

## Curriculum Vitae

# Tito Homem-de-Mello

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### Education

- Ph.D., Industrial and Systems Engineering, Georgia Institute of Technology (1998)  
Thesis topic: “Simulation-Based Methods for Stochastic Optimization”
- M.S. in Applied Mathematics, Georgia Institute of Technology (1995)
- M.S. in Applied Mathematics, University of São Paulo, Brazil (1992)  
Thesis topic: “A Contribution to the Study of Stability in Flexible Manufacturing Systems”
- B.Sc. in Computer Science (with Honorable Mention), University of São Paulo, Brazil (1987)

### Research interests

The core of my research focuses on methodology for decision-making problems under uncertainty and applications of those techniques. On the methodology side, I am interested in the development of risk models that can be used within an integrated framework of optimization and simulation. I have also been studying models where interdependencies exist between the uncertainty factors and the operating decisions, which occurs in many practical problems. On the application side I am currently interested in energy, mine planning and some finance problems since many of the topics in those areas fall into the realm of decision-making problems under uncertainty.

### Honors/Awards

- Invited to be keynote speaker at the International Symposium in Mathematical Programming held in Bordeaux, France, in July 2018.
- Invited to be plenary speaker at the 50th Brazilian Symposium on Operations Research, Rio de Janeiro, Brazil, 2018.
- Invited to be plenary speaker at the OPTIMA Conference in Vina del Mar, Chile, 2017.
- Best Applied Paper prize in Operations Engineering and Analysis, awarded by the journal *IIE Transactions* (shared with co-authors Jian Hu and Sanjay Mehrotra), 2013.
- Awarded as one of the top 5 researchers in 2012 among the faculty of the Adolfo Ibañez University.
- Best Paper prize, awarded by the INFORMS Revenue Management and Pricing Section (shared with co-authors William L. Cooper and Anton Kleywegt), 2007.
- Meritorious Service Award, awarded by the journal *Operations Research*, 2005.

- Meritorious Service Award, awarded by the journal *Operations Research*, 2004.
- Winner of the 1998 George Nicholson Student Paper Competition (organized by INFORMS).
- Outstanding Ph.D. student award, Georgia Institute of Technology, 1998.
- Doctoral scholarship from CNPq (Brazilian government science agency), 1993-1998.

### Academic work experience

- Professor, School of Business, Adolfo Ibañez University, since 2011.
- Visiting Associate professor, Department of Mechanical and Industrial Engineering, University of Illinois at Chicago, 2009-2011.
- Associate professor, Department of Industrial Engineering and Management Sciences, Northwestern University, 2003-2009.
- Assistant professor, Department of Industrial and Systems Engineering, The Ohio State University, 1998-2003.
- Graduate research assistant and teaching assistant, School of Industrial and Systems Engineering, Georgia Institute of Technology, 1997-1998.
- Assistant professor, Department of Computer Science, Institute of Mathematics and Statistics, University of São Paulo, 1990-1993.

### Other work experience

- Analyst for the Department of Operations Research of Aços Villares S/A (Brazilian steel company), 1988-1990.

Developed models for optimization of production; main projects were:

- implementation of a mathematical integer programming model for inventory allocation;
- development of a combinatorial optimization model (based on graph theory) to group similar types of steel.

### Publications

a) Peer-reviewed journal articles/invited papers/book chapter:

(NOTE: (\*) indicates journals in the Journal Citation Reports list (WoS); (\*\*) indicates journals in the Scopus list.)

1. “A Machine Learning and Distributionally Robust Optimization Framework for Strategic Energy Planning under Uncertainty” (with E. Guevara, F. Babonneau and S. Moret), to appear in *Applied Energy*\*.
2. “A Stochastic Optimization Model for Short-Term Production of Offshore Oil Platforms with Satellite Wells Using Gas Lift” (with C. Gamboa, T. Silva, D. Valladão, B. Pagnoncelli, B. Vieira and A. Teixeira), published online in *TOP*\*, <https://doi.org/10.1007/s11750-020-00547-0> (2020).

3. “A Proximal ADMM Algorithm for Two-Stage Stochastic Programming Problems” (with S. Arpon and B. Pagnoncelli), *Annals of Operations Research\** 286:559–582 (2020).
4. “Controlling Risk and Demand Ambiguity in Newsvendor Models” (with H. Rahimian and G. Bayraksan), *European Journal of Operational Research\** 279:854–868 (2019).
5. “Designing Coalition-Based Fair and Stable Pricing Mechanisms Under Private Information on Consumers? Reservation Prices” (with H. Le Cadre, B. Pagnoncelli, and O. Beaude), *European Journal of Operational Research\** 272:270–291 (2019).
6. “Identifying Effective Scenarios in Distributionally Robust Stochastic Programs with Variation Distance” (with H. Rahimian and G. Bayraksan), *Mathematical Programming\**, Ser. A 173:393–430 (2019).
7. “Scenario Reduction for Stochastic Programs with Conditional Value-at-Risk” (with S. Arpon and B. Pagnoncelli), *Mathematical Programming\** 170:327–356 (2018).
8. “An Optimal Path Model for the Risk-Averse Traveler” (with L. Zhang), *Transportation Science\** 51(2):518–535 (2017).
9. “Risk-Aversion in Multistage Stochastic Programming: A Modeling and Algorithmic Perspective” (with B. Pagnoncelli), *European Journal of Operational Research\** 249, 188–199 (2016).
10. “Learning and Pricing with Models that Do Not Explicitly Incorporate Competition” (with W.L. Cooper and A. Kleywegt), *Operations Research\** 63(1), 86–103 (2016).
11. “Chance-Constrained Problems and Rare Events: An Importance Sampling Approach” (with J. Barrera, E. Moreno, B. Pagnoncelli and G. Canessa), *Mathematical Programming\**, Volume 157 (1), 153–189 (2016).
12. “Finding Efficient and Environmentally Friendly Paths for Risk-Averse Freight Carriers” (with Q. Li, Y. Nie, S. Vallamsundar and J. Lin), *Networks and Spatial Economics\**, Volume 16 (1), 255–275 (2016).
13. “Stochastic Constraints and Variance Reduction Techniques” (with G. Bayraksan), in *Handbook of Simulation Optimization*, Michael Fu (ed.), Springer, 2015.
14. “Monte Carlo Sampling-Based Methods for Stochastic Optimization” (with G. Bayraksan), *Surveys in Operations Research and Management Science\*\**, Vol. 19, 56–85 (2014).
15. “Stochastically Weighted Stochastic Dominance Concepts with an Applications in Capital Budgeting ” (with J. Hu and S. Mehrotra), *European Journal of Operational Research\**, Vol. 232, 572–583 (2014).
16. “Optimal Path Problems with Second-Order Stochastic Dominance Constraints” (with Y. Nie and X. Wu), *Networks and Spatial Economics\**, Vol. 12, 561–587 (2012).
17. “Dynamic Fleet Scheduling with Uncertain Demand and Customer Flexibility” (with J. Turner, S. Lee, M. Daskin and K. Smilowitz), *Computational Management Science\*\**, Vol. 9, 459–481 (2012).
18. “Newsvendor-Type Models with Decision-Dependent Uncertainty” (with S. Lee and A. Kleywegt), *Mathematical Methods of Operations Research\**, Vol. 76, 186–212 (2012).

19. “Improving Fleet Utilization for Carriers by Interval Scheduling” (with S. Lee, J. Turner, M. Daskin and K. Smilowitz), *European Journal of Operational Research\**, Vol. 218, 261–269 (2012).
20. “Some Large Deviations Results for Latin Hypercube Sampling” (with S. Drew), *Methodology and Computing in Applied Probability\**, Vol. 14, 203–232 (2012).
21. “Sample Average Approximation for Stochastic Dominance Constrained Programs” (with J. Hu and S. Mehrotra), *Mathematical Programming\** Ser. A 133:171-201 (2012).
22. “Risk Adjusted Budget Allocation Models with Application in Homeland Security” (with J. Hu and S. Mehrotra), *IIE Transactions\**, 43:819839 (2011).
23. “Sampling Strategies and Stopping Criteria for Stochastic Dual Dynamic Programming: A Case Study in Long-Term Hydrothermal Scheduling” (with V.L. de Matos and E.C. Finardi), *Energy Systems*, Vol. 2, 1-31 (2011).
24. “Supply Chain Broker Operations: A Network Perspective” (with M. Huang, K. Smilowitz and W. Drieger), *Transportation Research Record\**, Issue 2224, 1–7 (2011).
25. “Mathematical Programming Models for Revenue Management under Customer Choice” (with L. Chen), *European Journal of Operational Research\**, Vol. 203, 294-305 (2010).
26. “Re-Solving Stochastic Programming Models for Airline Revenue Management” (with L. Chen), *Annals of Operations Research\**, Vol. 177, No. 1, 91-114 (2010).
27. “A Cutting Surface Method for Uncertain Linear Programs with Polyhedral Stochastic Dominance Constraints” (with S. Mehrotra), *SIAM Journal on Optimization\**, Vol. 20, No. 3, 1250-1273 (2009).
28. “On Rates of Convergence for Stochastic Optimization Problems Under Non-I.I.D. Sampling”, *SIAM Journal on Optimization\**, Vol. 19, No. 2, 524-551 (2008).
29. “Some Decomposition Methods for Revenue Management” (with W.L. Cooper), *Transportation Science\**, Vol. 41, No. 3, 332-353 (2007).
30. “A Study on the Cross-Entropy Method for Rare Event Probability Estimation”, *INFORMS Journal on Computing\**, Vol. 19, No. 3, 381-394 (2007).
31. “Models of the Spiral-Down Effect in Revenue Management” (with W.L. Cooper and A. Kleywegt), *Operations Research\**, Vol. 54, No. 5, 968-987 (2006).
32. “Modeling Revenue Yield of Reservation Systems That Use Nested Capacity Protection Strategies” (with L. Haerian and C. Mount-Campbell), *International Journal of Production Economics\** 104, 340-353 (2006).
33. “Quasi-Monte Carlo Strategies For Stochastic Optimization” (with S. Drew), *Proceedings of the 2006 Winter Simulation Conference*, L.F. Perrone, F.P. Wieland, J. Liu, B.G. Lawson, D.M. Nicol and R.M. Fujimoto (eds.), 774-782, IEEE Press (2006).
34. “Solving the Vehicle Routing Problem with Stochastic Demands using the Cross Entropy Method” (with K. Chepuri), *Annals of Operations Research\** 134, 153-181 (2005).
35. “Some Large Deviations Results for Latin Hypercube Sampling” (with S. Drew), *Proceedings of the 2005 Winter Simulation Conference*, M.E. Kuhl, N.M. Steiger, F.B. Armstrong, and J.A. Joines (eds.), 673-681, IEEE Press (2005).

36. “Variable-Sample Methods for Stochastic Optimization”, *ACM Transactions on Modeling and Computer Simulation\**, Vol. 13, No. 2, 108-133 (2003).
37. “Conditioning of Convex Piecewise Linear Stochastic Programs” (with A. Shapiro and J. Kim), *Mathematical Programming\**, Vol. 94, No. 1, 1-19 (2002).
38. “Rare Event Probability Estimation Using Cross-Entropy” (with R.Y. Rubinstein), *Proceedings of the 2002 Winter Simulation Conference*, E. Yücesan, C.-H. Chen, J. L. Snowdon, and J. M. Charnes (eds.), 310-319, IEEE Press (2002).
39. “The Sample Average Approximation Method for Stochastic Discrete Optimization” (with A. Kleywegt and A. Shapiro), *SIAM Journal on Optimization\**, Vol. 12, No. 2, 479-502 (2002).
40. “Estimation of Derivatives of Nonsmooth Performance Measures in Regenerative Systems”, *Mathematics of Operations Research\**, Vol. 26, No. 4, 741-768 (2001).
41. “On the Rate of Convergence of Monte Carlo Approximations of Stochastic Programs” (with A. Shapiro), *SIAM Journal on Optimization\**, Vol. 11, No. 1, 70-86 (2000).
42. “Monte Carlo Methods for Discrete Stochastic Optimization”, book chapter in *Stochastic Optimization: Algorithms and Applications* (S. Uryasev and P.M. Pardalos, eds.), 95-117, Kluwer Academic Publishers (2000).
43. “Finding Optimal Material Release Times Using Simulation Based Optimization” (with A. Shapiro and M. Spearman), *Management Science\** Vol. 45, No. 1, 86-102 (1999).
44. “A Simulation-Based Approach to Stochastic Programming with Recourse” (with A. Shapiro), *Mathematical Programming\**, Vol. 81, No. 3, 301-325 (1998).
45. “Instability of Manufacturing Systems with Decreasing Service Times” (with C. Humes Jr.), *Pesquisa Operacional* (ed. by Operations Research Brazilian Society), Vol. 11, No. 2, 17-27 (1991).

b) Submitted publications under review:

1. “A Data-Driven Approach for a Class of Stochastic Dynamic Optimization Problems” (with T. Silva and D. Valladão), submitted for publication.
2. “A Simulation Optimization Approach for Appointment Scheduling Problem with Decision-Dependent Uncertainties” (with. Q. Kong), submitted for publication.
3. “A Framework for Adaptive Open-pit Mining Planning under Geological Uncertainty” (with T. Lagos, M. Armstrong , G. Lagos and D. Sauré), submitted for publication.

### Research Grants (as Principal Investigator)

- Project: “Adapting to the uncertainties and risks of climate change: Advanced methods and models for energy systems and markets”  
 Project Director: Francisco Muñoz (UAI)  
 Funding source: Programa de Investigación Asociativa (PIA), Conicyt, Chile  
 Date: January, 2020, through December, 2022.

- Project: “GEMA: Improving energy management in micro grids with storage via stochastic optimization and machine learning”  
Project Director: Rodrigo Carrasco (UAI)  
Funding source: FONDEF- Chile  
Date: January, 2020, through December, 2021.
- Project: “Distributionally Robust Models for Multi-Stage Stochastic Optimization Problems”  
Funding source: FONDECYT-Chile  
Date: March, 2017 until February 2021.
- Project: “Large-scale optimization under uncertainty: challenges in strategic mine planning, an interdisciplinary approach”  
Project Director: Marcos Goycoolea (UAI)  
Funding source: Programa de Investigación Asociativa (PIA), Conicyt, Chile  
Date: January, 2016, through December, 2018.
- Project: “Models and Strategies for Multi-Stage Stochastic Programs with Risk Control”  
Co-PI: Bernardo Pagnoncelli (UAI)  
Funding source: FONDECYT-Chile  
Date: March, 2012 until February 2016.
- Project: “Freight Routing for Efficient, Sustainable and Reliable Travel”  
Funding source: The University of Wisconsin-Madison  
Date: September, 2010 through August, 2012.
- Project: “Optimization Algorithms for Problems with Stochastic Dominance Constraints”  
Co-PI: Sanjay Mehrotra (Northwestern)  
Funding source: National Science Foundation  
Date: September, 2007, through August, 2010.
- Project: “Model Accuracy and Learning in Revenue Management and Dynamic Pricing”  
Co-PIs: William Cooper (University of Minnesota) and Anton Kleywegt (Georgia Tech)  
Funding source: National Science Foundation  
Date: June, 2007, through June, 2010.
- Project: “Improved Operations at Coyote Logistics: Solving the Network”  
Co-PI: Karen Smilowitz (Northwestern)  
Funding source: Coyote Logistics, LLC  
Date: March, 2008, through February, 2009.
- Project: “Yield Management Opportunities at Carry Transit”  
Co-PIs: Mark Daskin and Karen Smilowitz (Northwestern)  
Funding source: Superior Bulk Logistics, Inc.  
Date: January, 2007, through December, 2008.
- Project: “Yield Management Opportunities at Carry Transit”  
Co-PIs: Mark Daskin and Karen Smilowitz (Northwestern)  
Funding source: Seed Grant award, provided by the Transportation Center at Northwestern  
Date: June, 2007, through September, 2007.
- Project: “Stochastic Optimization for Revenue Management”  
Co-PI: William Cooper (University of Minnesota)  
Funding source: National Science Foundation  
Date: October, 2001, through September, 2005.

- Project: “Periodic Transportation Scheduling under Uncertainty”  
Funding source: Seed Grant award, provided by The Ohio State University  
Date: January, 1999, through December, 1999.

### Research Grants (as Associate Investigator)

- Project: “Mathematical Modeling for Industrial and Management Science Applications”  
Funding source: Anillo proyect, Conicyt, Chile  
Date: August, 2011, through December, 2012.
- Project: “Centralized versus Decentralized Energy Management in a Stochastic Setting”  
Funding source: Electricit de France  
Date: June, 2014, through May, 2015.

### Conference Presentations

1. Worskhop in Multi-Stage Stochastic Optimization for Clean Energy Transition, Oaxaca, Mexico, September 2019. “Effective Scenarios in Multistage Stochastic Optimization”.
2. International Conference on Continuous Optimization, Berlin, Germany, August 2019. “Effective Scenarios in Multistage Stochastic Optimization”.
3. XV International Conference on Stochastic Programming, Trondheim, Norway, July 2019. “A Data-Driven Approach for a Class of Dynamic Stochastic Optimization Problems”.
4. INFORMS annual meeting, Phoenix (AZ), November 2018. “Solving Multi-Period Mine Planning Models with Endogenous Uncertainty”.
5. XXIII International Symposium on Mathematical Programming, Bordeaux, France, July 2018. “Effective Scenarios and Scenario Reduction for Risk-Averse Stochastic Programs” (Keynote talk).
6. 50th Brazilian Symposium on Operations Research, Rio de Janeiro, Brazil, August 2018. “Effective Scenarios in Stochastic Optimization” (Keynote talk).
7. Workshop on Distributionally Robust Optimization, Banff, Canada, March 2018. “Distributionally Robust Newsvendor Problems with Variation Distance”.
8. OPTIMA conference, Vina del Mar, Chile, November 2017. “Effective Scenarios in Distributionally Robust Stochastic Optimization” (plenary talk).
9. Workshop on Stochastic Optimization, Groningen, Netherlands, August 2017. “Scenario Reduction for Risk-Based Models via Identification of Effective Scenarios”.
10. INFORMS Applied Probability Society Conference, Evanston, IL, July 2017. “Distributionally Robust Newsvendor Problems with Variation Distance”.
11. XIV International Conference on Stochastic Programming, Buzios, Brazil, June 2016. “A Stochastic Optimization Model for the Life-Cycle Consumption-Investment Problem”.

12. SOMACHI (Chilean Mathematical Society) meeting, Pucon, Chile, November 2015. “Alternating Direction Method of Multipliers for Two-Stage Stochastic Programs with Convex Utility Functions”.
13. XXII International Symposium on Mathematical Programming, Pittsburgh (PA), July 2015. “Chance-Constrained Problems and Rare Events: An Importance Sampling Approach”.
14. British-French-German Conference on Optimization, London, UK, June 2015. “A Decomposition Method for Two-Stage Stochastic Programs with Quadratic Utilities”.
15. INFORMS annual meeting, San Francisco (CA), November 2014. “Chance-Constrained Problems and Rare Events: An Importance Sampling Approach”.
16. INFORMS Optimization Conference, Houston (TX), March 2014. “Chance-Constrained Problems and Rare Events: An Importance Sampling Approach”.
17. XIII International Conference on Stochastic Programming, Bergamo, July 2013. “Risk-Aversion in Multistage Stochastic Programming: A Modeling and Algorithmic Perspective”.
18. XXI International Symposium on Mathematical Programming, Berlin, Germany, August 2012. “On Scenario Generation Methods for a Hydroelectric Power System”.
19. INFORMS Optimization Conference, Miami (FL), February 2012. “An Optimal Path Model for the Risk-Averse Traveler”.
20. TRANS-LOG Conference, Puerto Varas, Chile, December 2011. “An Optimal Path Model for the Risk-Averse Traveler”.
21. SIAM Conference on Optimization, Darmstadt, Germany, May 2011. “Optimization with Risk Via Stochastic Dominance Constraints”.
22. INFORMS Annual Meeting, Austin, TX, November 2010. “Quasi-Monte Carlo Methods for Hydroelectric Energy Planning”.
23. INFORMS Optimization Conference, Gainesville (FL), February 2010. “Quasi-Monte Carlo Methods for a Multi-Stage Stochastic Program for Energy Planning”.
24. XX International Symposium on Mathematical Programming, Chicago (IL), August 2009. “Optimization with Stochastic Dominance Constraints and Sampling”.
25. INFORMS Applied Probability Society Conference, Ithaca, NY, July 2009. “Monte Carlo Sampling for Optimization Problems with Stochastic Dominance Constraints”.
26. OptimA Conference, Urbana, IL, March 2009. “Algorithms for Optimization Problems with Stochastic Dominance Constraints”.
27. Conference Efficient Monte Carlo: From Variance Reduction to Combinatorial Optimization, Sonderberg, Denmark, July 2008. “Quasi-Monte Carlo Methods for Stochastic Optimization”.
28. INFORMS meeting, Seattle (WA), November 2007. “Combining Quasi-Monte Carlo and Latin Hypercube Methods in Stochastic Optimization”.
29. XI International Conference on Stochastic Programming, Vienna, August 2007. “Optimization with Stochastic Dominance Constraints”.



30. Winter Simulation Conference, Monterey (CA), December 2006. “Quasi-Monte Carlo Strategies for Stochastic Optimization”.
31. INFORMS meeting, Pittsburgh (PA), November 2006. “Using Non-I.I.D. Sampling Methods in Stochastic Optimization”.
32. Monte Carlo and Quasi-Monte Carlo Conference, Ulm, Germany, August 2006. “Quasi-Monte Carlo Methods in Stochastic Optimization”.
33. XIX International Symposium on Mathematical Programming, Rio de Janeiro, Brazil, August 2006. “Quasi-Monte Carlo Methods in Stochastic Optimization”.
34. XXI European Conference on Operational Research, Iceland, July 2006. “Quasi-Monte Carlo Methods in Stochastic Programming”.
35. INFORMS meeting, San Francisco (CA), November 2005. “Quasi-Monte Carlo Methods in Stochastic Programming”.
36. INFORMS meeting, San Francisco (CA), November 2005. “Re-Solving Stochastic Programming Models for Revenue Management”.
37. INFORMS Applied Probability Society Conference, Ottawa, Canada, July 2005. “Latin Hypercube Sampling for Stochastic Optimization”.
38. X Stochastic Programming Conference, Tucson (AZ), October 2004. “Multi-Stage Stochastic Programming Models for Revenue Management”.
39. INFORMS meeting, Denver (CO), October 2004. “Multi-Stage Stochastic Programming Models for Revenue Management”.
40. INFORMS meeting, Atlanta (GA), November 2003. “Using the Cross-Entropy Method in Combinatorial Optimization”.
41. INFORMS meeting, Atlanta (GA), November 2003. “On the Convergence Rate of Non-Independent Sampling for Stochastic Optimization”.
42. Winter Simulation Conference, San Diego (CA), December 2002. “Estimation of Rare-Event Probabilities Using the Cross-Entropy Method”.
43. INFORMS meeting, San Jose (CA), November 2002. “Stochastic Optimization and the Cross-Entropy Method”.
44. INFORMS meeting, Miami (FL), November 2001. “Combining Monte Carlo Methods and Dynamic Programming in Stochastic Optimization”.
45. INFORMS Applied Probability Society Conference, New York (NY), July 2001. “Stochastic Optimization for Revenue Management Problems”.
46. INFORMS meeting, San Antonio (TX), November, 2000. “Periodic Transportation Scheduling under Uncertainty”.
47. XVII International Symposium on Mathematical Programming, Atlanta (GA), August 2000. “Monte Carlo Methods for Discrete Stochastic Optimization”.
48. INFORMS meeting, Salt Lake City (UT), May 2000. “Conditioning and Variance Reduction in Stochastic Programming”.

49. International Conference on Stochastic Optimization: Algorithms and Applications, Gainesville (FL), February 2000. “Monte Carlo Methods for Discrete Stochastic Optimization”.
50. INFORMS meeting, Philadelphia (PA), November 1999. “Discrete Stochastic Optimization via Simulated Annealing”.
51. Workshop on Continuous Optimization, Rio de Janeiro, Brazil, July 1999. “On Rate of Convergence and Algorithms for Monte Carlo Approximations of Stochastic Optimization Problems”.
52. INFORMS meeting, Cincinnati (OH), May 1999. “On Rate of Convergence of Monte Carlo Approximations of Stochastic Programs”.
53. VIII International Conference on Stochastic Programming, Vancouver, Canada, August 1998. “Estimation of Derivatives of Nonsmooth Performance Measures in Regenerative Systems”.
54. INFORMS meeting (Nicholson Competition), Montreal, Canada, May 1998. “Estimation of Derivatives of Nonsmooth Performance Measures in Regenerative Systems”.
55. Ph.D. Colloquium at Winter Simulation Conference, Atlanta (GA), December 1997. “Simulation-Based Methods for Stochastic Optimization”
56. INFORMS meeting, San Diego (CA), May 1997. “Finding Optimal Material Release Times by Simulation-Based Optimization”.
57. INFORMS meeting, Atlanta (GA), November 1996. “A Simulation-Based Approach to Stochastic Programming”.
58. SBMAC (Brazilian Society of Applied and Computational Mathematics) meeting, July 1992. “Stability Conditions for Flexible Manufacturing Systems with No Set-up Times”.

### **Invited Talks at Institutions**

1. National System Operator (ONS — Brazil’s ISO), Rio de Janeiro, Brazil, July 2016. “Scenario Generation Methods”.
2. PSR Consulting, Rio de Janeiro, Brazil, July 2016. “Risk-Aversion in Multistage Stochastic Programming: A Modeling and Algorithmic Perspective”.
3. Universidad de Chile, Dept. of Industrial Engineering, May 2015. “Risk Aversion in Optimization under Uncertainty”.
4. The Ohio State University, Dept. of Integrated Systems Engineering, March 2014. “Risk-Aversion in Multistage Stochastic Programming: A Modeling and Algorithmic Perspective”.
5. Sandia National Lab, Albuquerque, NM, April 2011. “Optimization with Risk via Stochastic Dominance Constraints”.
6. Universidad Adolfo Ibañez, Chile, December 2010. “Decision Making under Uncertainty: Protecting against Risk”.
7. Federal University of Santa Catarina, Brazil, November 2009. “Resource Allocation under Risk: An Application to Homeland Security”.

8. Duke University, Fuqua School of Business, November 2009. “Resource Allocation via Optimization with Stochastic Dominance Constraints: An Application to Homeland Security”.
9. University of Minnesota, Department of Mechanical Engineering, April 2009. “Optimization under Uncertainty via Stochastic Dominance Constraints”.
10. Stevens Institute of Technology, Department of Mathematical Sciences, December 2008. “Optimization under Uncertainty via Stochastic Dominance Constraints”.
11. Illinois Institute of Technology, Stuart School of Business, December 2008. “Learning with Model Inaccuracy: Unexpected Consequences”.
12. University of Wisconsin–Madison, Department Industrial Engineering, December 2008. “Optimization under Uncertainty via Stochastic Dominance Constraints”.
13. University of Illinois at Chicago, Department of Mechanical and Industrial Engineering, October 2008. “Optimization under Uncertainty via Stochastic Dominance Constraints”.
14. University of Texas, Austin (TX), November 2007. “Quasi-Monte Carlo Methods for Stochastic Optimization”.
15. University of Iowa, Tippie College of Business, November 2006. “Learning with Model Inaccuracy: Unexpected Consequences”.
16. Carnegie-Mellon University, Tepper School of Business, November 2006. “Learning with Model Inaccuracy: Unexpected Consequences”.
17. Illinois Institute of Technology, Department of Applied Mathematics, October 2006. “Sampling-Based Methods for Stochastic Optimization”.
18. University of Wisconsin – Madison, Department of Industrial Engineering, December 2004. “Models of the Spiral-Down Effect in Revenue Management”.
19. Argonne National Labs, Department of Mathematical Sciences, December 2003. “Sampling-Based Methods for Stochastic Optimization”.
20. Northwestern University, Department of Industrial Engineering and Management Sciences, November 2002. “Exploiting the Exponential Rate of Convergence of Sample Average Approximations of Stochastic Programs”.
21. Cornell University, Department of Operations Research and Industrial Engineering, April 2002. “Monte Carlo Methods for Stochastic Optimization”.
22. University of Chicago, Graduate School of Business, May 2001. “Monte Carlo Methods for Stochastic Optimization”.
23. State University of New York in Buffalo, Department of Industrial Engineering, April 2001. “Monte Carlo Methods for Stochastic Optimization”.
24. Ohio State University, Department of IWSE, June 1998. “Simulation-Based Methods for Stochastic Optimization”.

## Teaching

- a) Courses taught at Adolfo Ibañez University :

- Foundations of Operations Management, 2nd semester 2011, 1st semester 2012, 2nd semester 2012, 2nd semester 2013 (core undergraduate course).
- Quantitative Analytics, taught twice a year since 2012 (Executive MBA course).
- Business Analytics, taught once a year since 2014 (Executive MBA course in Peru).
- Stochastic Optimization, 2016 (PhD course)
- Operations Laboratory, 1st quarter 2014 (core graduate course).

b) Courses taught at University of Illinois at Chicago:

- IE 210: Financial Engineering, Fall 2010, Spring 2011 (core undergraduate course).
- IE 342: Probability and Statistics for Engineers, Fall 2009, Spring 2010, Spring 2011 (core undergraduate course).
- IE 552: Applied Stochastic Processes, Spring 2010 (graduate course).

c) Courses taught at Northwestern University:

- IEMS 490-0: Stochastic Optimization (special topics graduate course), 2008.
- IEMS 460-1: Stochastic Models I (core graduate course), 2004-2009.
- IEMS 315: Stochastic Models and Simulation (core undergraduate course), 2003-2006, 2009.
- IEMS 317: Discrete Event Systems Simulation (core undergraduate course), 2004-2007,2009.

d) Courses taught at The Ohio State University:

- Stochastic Processes Used in Systems Engineering I (core graduate course), 1998-2002.
- Stochastic Processes Used in Systems Engineering II (elective graduate course), 2000.
- Nonlinear Programming (elective graduate course), 1999-2003.
- Stochastic Optimization (elective graduate course), 2000, 2002.
- Introduction to Discrete System Simulation (core graduate course), 2002-2003.
- Operations Research Models and Methods (core graduate course), 2003.
- Simulation of Production Systems (core undergraduate course), 1999-2001.
- Industrial Practice in Systems Design I and II (core undergraduate course)<sup>1</sup>, 2001.

e) Courses taught at the University of São Paulo:

- Introduction to Computer Science I (undergraduate course), 1991-1993.
- Introduction to Computer Science II (undergraduate course), 1992.
- Systems Programming (undergraduate course), 1990-1991.

c) Teaching activities:

- Led the process of designing the curriculum of the Ph.D. Program in Industrial Engineering and Operations Research at UAI.

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<sup>1</sup>This course consisted of mentoring five senior design projects.

- Designed a new graduate course in Stochastic Optimization at UAI.
- Designed the Executive MBA course Business Analytics at UAI.
- Re-designed the Executive MBA course Quantitative Analytics at UAI.
- Participated in the Global Colloquium, a one-week training course for teaching at Harvard University (2013).
- Re-designed the graduate course in Applied Stochastic Processes (IE 552) at UIC.
- Designed a new graduate course in Stochastic Optimization (490-0) at Northwestern.
- Re-designed the graduate course in Stochastic Models I (460-1) at Northwestern.
- Developed a new graduate course in Stochastic Optimization at The Ohio State University.
- Re-designed the graduate courses in Stochastic Processes I and II and Nonlinear Programming, and also Simulation (both undergraduate and graduate versions) at The Ohio State University.

## PhD Students

1. *Lijian Chen*, graduated in 2006. Dissertation topic: “Stochastic Programming in Revenue Management”.
2. *Shane Drew*, graduated in 2007. Dissertation topic: “Quasi-Monte Carlo Methods in Stochastic Programming”.
3. *Jian Hu*, graduated in 2011. Dissertation topic: “Concepts, Analyses, and Applications of Multivariate Stochastic Dominance”. Co-advised by Sanjay Mehrotra (Northwestern) and myself.
4. *Sebastian Arpon*, graduated in 2018. Dissertation topic: “Models and Algorithms for Stochastic Optimization Problems with Risk”. Co-advised by Bernardo Pagnoncelli (Adolfo Ibañez University) and myself.
5. *Esnil Guevara*, expected graduation in 2020. Dissertation topic: “Strategic Energy Planning under Uncertainty”. Co-advised by Frederic Babonneau (Adolfo Ibañez University) and myself.

## Masters Students with Thesis

1. *Krishna Chepuri* (Ohio State), graduated in 2003. Thesis topic: “Solving the Vehicle Routing Problem with Stochastic Demands using the Cross Entropy Method.”
2. *Alexander Nikolaev* (Ohio State), graduated in 2003. Thesis topic: “A Non-Smooth Stochastic Optimization Algorithm.”
3. *Rodrigo Godoy Barba* (Universidad Adolfo Ibañez), graduated in 2016. Thesis topic: “Appointment Scheduling Under Time Dependent No-Show Probability”. Co-advised by Qingxia Kong (Adolfo Ibañez University) and myself.

4. *Javier Garcia* (Universidad Adolfo Ibañez ), graduated in 2016. Thesis topic: “Life-cycle problems solved using Stochastic Dual Dynamic Programming”. Co-advised by Bernardo Pagnoncelli, Pablo Castañeda (Adolfo Ibañez University) and myself.

### **Professional activities**

a) Service to Adolfo Ibañez University:

- Co-Director of the Ph.D. Program in Industrial Engineering and Operations Research
- Member of Program Committee of the Masters in Industrial Engineering and Operations Research
- Member of Program Committee of the Masters in Business Analytics
- Member of the Promotion Committee of the School of Business
- Member of the Promotion Committee of the University
- Member of Research Committee of the School of Business

b) Service to the University of Illinois at Chicago:

- Students examinations:
  - Member of four Ph.D. dissertation committees

c) Service to Northwestern University:

- Departmental activities:
  - Director of Graduate Studies (2007-2008)
  - Member of Graduate Studies committee (since 2003)
  - Co-organizer of seminar series (2004-2005)
  - Mentor for senior design projects in Winter/05, Spring/06, Spring/07, Spring/08
- Students examinations:
  - Member of thirteen Ph.D. dissertation committees

d) Service to The Ohio State University:

- Departmental activities:
  - Chair of search committee for Operations Research position (2000-2001)
  - Member of computing committee (1999-2003)
  - Member of graduate committee (2002-2003)
  - Member of seminar committee (1998-1999)
- Students examinations:

- Member of ten Masters exam committees
- Member of eight Ph.D. candidacy exams and/or dissertation committees
- Graduate representative in two Ph.D. defenses, three candidacy exams.

e) Editorial appointments:

- Guest Editor for special issue of *Mathematical Programming* (2017).
- Editorial Board of *Computational Optimization and Applications* (since 2006).
- Associate Editor, *ACM Transactions on Modeling and Computer Simulation* (2004-2010, 2013-2015).
- Associate Editor, *Operations Research* (2006-2011).

f) Service to the profession:

- Member of CONICYT evaluation group since 2019.
- Council Member-at-Large, Mathematical Optimization Society, since 2018.
- Member of program committee of the XV International Conference on Stochastic Programming held in Trondheim, Norway, in July 2019.
- Co-chair of the program committee of the XIV International Conference on Stochastic Programming held in Buzios, Brazil, in June 2016.
- Invited to teach a mini-course on Stochastic Optimization at the Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, Brazil, May 2016.
- Reviewer for CONICYT proposals since 2012.
- Organizer of the Workshop on Simulation Optimization held in Viña del Mar, Chile, in March 2013.
- Member of the program committee of the INFORMS Midwest Conference, Columbus (OH) in August 2011.
- Member of the program committee of the INFORMS Computing Society Conference, Monterey (CA) in January 2011.
- Member of the Committee on Stochastic Programming (COSP) 2007-2010. COSP is an eight-member committee elected by the research community in stochastic programming for a three-year term to promote the development of the area and to serve as a liaison to related professional societies.
- Member of program committee of the XIV Latin-Ibero American Congress on Operations Research (CLAIO 2008) held in Colombia in September 2008.
- Member of judging committee for the INFORMS George Nicholson Prize, 2003 and 2004.
- Member of judging committee for *IIE Transactions* Best Paper Award, 2003.
- Faculty advisor for INFORMS at the Ohio State University (1999-2003).

- Member of board of coordinators of *Optimization-Online*, a web-based repository of preprints maintained by Northwestern University and Argonne National Laboratory (since 2001).
- Organized and chaired conference sessions for several INFORMS meetings (including a panel session at INFORMS Pittsburgh, November 2006) and for the Winter Simulation Conference in December 2007.
- Co-organized the ACNW Optimization Tutorial (a one-day workshop involving Northwestern, Argonne, University of Chicago and University of Wisconsin–Madison) in Chicago, June 2005.
- Reviewer for the National Science Foundation (2002, 2004, 2007).
- Participated in the organization of the LATIN'92 (Latin-American Conference in Theory and Informatics) in São Paulo, Brazil, 1992.

g) Refereeing activities for the following journals:

*Operations Research, Management Science, Mathematics of Operations Research, SIAM Journal on Optimization, Mathematical Programming, INFORMS Journal on Computing, Transportation Science, Annals of Operations Research, Computational Optimization and Applications, Naval Research Logistics, Operations Research Letters, IEEE Transactions on Automatic Control, European Journal of Operations Research, IIE Transactions, Journal of Global Optimization, Mathematics of Computation, Stochastic Models, Technometrics, Methodology and Computing in Applied Probability, Journal of Infrastructure Systems.*

## Memberships

- INFORMS (Simulation Section, Optimization Society, MSOM, Applied Probability Society).
- Mathematical Optimization Society