S., & Chon, K. H. (2019). Analysis of Reproducibility of Noninvasive Measures of Sympathetic Autonomic Control Based on Electrodermal Activity and Heart Rate Variability. *IEEE Access*, 7, 22523–22531.

22. **Posada-Quintero, H. F.**, Bolkhovsky, J. B., Qin, M., & Chon, K. H. (2018). Human Performance Deterioration Due to Prolonged Wakefulness Can Be Accurately Detected Using Time-Varying Spectral Analysis of Electrodermal Activity. *Human Factors*.

23. **Posada-Quintero, H. F.,** Reljin, N., Eaton-Robb, C., Noh, Y., Riistama, J., & Chon, K. H. (2018). Analysis of Consistency of Transthoracic Bioimpedance Measurements Acquired with Dry Carbon Black PDMS Electrodes, Adhesive Electrodes, and Wet Textile Electrodes. *Sensors*, 18(6), 1719.

24. **Posada-Quintero, H.,** Noh, Y., Eaton-Robb, C., Florian, J. P., & Chon, K. H. (2018). Feasibility Testing of Hydrophobic Carbon Electrodes for Acquisition of Underwater Surface Electromyography Data. *Annals of Biomedical Engineering*, 1–9.

25. Noh, Y., **Posada-Quintero, H. F.,** Bai, Y., White, J., Florian, J. P., Brink, P. R., & Chon, K. H. (2018). Effect of Shallow and Deep SCUBA Dives on Heart Rate Variability. *Frontiers in Physiology*, 9.

26. **Posada-Quintero, H. F.**, Reljin, N., Mills, C., Mills, I., Florian, J. P., VanHeest, J. L., & Chon, K. H. (2018). Time-varying analysis of electrodermal activity during exercise. *PLOS ONE*, 13(6), e0198328. https://doi.org/10.1371/journal.pone.0198328

27. **Posada-Quintero, H. F.,** Florian, J. P., Orjuela-Cañón, A. D., & Chon, K. H. (2018). Electrodermal Activity Is Sensitive to Cognitive Stress under Water. *Frontiers in Physiology*, 8.

28. **Posada-Quintero, H.,** Bolkhovsky, J., Reljin, N., & Chon, K. 'Sleep Deprivation in Young and Healthy Subjects is more Sensitively Identified by Higher Frequencies of Electrodermal Activity than by Skin Conductance Level Evaluated in the Time Domain'. *Frontiers in Physiology*, 8. 2017.

29. **HF Posada-Quintero**, R Rood, K Burnham, J Pennace, KH Chon. 'Understanding the effect of carbon in carbon/salt/adhesive electrodes for surface electromyography measurements'. *Sensors and Actuators A: Physical* 264, 51-57, 2017.

30. **Posada-Quintero, H. F.,** Rood, R., Noh, Y., Burnham, K., Pennace, J., & Chon, K. H. 'Dry carbon/salt adhesive electrodes for recording electrodermal activity'. *Sensors and Actuators A: Physical*, 257, 84–91, 2017.

31. **Posada-Quintero, H. F.**, Florian, J. P., Orjuela-Cañón, Á. D., & Chon, K. H. 'Highly sensitive index of sympathetic activity based on time-frequency spectral analysis of electrodermal activity'. *American Journal of Physiology - Regulatory, Integrative and Comparative Physiology*, 311(3), R582–R591, 2016.

32. **Posada-Quintero, Hugo F**., John P Florian, Alvaro D Orjuela-Cañón, Tomas Aljama-Corrales, Sonia Charleston-Villalobos, Ki H Chon. 'Power Spectral Density Analysis of Electrodermal Activity for Sympathetic Function Assessment', *Annals of Biomedical Engineering*, 44(10), 3124-3135, 2016.

33. **Posada-Quintero, Hugo F**., Ryan Rood, Ken Burnham, John Pennace, Ki Chon. 'Assessment of Carbon/Salt/Adhesive Electrodes for Surface Electromyography Measurements', IEEE Journal of Translational Engineering in Health and Medicine, 4, 1-9, 2016.

34. **Posada-Quintero, Hugo F**., BA Reyes, K Burnham, J Pennace, KH Chon, 'Low Impedance Carbon Adhesive Electrodes with Long Shelf Life' *Annals of Biomedical Engineering*, 43(10), 2374–2382, 2015.

35. Chon KH, Yang B, **Posada-Quintero HF**, Siu KL, Rolle M, Brink P, Birzgalis A J. 'A Novel Quantitative Method for Diabetic Cardiac Autonomic Neuropathy Assessment in Type 1 Diabetic Mice' *Diabetes Sci Technol*. 8 (6), 1157-67, 2014.

36. B Reyes, **H Posada-Quintero**, J Bales, A Clement, G Pins, Albert Swiston, Jarno Riistama, J Florian, Barbara Shykoff, Michael Qin, K Chon, 'Novel Electrodes for Underwater ECG Monitoring' *IEEE Transactions on Biomedical Engineering*, 2014.

37. A Orjuela-Cañón, **H Posada-Quintero**, D Delisle-Rodríguez, 'Onset and Peak Detection over Pulse Wave Using Supervised SOM Network' *International Journal of Bioscience, Biochemistry and Bioinformatics* 3 (2), p. 133, 2013.

38. **Posada-Quintero, Hugo F**., D Delisle-Rodríguez, MB Cuadra-Sanz, RRF de la Vara-Prieto. 'Evaluation of pulse rate variability obtained by the pulse onsets of the photoplethysmographic signal' Physiological Measurement 34 (2), 179, 2013.

39. Orjuela-Cañón, A., **Posada-Quintero, H.,** Delisle-Rodríguez, D., Cuadra-Sanz, M., de la Vara-Prieto, R. F., & López-Delis, A. 'Onset and Peak Detection over Pulse Wave Using Supervised SOM Network'. *International Journal of Bioscience, Biochemistry and Bioinformatics*, 3(2), 133, 2013.

Journal Papers, under review

1. Matthew S. Daley, Krystina Diaz, **Hugo F. Posada-Quintero**, Youngsun Kong, Ki H. Chon, and Jeffrey B. Bolkhovsky. "Archetypal physiological responses to prolonged wakefulness." *Biomedical Signal Processing and Control Journal.* Accepted.

Book Chapters

1. **Hugo F. Posada-Quintero,** Reyes, B., Reljin, N., Florian, J., Chon, K. H. & Noh, Y. Carbon Black/Polydimethylsiloxane Electrodes for Underwater Cardiac Electrical Activity Collection, in Physical Sensors, Sensor Networks and Remote Sensing, Advances in Sensors: Reviews 5, edited by S. Y. Yurish, pp. 185-211, International Frequency Sensor Association Publishing, 2018.

Conference Proceedings Articles, peer-reviewed

1. Hossain, Md-Billal, **Hugo F. Posada-Quintero**, Youngsun Kong, Riley McNaboe, and Ki H. Chon. "A Preliminary Study on Automatic Motion Artifact Detection in Electrodermal Activity Data Using Machine Learning." In *2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC)*, 6920–23, 2021.

2. Kong, Youngsun, **Hugo F. Posada-Quintero**, and Ki H. Chon. "Female–Male Differences Should Be Considered in Physical Pain Quantification Based on Electrodermal Activity: Preliminary Study." In *2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC)*, 6941–44, 2021.

3. McNaboe, Riley Q., Md-Billal Hossain, Youngsun Kong, Ki H. Chon, and **Hugo F. Posada-Quintero**. "Validation of Spectral Indices of Electrodermal Activity with a Wearable Device." In *2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC)*, 6991–94, 2021.

4. Moon, Jihye, **Hugo F. Posada-Quintero**, Insoo Kim, and Ki H. Chon. "Preliminary Analysis of the Risk Factor Identification Embedding Model for Cardiovascular Disease." In *2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC)*, 1946–49, 2021.

5. **Hugo F. Posada-Quintero**, Bruce J. Derrick, Christopher Winstead-Derlega, Sara I. Gonzalez, M. Claire Ellis, John J. Freiberger, and Ki H. Chon. "Time-Varying Spectral Index of Electrodermal Activity to Predict Central Nervous System Oxygen Toxicity Symptoms in Divers: Preliminary Results." In *2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC)*, 1242–45, 2021.

6. Kong, Youngsun, **Posada-Quintero**, **Hugo F.,** and Ki Chon. (2020) Pain Detection Using a Smartphone in Real Time*. Engineering in Medicine and Biology Society (EMBC), 42nd Annual International Conference of the IEEE. Montreal, Canada.

7. **Posada-Quintero, H. F.**, & Chon, K. H. (2019). Phasic Component of Electrodermal Activity is more Correlated to Brain Activity than Tonic Component. In 2019 IEEE EMBS International Conference on Biomedical Health Informatics (BHI).

8. **Posada-Quintero, H. F.**, & Chon, K. H. (2018). Exploring electrodermal activity in water-immersed subjects. In 2018 IEEE 15th International Conference on Wearable and Implantable Body Sensor Networks (BSN) (pp. 90–93).

9. Reljin, N., **Posada-Quintero, H.,** Noh, Y., Robb, C. E., Dimitrov, T., Murphy, L., … Chon, K. H. (2018). Preliminary results on transthoracic bioimpedance measurements with a variety of electrode materials. In 2018 IEEE EMBS International Conference on Biomedical Health Informatics (BHI) (pp. 62–65).

10. **Hugo Posada-Quintero**, Ryan Rood, Xiang Ye, Matthew Pias, Ken Burnham, John Pennace, Ki Chon, 'Testing the need for carbon in salt/adhesive electrodes for surface electromyography measurements: Preliminary results'. Engineering in Medicine and Biology Society (EMBC), 39th Annual International Conference of the IEEE. Jeju Island, South Korea, 2017.

11. **HF Posada-Quintero** and Chon, 'Frequency-Domain Electrodermal Activity Index of Sympathetic Function', presented at the IEEE International Conference on Biomedical and Health Informatics, Las Vegas, NV, Feb 2016, pp. 497–500, 2016.

12. **HF Posada-Quintero,** BA Reyes, SAB Amir, P Vardakas 'Developing pressure sensitive adhesive electrodes: Preliminary results' (Oral Presentation - Article published in Conference Proceedings). Engineering in Medicine and Biology Society (EMBC), 2014

13. BA Reyes, **HF Posada-Quintero**, JR Bales, KH Chon. 'Performance evaluation of carbon black based electrodes for underwater ECG monitoring' (Oral Presentation - Article published in Conference Proceedings). Engineering in Medicine and Biology Society (EMBC), 2014

14. Prieto, R. R. F. de la V., Rodríguez, D. D., Sanz, M. B. C., Mengana, A. S., & **Posada-Quintero, H. F**. 'Algorithm for systolic peak detection of pulse wave. In 2012 XXXVIII Conferencia Latinoamericana En Informatica (CLEI)'. 1–4, 2012.

Referred abstracts, peer-reviewed

1. M. Claire Ellis, S. Gonzalez, C. Winstead-Derlega, J. Freiberger, M. Kuchibhatla, M. Luedke, **H. Posada-Quintero**, K. Chon, D. D'Agostino, B. Derrick 'Physiologic Monitoring for Central Nervous System Oxygen Toxicity in Working Divers'. Annals of Emergency Medicine, Research Forum Abstract. 2021.

2. MS Daley, DH Gever, KH Chon, **H. Posada-Quintero**, JB Bolkhovsky. 'Physiological Based Predictive Models of Vigilance'. SLEEP. 2020

3. **H.F. Posada-Quintero**, K. Chon. 'Power Spectral Density Analysis of Tonic Electrodermal Activity for Sympathetic Arousal Assessment', IUPESM 2015 World Congress on Medical Physics & Biomedical Engineering, 2015.

Curricula development
Course director and developer:
2011 - 2012   **Digital Signal Processing**
        Course director and developer, Department of Telecommunications Engineering,
        Universidad Militar Nueva Granada.
        Course offered every semester with an average enrollment of 25 students.

2010 - 2012   **Sensors and Laboratory**
        Course director and developer, Department of Mechatronic Engineering, Universidad
        Militar Nueva Granada.
        Course offered every semester with an average enrollment of 20 students.

2008 - 2012   **Analog Communications**
        Course director and developer, Department of Biomedical Engineering, Universidad
        Antonio Nariño.
        Course offered every semester with an average enrollment of 10 students.

2008 - 2012   **Electronic Instrumentation**
        Course director and developer, Department of Electronic Engineering, Universidad
        Antonio Nariño.
        Course offered every semester with an average enrollment of 10 students.

Course co-director or participating faculty (more than a single lecture)
2018 -   BME 4985. **BME Special Topics: Biomedical Signal Processing Laboratory**
        Co-Instructor, Department of Biomedical Engineering, University of Connecticut
        Developed and delivered lectures on processing photoplethysmography,
        electromyography, electrodermal activity, and electroencephalography signals, for Fall
        2018, 2019.

Community Outreach Activities
2018, 2019   *International Instructor for Clubes de Ciencia Colombia*. "Clubes de Ciencia Colombia"
        (Clubs of science Colombia) is an organization of young scientists, whose mission is to
        expand the access of children to high-quality science education, and inspire and guide the
        future generation of young innovators and scientists in Colombia.

Grant Review
2019   Grant Review Panelist for the Ministry of Science, Technology, and Innovation of
        Colombia

Scientific Review
A total of 175 verified reviews for journals including:

        The Journal of Physiology
        Physiological Measurement
        IEEE Transactions on Biomedical Engineering
        IEEE Journal of Biomedical and Health Informatics
        Journal of Clinical Medicine
        Sensors

PLOS One
American Journal of Physiology-Regulatory, Integrative and Comparative Physiology
Clinical Neurophysiology
Scientific Reports