

RAFAEL O. RUIZ

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Scopus Author ID: <https://www.scopus.com/authid/detail.uri?authorId=15058101400>

Education

- Ph.D. Civil Engineering, University of Notre Dame - ND (January 2016) and Pontificia Universidad Católica de Chile - PUC (August 2015). Double Doctorate Program.
Dissertation title: A New Type of Tuned Liquid Damper and its Effectiveness in Enhancing Seismic Performance: Numerical Characterization, Experimental Validation, Parametric Analysis and Life-cycle Cost Based Design.
Advisors: Professors Alexandros A. Taflanidis (ND) and Diego Lopez-Garcia (PUC).
- M.S. Mechanical Engineering, Universidad Simón Bolívar - USB (March 2007), Venezuela.
Thesis title: Method for the Experimental Characterization of Dynamic Coefficient in Hydrodynamic Air Bearings.
Advisor: Professor Sergio Diaz
- B.Eng. Mechanical Engineering, Universidad Simón Bolívar - USB (May 2004), Venezuela.

Professional Experience

- 2022-current Assistant Professor, Department of Mechanical Engineering, University of Michigan-Dearborn, USA.
- 2016-2022 Assistant Professor, Department of Civil Engineering, Universidad de Chile, Santiago, Chile
- 2015-2016 Postdoctoral Fellow, Department of Mechanical Engineering, Universidad de Chile, Santiago, Chile. *Research Topic: Uncertainty Quantification in Piezoelectric Energy Harvesters*
- 2011-2015 Research Fellow, Department of Civil & Environmental Engineering & Earth Sciences, University of Notre Dame, Notre Dame, IN and Department of Structural & Geotechnical Engineering, Santiago, Chile. *Research Topic: Design and Optimization of New Tuned Liquid Damper for Seismic Applications.*
- 2007-2011 Head of the Machine Dynamics Laboratory, Department of Mechanical Engineering, Universidad Simón Bolívar, Caracas, Venezuela.
- 2006-2011 Instructor Professor, Department of Mechanical Engineering, Universidad Simón Bolívar, Caracas, Venezuela.
- 2004-2006 Research Fellow, Department of Mechanical Engineering, Universidad Simón Bolívar, Caracas, Venezuela. *Research Topic: Experimental*

Characterization and Numerical Characterization of Hydrodynamic Bearings.

Research Interests

- Design/modeling/optimization of mechanical devices for vibration control.
- Multi-functional metamaterial design and modeling.
- Design and optimization of piezoelectric energy harvesters.
- Surrogate modeling for efficient analysis/design/optimization of complex engineering systems.
- Stochastic optimization, uncertainty quantification, advanced stochastic simulation.
- Bayesian approaches for model validation and system identification.

Honors and Awards

- Research award for publishing in the top 6% of its discipline ISI-WoS. Universidad de Chile 2021.
- Award for Outstanding Teaching Work. Universidad Simón Bolívar, Caracas, Venezuela. 2009.
- Teacher of the Year Award for the period 2008-2009. Universidad Simón Bolívar, Caracas, Venezuela.
- Young Researcher Title given by the National Observatory for Science, Technology and Innovation. Caracas, Venezuela, 2007.
- Outstanding Overall Master Thesis. Universidad Simón Bolívar, Venezuela, 2007.
- Finalist of the ASME Tribology Division Young Engineer Short Paper Contest, 2006.

Scholarships and Fellowships

- University of Notre Dame and Pontificia Universidad Católica de Chile, Scholarship Award for Double Grade Studies (2013-2015).
- Pontificia Universidad Católica de Chile, Scholarship Award for Doctoral Studies (2011-2013).

Journal Publications

*: Graduate students, **: Undergraduate students

Articles Published or in Press:

1. *Poblete A., **Ruiz RO**, Jia G., “Hierarchical Bayesian Approach for Model Parameter Updating in Piezoelectric Energy Harvesters”, *Mechanical System and Signal Processing*.

2. *Hidalgo D., **Ruiz RO**, Delgado A., (2022) “A novel framework for relationship of manufacturing tolerance and component-level performance of journal bearings,” *Applied Mathematical Modelling*. In Press. <https://doi.org/10.1016/j.apm.2021.12.037>
3. *Calderon A., *Peralta P., **Ruiz RO**, Makki M., Atroshchenko E., (2022) “Shape Optimization of Piezoelectric Energy Harvesters of Variable Thickness,” *Journal of Sound and Vibration*. Vol 517, 116503. <https://doi.org/10.1016/j.jsv.2021.116503>
4. **Cespedes S, **Ruiz RO**, Boroschek R. “Duration and Arias Intensity Ground Motion Models Using Chilean Data,” *Journal of Earthquake and Tsunami*. Accepted.
5. **Ruiz RO.**, *Peralta P., Rappel H., and Bordas SPA (2022) “Electromechanical Properties Identification for Groups of Piezoelectric Energy Harvester Based on Bayesian Inference,” *Mechanical System and Signal Processing*, 162, 108034. <https://doi.org/10.1016/j.ymsp.2021.108034>
6. *Quinteros L., Meruane V., Lenz Cardoso E., and **Ruiz RO** (2021) “Phononic bandgap optimization in sandwich panels using cellular truss cores,” *Materials*. 14(18), 5236. <https://doi.org/10.3390/ma14185236>
7. Meruane V., Aichele D., **Ruiz RO.**, Lopez-Droguett E. (2021) “A Deep Learning Framework for Damage Assessment of Composite Sandwich Structures,” *Shock and Vibration*. <https://doi.org/10.1155/2021/1483594>
8. *Pizarro P., Massone L., Rojas F., and **Ruiz RO** (2021) “Use of convolutional networks in the conceptual structural design of shear wall buildings layout,” *Engineering Structures*, 239, 112311. <https://doi.org/10.1016/j.engstruct.2021.112311>
9. **Villalobos A., **Ruiz RO**, and Meruane V. (2021) “Generalized Gaussian Smoothing for Baseline-free Debonding Assessment of Composite Panels,” *Structural Control and Health Monitoring*, e2727. <https://doi.org/10.1002/stc.2727>
10. *Poblete A., Peralta P., and **Ruiz RO.** (2021) “Tuning Nonlinear Model Parameters in Piezoelectric Energy Harvesters to Match Experimental Data,” *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering*, vol 7, issue 1. <https://doi.org/10.1115/1.4049202>
11. *Loyola, L., Rojas F., and **Ruiz RO** (2021) “Synthetic stochastic ground motions compatible with the Chilean seismic hazard,” *Engineering Structures*, vol 228. <https://doi.org/10.1016/j.engstruct.2020.111471>
12. Varghese T., Prajith P., **Ruiz RO**, Atroshchenko E., and Natarajan S. (2020) “Adaptive Importance Sampling based Neural Network framework for Reliability and Sensitivity Prediction for Variable Stiffness Composite Laminates with hybrid uncertainties,” *Composite Structures*, vol. 245. <https://doi.org/10.1016/j.compstruct.2020.112344>
13. *Peralta P., **Ruiz RO.**, Atroshchenko E., and Natarajan S. (2020) “Parametric Study and Shape Optimization of Piezoelectric Energy Harvesters by Isogeometric Analysis and Kriging Metamodeling,” *Journal of Sound and Vibration*, vol. 484. <https://doi.org/10.1016/j.jsv.2020.115521>
14. *Peralta P., **Ruiz RO**, and Taflanidis AA, (2020) “Bayesian Identification of Electromechanical Properties in Piezoelectric Energy Harvesters,” *Mechanical Systems and Signal Processing*, vol. 141. <https://doi.org/10.1016/j.ymsp.2019.106506>

15. **Ruiz RO**, **Loyola L., and Beltran JF, (2020) “Stress Cycle Assessment of Cables under Wind-Induced Vibrations: A General Probabilistic Approach,” *KSCE Journal of Civil Engineering*, vol. 24, number 1. <https://doi.org/10.1007/s12205-020-2159-7>
16. Meruane V., Fernandez I., **Ruiz RO.**, Petrone G., and Lopez-Droguett E. (2019) “Gapped Gaussian Smoothing Technique for Debonding Assessment with Automatic Thresholding,” *Structural Control and Health Monitoring*, vol. 26, number 8. <https://doi.org/10.1002/stc.2371>
17. **Ruiz RO.**, **Loyola L., and Beltran JF, (2019) “Numerical framework for stress cycle assessment of cables under vortex shedding excitations,” *Wind and Structures*, vol. 28, number 4. <https://doi.org/10.12989/was.2019.28.4.225>
18. **Peralta P., **Ruiz RO.**, and Meruane V., (2019) “Experimental Study of the Variations in the Electromechanical Properties of Piezoelectric Energy Harvesters and their Impact on the Frequency Response Function,” *Mechanical Systems and Signal Processing*, vol. 115, 469-482. <https://doi.org/10.1016/j.ymssp.2018.06.002>
19. **Ruiz RO**, Giaralis A., Taflanidis AA and Lopez-Garcia D., (2018) “Risk-informed optimization of the tuned mass-damper-inerter (TMDI) for the seismic protection of multi-storey building structures,” *Engineering Structures*, vol. 177, 836-850. <https://doi.org/10.1016/j.engstruct.2018.08.074>
20. **Ruiz RO**, and Meruane V. (2017) “Uncertainties propagation and global sensitivity analysis of the frequency response function of piezoelectric energy harvesters,” *Smart Materials and Structures*, vol. 26, number 6, 065003. <https://doi.org/10.1088/1361-665X/aa6cf3>
21. **Ruiz RO.**, Taflanidis A. A., Lopez-Garcia D., (2016) “Life-cycle Based Design of Mass Dampers for the Chilean Region and its Application for the Evaluation of the Effectiveness of Tuned Liquid Damper with Floating Roof,” *Bulletin of Earthquake Engineering*, vol. 14, issue 3, pp 943-970. <https://doi.org/10.1007/s10518-015-9860-9>
22. **Ruiz RO.**, Taflanidis A. A., Lopez-Garcia D., (2016) “Characterization and Design of Tuned Liquid Dampers with Floating Roof Considering Arbitrary Tank Cross-Sections,” *Journal of Sound and Vibration*, vol. 368, pp 36-54. <https://doi.org/10.1016/j.jsv.2016.01.014>
23. **Ruiz RO.**, Lopez-Garcia D., Taflanidis A. A. (2016) “Modeling and Experimental Validation of a New Type of Tuned Liquid Damper,” *Acta Mechanica*, pp 1-20. <https://doi.org/10.1007/s00707-015-1536-7>
24. **Ruiz RO.**, Lopez-Garcia D., Taflanidis A. A. (2015) “An Efficient Computational Procedure for the Dynamic Analysis of Liquid Storage Tanks,” *Engineering Structures*, vol. 85, pp 206-218. <https://doi.org/10.1016/j.engstruct.2014.12.011>
25. **Ruiz RO.**, Di Liscia M. H., Medina L., Diaz S. E. (2008) “Asynchronous Dynamic Coefficients of a Three Lobe Air Bearing,” *Journal of Engineering for Gas Turbines and Power*, vol. 130, issue 5, September 2008. <https://doi.org/10.1115/1.2772635>

Articles under Review:

26. *

Conference Proceedings

*: Graduate students, **: Undergraduate students

Refereed

1. *A. Poblete, **R. O. Ruiz**, (2021) “Model Class Selection and Model Parameter Identification on Piezoelectric Energy Harvesters,” Proceedings of the *XXXIX IMAC*, (Online), February.
2. *Torres, J., Hitschfeld, N., **Ruiz, R. O.**, Ortiz-Bernardin, A. (2020) “Convex Polygon Packing Based Meshing Algorithm for Modeling of Rock and Porous Media,” *International Conference on Computational Science* (pp. 257-269), June.
3. *P. Peralta, **R. O. Ruiz**, and V. Meruane (2018) “A Bayesian Updating Procedure for the Electromechanical Properties of Piezoelectric Energy Harvesters,” Proceedings of the *14th International Conference on Vibration Engineering and Technology of Machinery*, Portugal, September.
4. **R. O. Ruiz**, A. Giaralis, A. Taflanidis and D. Lopez-Garcia, (2018) “Multi-criteria optimization of seismic protective devices and application to the desing of the tuned mass damper inerter for buildings in Chile,” Proceedings of the *16th European Conference on Earthquake Engineering*, Thessaloniki, Greece, June.
5. **R. O. Ruiz**, V. Meruane, (2018) “Bayesian Framework to Quantify Uncertainties in Piezoelectric Energy Harvesters,” Proceedings of the *ASME 2018 Verification and Validation Symposium*, Minneapolis, USA, May.
6. **R. O. Ruiz**, V. Meruane, (2017) “Effect of Uncertainties in the Dynamical Behavior of Piezoelectric Energy Harvesters,” Proceedings of the *EURODYN 2017*, Procedia Engineering Special Issue, Roma, Italy, September.
7. **R. O. Ruiz**, A. Giaralis, A. Taflanidis and D. Lopez-Garcia, (2017) “Risk-Informed Optimization of the Tuned Mass-Damper-Inerter (TMDI) for Seismic Protection of Buildings in Chile,” Proceedings of the *16th World Conference on Earthquake Engineering*, Santiago, Chile, January.
8. **R. O. Ruiz** and S. Diaz, (2016) “Effect of Uncertainties in the Estimation of Dynamic Coefficients on Tilting Pad Journal Bearings,” Proceedings of the *ASME 2016 International Mechanical Engineering Congress and Exposition*, Phoenix, USA, November.
9. **R. O. Ruiz** and V. Meruane, (2016) “Framework to Quantify Uncertainties in Piezoelectric Energy Harvesters,” Proceedings of the *ASME 2016 International Mechanical Engineering Congress and Exposition*, Phoenix, USA, November.
10. **R. O. Ruiz**, D. Lopez-Garcia and A. A. Taflanidis, (2015) “Seismic Optimization of a Novel Tuned Sloshing Damper for the Chilean Region based on Life-cycle Cost Criteria,” Proceedings of the *12th International Conference on Applications of Statistics and Probability in Civil Engineering*, Vancouver, Canada, July.
11. **R. O. Ruiz**, D. Lopez-Garcia and A. A. Taflanidis, (2014) “An Innovative Type of Tuned Liquid Damper,” Proceedings of the *Tenth U.S. National Conference on Earthquake Engineering*, Anchorage, Alaska, July.

12. **R. O. Ruiz**, and D. Lopez-Garcia, (2014) “Experimental Validation of a New Type of Tuned Liquid Damper,” Proceedings of the *14th Pan-American Congress of Applied Mechanics*, Santiago, Chile, March.
13. **R. O. Ruiz**, and D. Lopez-Garcia, (2013) “A Computationally Efficient Numerical Model for the Seismic Analysis of Liquid Storage Tanks,” Proceedings of the *Vienna Congress on Recent Advances in Earthquake Engineering and Structural Dynamics*, Vienna, Austria, August.
14. *J. A. Matute, **R. O. Ruiz**, y S. E. Díaz, (2012) “A View to the Energy Dissipation Mechanism of a Gas Foil Bearing’s Structure Due to Dry Friction,” Proceedings of the *ASME TurboExpo 2012*, Copenhagen, Denmark, June.
15. Medina, L., **Ruiz R. O.**, Diaz S. E. (2008) “A Simple Approach to Determine Uncertainty Bounds on Bearing Rotordynamic Coefficients Identification,” Proceedings of the *ASME Turbo Expo 2008*, Berlin, Germany, June.
16. **Ruiz R. O.**, Di Liscia M. H., Diaz S. E. (2008) “Feeding Holes Air Flow Choke Effect on Dynamic Coefficient of an Air Bearing,” Proceedings of the *Twelfth International Symposium on Transport Phenomena and Dynamics of Rotating Machinery*, Honolulu, USA, February.
17. **Ruiz R. O.**, Di Liscia M. H., Medina, L., Diaz S. E. (2007) “Asynchronous Dynamic Coefficients Of A Three Lobe Air Bearing,” Proceedings of the *ASME TurboExpo 2007*, Montreal, Canada, May.
18. **Ruiz R. O.**, Di Liscia M. H., Diaz S. E. (2006) “Effect of the Orbit Shape on the Experimental Measurement of a Three Lobe Air Bearing,” Proceedings of the *IFTOMM 7th International Conference on Rotor Dynamics*, Vienna, Austria, September.
19. **Ruiz R. O.**, Di Liscia M. H., Diaz S. E., Medina L. (2006) “Experimental Measurement of a Three Lobe Air Bearing Rotordynamic Coefficients,” Proceedings of the *ASME TurboExpo 2006*, Barcelona, Spain, May.

Non-Refereed

1. *P. Peralta, **R. O. Ruiz**, S. Natarajan, E. Atroshchenko, (2021) “Isogeometric Shape Optimization of Piezoelectric Energy Harvester,” *14th World Congress on Computational Mechanics*, January.
2. V. Meruane, D. Aichele, **R. O. Ruiz**, and E. Lopez-Droguett, (2020) “Damage Assessment in Composite Sandwich Structures Based on Full-field Vibration Measurements and Deep Learning,” *Annual Conference and Exposition on Experimental and Applied Mechanics*, USA, February.
3. **R. O. Ruiz**, D. Lopez-Garcia and A. A. Taflanidis, (2015) “Tuned Liquid Damper with Floating Roof: A New Device to Control Earthquake-Induced Vibrations in Structures,” Proceedings of the *XI Congress of Seismology and Seismic Engineering ACHISINA*, Santiago, Chile, March.
4. Bellabarba, E., **Ruiz, R.**, Diaz, S. E, Rastelli, V., (2005) “A Test Rig for Air Bearings Dynamic Characterization,” *World Tribology Congress III*, Washington D.C., USA. September.

Invited Talks

1. “Uncertainty Quantification in Piezoelectric Energy Harvesters: Past Achievements and Future Challenges”, February 2022. Ohio State University.
2. “Why I Should Know About Uncertainty Quantification.” Universidad Austral de Chile. October 2020. Valdivia, Chile.
3. “Risk-informed Optimization of Passive Devices for Seismic Protection of Multi-story Buildings in Chile.” University of New South Wales. May 2019. Sidney, Australia.

Grants and Sponsored Programs

Funded as Principal Investigator (PI)

- November 2018 – October 2021. “Robust Bayesian Framework for Model Class Selection and Model Parameter Identification in Piezoelectric Energy Harvesters” - The National (Chilean) Fund for Scientific and Technological Development. Equivalent to US\$ 85,000. Public Funds.
- January 2021 – December 2021. “Development of Surrogate Models for Uncertainty Quantification in Groundwater Modeling Problems”. Private funds from the Chilean mining sector. Equivalent to US\$ 30,000.
- November 2015 – October 2018. “Uncertainty Identification in Systems of Piezoelectric Energy Harvesters” - The National (Chilean) Fund for Scientific and Technological Development. Equivalent to US\$ 90,000. Public Funds.
- 2019. “Piezoelectric Energy Harvesting Modeling based on Isogeometric Techniques” - Program to promote international collaboration, Universidad de Chile. Equivalent to US\$ 5,000.
- 2016 – 2018. “Development of Computational Low-cost Models for Structural Dynamic Problems” - Program to support assistant professors, Universidad de Chile. Equivalent to US\$ 15,000.

Funded as Co-Principal Investigator (Co-PI)

- Abril 2021 – March 2025. “Optimal Design of Ultralight Sandwich Panels with Cellular Truss Cores and Large Phononic Band Gaps” - The National (Chilean) Fund for Scientific and Technological Development. Equivalent to US\$ 200,000. Public Funds. (Viviana Meruane – PI and Ruben Fernandez – Co-PI, both at Universidad de Chile).
- 2021. “Performance Optimisation of Piezoelectric Energy Harvester (PEH) for Structural Health Monitoring (SHM)” - Faculty Early Career Academic Grants Program at University of New South Wales. (Mehrisadat Makki Alamdari – PI, Mahbub Hassan – Co-PI and Elena Atroshchenko – Co-PI, all at University of New South Wales). Equivalent to US\$ 20,000.

Theses Directed

Master Theses

1. Carolina Arevalo. Expected completion 2021. Thesis Title: Adaptive Surrogate Models for Slope Stability Assessment. Universidad de Chile.
2. Maximiliano Caprile. Expected completion 2021. Thesis Title: Combination of Seismic and Wind Loads for Wind Turbines Located in the Chilean Region. Universidad de Chile.
3. Alejandro Poblete. Expected completion 2021. Thesis Title: Hierarchical Bayesian Model Updating for Piezoelectric Energy Harvesters. Universidad de Chile.
4. Diego Hidalgo. Graduated 2021. Thesis Title: Adaptive Surrogate Models for Manufacturing Tolerance Selection applied to Hydrodynamic Journal Bearings. Universidad de Chile.
5. Nicolás Cárdenas. Graduated 2021. Thesis Title: Framework for Risk Assessment in Water Pipe Networks. Universidad de Chile.
6. Patricio Peralta. Graduated 2020. Thesis Title: Bayesian Updating Framework for Piezoelectric Energy Harvesters. Universidad de Chile.
7. José Matute. Graduated 2011. Thesis Title: Structural Analysis for Air Journal Bearings. Universidad Simón Bolívar.

Doctoral Theses

1. Jian Huang. Expected completion 2023. “Development of non-linear Isogeometric Analysis model for periodic piezoelectric energy harvesting structures”. Ph.D. in Civil Engineering. University of New South Wales. Co-supervised with Prof. Elena Atroshchenko.
2. Juan Romero. Expected completion 2024. “Development of adaptive surrogate models for the optimization under uncertainty of metamaterials for wave filtering and energy harvesting”. Ph.D. in Civil Engineering, Universidad de Chile. Co-supervised with Prof. Juan F. Beltran.

Professional Memberships

- American Society of Mechanical Engineers (ASME).
- Chilean Society of Computational Mechanics.
- Venezuelan College of Engineers (Professional Certification).

Other Notable Contributions

Journal Reviewer:

- Mechanical System and Signal Processing (2021).

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- Shock and Vibration (2021).
- Structural Control and Health Monitoring (2021-2022).
- Microelectronic Engineering (2021).
- Earthquake Engineering and Structural Dynamics (2021).
- Engineering Structures (2016, 2020).
- Advances in Structural Engineering (2020).
- Structures (2019-present).
- Mechanical Engineering Science (2020).
- ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering (2020).
- Bulletin of Earthquake Engineering (2020).
- Soil Dynamics and Earthquake Engineering (2019).
- International Journal of Mechanical Sciences (2018).
- Journal of Risk and Reliability (2018).
- Metrologia (2018).
- International Journal of Numerical Modelling: Electronic Networks, Devices and Fields (2017).
- Journal of Fluid Engineering (2016).

Conference and Tracks Organized:

- Co-Organizer of the Session "25-06 Oil bearings 1". ASME 2021 TurboExpo, Virtual Conference, USA.
- Chair of the XVIII Conference of Chilean Society on Computational Mechanics, 2019 Santiago, Chile.
- Co-Organizer of the special session "Uncertainty Quantification, Sensitivity Analysis, and Prediction". ASME 2018 Verification and Validation Symposium, Minneapolis, USA.
- Co-Organizer of the special session "Passive Control Systems: Analysis Methods and Designing Procedures". 16th World Conference on Earthquake Engineering, 2017, Santiago, Chile.

Workshop Participation:

- Participant of the First Workshop on Computational Engineering, Universidad de Chile. November 2018.
- Participant of the Third International PREEMPTIVE Workshop to Promote Seismic Protective Systems for Civil Structures. January 2017.

Courses Taught/Developed at Universidad de Chile:

- CI3251 Numerical Calculus for Civil Engineering
 - Spring 2021: 37 students (ongoing semester)
- CI3111 Structural Mechanics
 - Fall 2021: 34 students. Overall Evaluation 4.0/4.0
- CI3201 Analysis of Static Structures
 - Spring 2020: 34 students. Overall Evaluation 3.9/4.0
 - Fall 2020: 78 students. Overall Evaluation 3.9/4.0
 - Spring 2019: 55 students. Overall Evaluation 3.8/4.0
 - Fall 2019: 76 students. Overall Evaluation 3.9/4.0
 - Spring 2018: 59 students. Overall Evaluation 6.7/7.0
 - Fall 2018: 79 students. Overall Evaluation 6.5/7.0
 - Spring 2017: 94 students. Overall Evaluation 6.3/7.0
 - Fall 2017: 80 students. Overall Evaluation 6.6/7.0
 - Spring 2016: 55 students. Overall Evaluation 6.5/7.0
- ME4701 Mechanical Vibration
 - Fall 2016: 25 students. Overall Evaluation 6.5/7.0
- CI7601 Uncertainty Quantification: Engineering Applications
 - Fall 2021: 19 students. Overall Evaluation 3.9/4.0
 - Fall 2020: 20 students. Overall Evaluation 3.8/4.0
 - Fall 2019: 11 students. Overall Evaluation 4.0/4.0
 - Fall 2018: 4 students. Overall Evaluation 7.0/7.0
- CI6211 Robust Analysis of Dynamic Systems
 - Fall 2017: 8 students. Overall Evaluation 6.6/7.0

Courses Taught/Developed at Universidad Simón Bolívar:

- MC2421 Computational Mechanics I
 - Second trimester 2008: 25 students
 - First trimester 2009: 35 students
 - Second trimester 2009: 23 students
 - Second trimester 2010: 35 students

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- MC2422 Computational Mechanics II
 - First trimester 2007: 15 students
 - Second trimester 2007: 31 students
 - Third trimester 2007: 32 students
 - Second trimester 2008: 31 students
 - Third trimester 2008: 36 students

- MC2415 Mechanical Vibration
 - Second trimester 2007: 31 students
 - Third trimester 2007: 28 students
 - Third trimester 2008: 41 students
 - Second trimester 2010: 58 students

- MC2414 Dynamic of Machines
 - First trimester 2007: 27 students
 - First trimester 2008: 45 students
 - First trimester 2009: 43 students
 - Third trimester 2009: 36 students
 - First trimester 2010: 34 students
 - Third trimester 2010: 36 students

- MC2431 Dynamic I
 - First trimester 2010: 32 students

Departmental Service (Universidad de Chile)

- 15 undergrad research projects supervised.
- Director board of the Chilean Society on Computational Mechanics (2018-2021).
- Funder and Director of the Uncertainty Quantification Group (2016-present).
- Co-founder and faculty advisor of the Formula SAE team (2020-present).
- Departmental Strategic Planning Committee (2020-present).
- Coordinator of the civil engineering library (2016-2020).
- Consultant engineering for the public and private sector (2016-present).

Departmental Service (Universidad Simón Bolívar)

- 5 undergrad research projects supervised.
- Advisor of the Formula SAE team (2006-2011).
- Consultant engineering for the public and private sector (2006-2011).
- Member of the university committee for the administration of laboratories (2007-2011).

International Stays:

- Visiting Professor at the Department of Civil and Environmental Engineering, University of New South Wales. May 2019.
- Visiting Professor at the Department of Civil and Environmental Engineering and Earth Sciences Department, University of Notre Dame. May 2018.
- Research Visitor at Aerospace Department, University of Michigan. Supervisor: Prof. Carlos Cesnik. Topic: Introduction to Aeroelasticity. August-September 2009.