

## Nicolás E. Stier Moses

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### Education

- 1999 - 2004      **Massachusetts Institute of Technology**      **Cambridge, MA**  
Ph.D. in **Operations Research**. GPA: 5.0/5.0  
Thesis: *Selfish versus Coordinated Routing in Network Games*  
Advisor: Andreas S. Schulz, Sloan School of Management, MIT
- 1992 - 1998      **Universidad de Buenos Aires**      **Argentina**
- Licenciado en Ciencias de la Computación, GPA: 9.27/10.00  
Equivalent to combined Bachelor and Master's degree in **Computer Science**.
  - Licenciado en Matemáticas, GPA: 9.46/10.00  
Equivalent to combined Bachelor and Master's degree in **Mathematics**.  
Not completed because I started my Ph.D.; only 3 courses left to graduate.
- Thesis for both degrees: *Splitting Techniques for Rare Event Simulation*  
Advisor: Gerardo Rubino, INRIA, Rennes, France

### Experience

- 2014 - present      **Facebook Core Data Science**      **Menlo Park, CA**  
*Research Scientist Manager, Business and Operations Group*  
Manage a team of Economists, Computer Scientists and Operations Researchers working on market modeling, mechanism design, game theory, optimization, econometrics and operations management problems.
- 2012 - present      **CONICET (National Scientific and Technical Research Council)**      **Argentina**  
*Independent Researcher (Investigador Independiente, on Leave)*
- 2011 - present      **Escuela de Negocios, Univ. Torcuato Di Tella**      **Buenos Aires, Argentina**  
*Associate Professor with Tenure (on Leave)*  
Conducted research on the economics of transportation networks, logistics, supply chain management, network optimization, game theory, and operations management. Taught MBA, EMBA and executive education courses.
- 2014      **Decision, Risk & Operations Division, Columbia Business School**      **New York, NY**  
*Research Affiliate*
- 2008 - 2013      *Associate Professor*
- 2004 - 2008      *Assistant Professor*  
Conducted research on the economics of transportation networks, logistics, supply chain management, network optimization, game theory, and operations management. Taught MBA and Ph.D. courses.
- Summer 2009      **Industrial Engineering Department, Universidad de Chile**      **Santiago, Chile**  
*Visiting Professor for Programa Milenio*
- Summer 2008      **Universita di Bologna and Universita di Roma Tor Vergata**      **Italy**  
*Visiting Professor*

1999 - 2004	<b>Operations Research Center, MIT</b> <i>Research Assistant</i>	<b>Cambridge, MA</b>
Summer 2001	<b>INRIA</b> <i>Research Intern</i> Extended the <i>Wavelength Assignment Problem</i> to multi-fiber optic networks.	<b>Sophia Antipolis, France</b>
1998, 1999	<b>Steer Davies Gleave</b> <i>Consultant in Transportation and Information Technology</i> Modeled the complex traffic and transit network in the metropolitan region of Buenos Aires. Performed a variety of studies to improve transportation in the region.	<b>London, UK and Buenos Aires, Argentina</b>
1998-1999	<b>INRIA</b> <i>Research Assistant</i> Developed simulation techniques, so-called “importance splitting”, for estimating rare events. Applied this technique to dimension ATM networks, which were modeled as networks of queues.	<b>Rennes, France</b>
1994-1998	<b>Buenos Aires Transportation Authority</b> <i>Consultant in Transportation and Information Technology</i> Modeled the complex traffic and transit network in the metropolitan region of Buenos Aires. Performed a variety of studies to improve transportation in the region.	<b>Argentina</b>

### Journal Publications

- *Revenue-Maximizing Rankings for Online Platforms with Quality-Sensitive Consumers* (with P. L’Ecuyer, P. Maille, and B. Tuffin). **Operations Research**, Forthcoming.
- *Optimal Trading and Shipping of Agricultural Commodities* (with N. Merener, R. Moyano and P. Watfi). **Journal of the Operational Research Society**, 67:1, 114–126, 2016.
- *Nudging cooperation in a crowd experiment* (with T. Niella and M. Sigman), **PLOS ONE**, 2016.
- *Bounds on the welfare loss from moral hazard with limited liability* (with F. Balmaceda, S. R. Balseiro, and J. R. Correa). **Games and Economic Behavior**, 95, 137–155, 2016.
- *Design and Control of a Public-Transportation Service Contract* (with A. Lodi, E. Malaguti and T. Bonino), **Management Science**, 62:4, 1165–1187, 2016.
- *Sensitivity analysis of markup equilibria in complementary markets* (with J. R. Correa and R. Lederman). **Operations Research Letters**, 42:2, 173–179, 2014.
- *Investment in two sided markets and the net neutrality debate* (with P. Njoroge, A. Ozdaglar, and G. Weintraub). **Review of Network Economics**, 12:4, 355–402, 2014.
- *A Mean-Risk Model for the Stochastic Traffic Assignment Problem* (with E. Nikolova). **Operations Research**, 62:2, 366–382, 2014.
- *Pricing with Markups in Industries with Increasing Marginal Costs* (with J. R. Correa, N. Figueroa and R. Lederman). **Mathematical Programming A**, 146:1, 143–184, 2014.
- *A polyhedral study of the maximum edge subgraph problem* (with F. Bonomo, J. Marengo, and D. Sabán). **Discrete Applied Mathematics**, 160:18, 2573–2590, 2012.
- *Efficient and Fair Routing for Mesh Networks* (with A. Lodi and E. Malaguti). **Mathematical Programming B**, 124:1–2, 285–316, 2010.
- Analysis and Models of Bilateral Investment Treaties using a Social Networks Approach (with D. Sabán and F. Bonomo). **Physica A**, 389, 3661–3673, 2010.
- *Wardrop Equilibria with Risk-Averse Users* (with F. Ordoñez). **Transportation Science**, 44:1, 63–86, 2010.
- *Eliciting Coordination with Rebates* (with P. Maillé), **Transportation Science**, 43:4, 473–492, 2009.
- *The Impact of Oligopolistic Competition in Networks* (with J.R. Correa and R. Cominetti), **Operations Research**, 57:6, 1421–1437, 2009.

- *A Geometric Approach to the Price of Anarchy in Nonatomic Congestion Games* (with J.R. Correa and A.S. Schulz). **Games and Economic Behavior**, 64, 457–469, 2008.
- *A Note on the Precedence-Constrained Class Sequencing Problem* (with J.R. Correa and S. Fiorini), **Discrete Applied Mathematics**, 155:3, 257–259, 2007.
- *Fast, Fair, and Efficient Flows in Networks* (with J.R. Correa and A.S. Schulz), **Operations Research**, 55:2, 215–225, 2007.
- *Efficiency and Fairness of System-Optimal Routing with User Constraints* (with A.S. Schulz), **Networks**, 48:4, 223–234, 2006.
- *System-Optimal Routing of Traffic Flows with User Constraints in Networks with Congestion* (with O. Jahn, R.H. Möhring and A.S. Schulz), **Operations Research**, 53:4, 600–616, 2005.
- *Selfish Routing in Capacitated Networks* (with J.R. Correa and A.S. Schulz), **Mathematics of Operations Research**, 29:4, 961–976, 2004.
- *Models, Complexity and Algorithms for the Design of Multifiber WDM Networks* (with A. Ferreira, S. Perennes, A. Richa and H. Rivano), **Telecommunication Systems**, 24:2–4, 123–138, 2003.

### Invited Chapters

- *Wardrop Equilibria* (with J. R. Correa), **Wiley Encyclopedia of Operations Research and Management Science**. Edited by J. J. Cochran. Wiley, 2011.
- *Pricing with Markups under Horizontal and Vertical Competition* (with J. R. Correa and R. Lederman), **Behavioral and Quantitative Game Theory**, ACM Press, New York NY, 2010.

### Submitted Publications

- *Risk averse selfish routing* (with T. Lianean and E. Nikolova). **Math of OR**, 2016.
- *The Competitive Facility Location Problem in a Duopoly* (with Y. Gur and D. Sabán), Minor revision in **Operations Research**, December 2011.

### Publications in Refereed Proceedings

- *Game Abstractions for Counterfactual Prediction in Online Markets* (with M. Hou and E. Sodomka), **Ad Auctions Workshop'16**, ACM Conference on Electronic Commerce (EC'16), Maastricht, Netherlands, July 2016.
- *Search (Non-)Neutrality and Impact on Innovation* (with P. L'Ecuyer, P. Maille, and B. Tuffin). Workshop on the Economics of Networks, Systems and Computation (**NetEcon'16**), Juan-les-Pins, France, 2016.
- *Asymptotically tight bounds for inefficiency in risk-averse selfish routing* (with T. Lianean and E. Nikolova). International Joint Conference on Artificial Intelligence (**IJCAI'16**), New York, NY, USA, 2016.
- *The Burden of Risk Aversion in Mean-Risk Selfish Routing* (with E. Nikolova). 16th ACM Conference on Economics and Computation (**EC'15**), Portland, OR, USA, 2015.
- *Efficient assignment of voters to voting centers via Math Programming* (with Mauro Giormenti and Guillermo Durán), Proceedings of the **8th ALIO/EURO** Conference on Applied Combinatorial Optimization, Montevideo, Uruguay, 2014.
- *The Price of Anarchy of the Proportional Allocation Mechanism Revisited* (with J.R. Correa and A.S. Schulz), 9th Workshop on Internet & Network Economics (**WINE'13**), Cambridge, MA, US, Y. Chen and N. Immorlica (Eds.), Volume 8289 of Lecture Notes in Computer Science, pp. 107-118, Springer, Heidelberg, 2013.
- *The Competitive Facility Location Problem in a Duopoly: Relations to the 1-Median Problem* (with D. Sabán), 8th Workshop on Internet & Network Economics (**WINE'12**), Liverpool, UK, P.W. Goldberg and M. Guo (Eds.), Volume 7695 of Lecture Notes in Computer Science, pp. 540-546, Springer, Heidelberg, 2012.

- *Stochastic Wardrop Equilibrium* (with E. Nikolova), Proceedings of the Fourth Symposium on Algorithmic Game Theory (**SAGT'11**), Salerno, Amalfi Coast, Italy, G. Persiano (Ed.), Volume 6982 of Lecture Notes in Computer Science, pp. 314-325, Springer, Heidelberg, 2011.
- *A Facility Location Problem under Competition* (with Y. Gur), Proceedings of the Workshop on the Economics of Networks, Systems and Computation (**NetEcon'11**), San Jose, CA, 2011.
- *The Cost of Moral Hazard and Limited Liability in the Principal-Agent Problem* (with F. Balmaceda, S. R. Balseiro, and J. R. Correa), 6th Workshop on Internet & Network Economics (**WINE'10**), Stanford, CA, Volume 6484 of Lecture Notes in Computer Science, pp. 63-74, Springer, Berlin, 2010.
- *Pricing with Markups under Horizontal and Vertical Competition* (with J. R. Correa and R. Lederman), INFORMS Manufacturing & Service Operations Management Society Annual Conference (**MSOM'10**), Haifa, Israel, June 2010.
- *A polyhedral study of the maximum edge subgraph problem* (with F. Bonomo, J. Marengo, and D. Sabán), Proceedings of the V Latin-American Algorithms, Graphs and Optimization Symposium (**LAGOS'09**), Gramado, Brazil, Volume 35 of Electronic Notes in Discrete Mathematics, pp. 197-202, Elsevier, 2009.
- *Competition, Market Coverage, and Quality Choice in Interconnected Platforms* (with P. Njoroge, A. Ozdaglar, and G. Weintraub), Proceedings of the Workshop on The Economics of Networks, Systems, and Computation (**NetEcon'09**), Stanford, CA, 2009.
- *Efficient and Fair Routing for Mesh Networks* (with A. Giovanardi, A. Lodi and E. Malaguti), Proceedings of the **6th ALIO/EURO** Conference on Applied Combinatorial Optimization, Buenos Aires, Argentina, 2008.
- *Robust Wardrop Equilibrium* (with F. Ordoñez), Proceedings of the First International Conference on Network Control and Optimization (**NET-COOP'07**), Avignon, France, Volume 4465 of Lecture Notes in Computer Science, pp. 247-256, Springer, Berlin, 2007.
- *Network Games with Atomic Players* (with J.R. Correa and R. Cominetti), Proceedings of the 33rd International Colloquium on Automata, Languages and Programming (**ICALP'06**), Venice, Italy, Lecture Notes in Computer Science, pp. 525-536, Springer, Berlin, 2006.
- *On the Inefficiency of Equilibria in Congestion Games* (with J.R. Correa and A.S. Schulz) in M. Junger and V. Kaibel (Eds.), Proceedings of the 11th Conference on Integer Programming and Combinatorial Optimization (**IPCO'05**), Berlin, Germany, Volume 3509 of Lecture Notes in Computer Science, pp. 167-181, Springer, Berlin, 2005.
- *Computational Complexity, Fairness, and the Price of Anarchy of the Maximum Latency Problem* (with J.R. Correa and A.S. Schulz), in D. Bienstock and G. Nemhauser (Eds.), Proceedings of the 10th Conference on Integer Programming and Combinatorial Optimization (**IPCO'04**), New York, NY, Volume 3064 of Lecture Notes in Computer Science, pp. 59-73, Springer, Berlin, 2004.
- *On the Performance of User Equilibria in Traffic Networks* (with A.S. Schulz), in Proceedings of the 14th Annual ACM-SIAM Symposium on Discrete Algorithms (**SODA'03**), Baltimore, MD, pp. 86-87, Society of Industrial and Applied Mathematics, Philadelphia, PA, 2003.
- *On the Application of Accelerating Simulation Methods in Network Analysis* (with J. Incera and G. Rubino), Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (**PDPTA'00**), Las Vegas, NV, 2000.
- *GIS Representation of Buses in Buenos Aires* (with G. de Ferraris), **VII Transit and Transport Conference**, Santiago, Chile, 1995.

### Working Papers

- *Facility Network Design with Oligopolistic Markets* (with R. Lederman and G. van Ryzin). February 2011.
- *Stackelberg Routing in Atomic Network Games* (with J. R. Correa), Working Paper DRO-2007-03, Graduate School of Business, Columbia University, 2007.
- *Competing for Scarce Capacity with Advance Purchasing Orders* (with A. Muharremoglu and D. Saure), 2007.

- *Cost Sharing in Serial Inventory Systems* (with R. Levi), 2006.
- *The Price of Anarchy of Selfish Traffic with Elastic Demands* (with A.S. Schulz), 2004.

### Cases

- *Did General Motors Produce to Match Demand?* (with P. Glasserman, T. Harris, and C. Maglaras), Columbia Case Works Integrated Auto Case, January 2011.
- *Deconstructing the Price of Diamonds* (with A. Zeevi), Columbia Case Works ID#080201, February 2008.

### Patents

- N. Stier-Moses, *Analyzing Social-Networking Metrics of Online Social Networks*, December 10, 2015, Application No.: 14/965,680
- J. Kuri, N. Stier-Moses, *Capacity Planning in a Backbone Network*, July 20, 2016, Application No.: 15/215,328
- O. Filiz, K. Subbian, P. Maas, N. Stier-Moses, K. Murphy, *Systems and Methods for Prefetching Content Items for a Feed in a Social Networking System*, September 27, 2016, Application No.: 15/277,888
- In process: Routing SMS using Aggregators with Unknown Quality.

### Applied Research and Consulting

- Project with **Tucuman City Government** related to the optimization of waste management procedures, 2014. This was part of a cooperation project between Universidad de Buenos Aires and the Argentine National Government.
- Project with **IRV/LOGIT** related to Land Use in the Buenos Aires Metropolitan Area, 2014. This was part of a regional transportation study commissioned by the Argentine National Government.
- Project with **Despegar.com** related to Internet advertising, 2012-2014. Despegar.com is one of the largest online retailers for tourism related products (flights, cars, hotels, etc) in Latin America
- Project with **Los Grobo** related to logistics and finance, 2012-2013. Los Grobo is one of the largest agriculture firms in Argentina, Brazil, and other countries in Latin America.
- Project with **Zara Spain**, related to logistics and distribution systems, 2008.

### Non-Technical Articles

- *Stochastic Selfish Routing* (with E. Nikolova), **ACM SIGecom Exchanges**, 11:1, 21-25, 2012.
- Feature: *Shifting Out of Neutral*. **Ideas at Work**, Columbia University, August 2010.
- *Alterados por Pi*, Canal Encuentro, Argentina. Participated in two made-for-TV programs focusing in transportation modeling and the traveling salesman problem. 2010.
- Feature: *Rewarding efficient commuters, easing traffic congestion*. **Ideas at Work**, Columbia University, July 2007.
- Viewpoints: *Congestion Pricing*, **Ideas at Work**, Columbia University, August 2007.
- *Selfish Routing in Capacitated Networks*, **Ideas at Work**, Columbia University, 2005.

### Teaching

Summer 2016	<b>Routing and Games</b> , IPCO Summer School, Liege, Belgium.
Winter 2014	<b>Algorithmic Game Theory and Network Games</b> , Ph.D. course, Instituto Sistemas Complejos de Ingenieria, Valparaiso, Chile.
2013-2014	<b>Operations Strategy</b> , MBA and EMBA core course, Universidad Torcuato Di Tella. Average Course Evaluations 4.7/5 in 7 courses.
2010, 2012	<b>Data Analysis and Managerial Decisions</b> , ECLA program, Columbia Business School.

Summer 2008	<b>Algorithmic Game Theory and Network Games</b> , Ph.D. course, Visiting Professor , Universita di Bologna and Universita di Roma Tor Vergata, Italy.
2006-2012	<b>Managerial Decisions I</b> , MBA and EMBA core course, Visiting Professor, Universidad Torcuato Di Tella. Average Course Evaluations 4.7/5 in 9 courses.
2006, 2010	<b>Game Theoretic Models in Operations</b> . Ph.D. course, Columbia Business School. Average Course Evaluations 5/5 in 2 courses.
2004-2013	<b>Managerial Statistics</b> , MBA core course, Columbia Business School. Average Course Evaluations 4.55/5 in 20 courses.

### Academic Advising

- Advisor of Roger Lederman (PhD in Operations Management, Columbia Business School). *Strategic Models in Supply Network Design*. May 2012.
- Co-advisor of Columbia Business School doctoral students Santiago Balseiro (*Competition and Yield Optimization in Ad Exchanges*, 2013); Daniela Saban, (*Design and Analysis of Matching and Auction Markets*, 2015).
- Advisor Master students in Math and Computer Science:
  - Pablo Watfi (*Originacion y logistica en los agronegocios*, Math Department, Universidad Nacional de Buenos Aires, Argentina, 2014).
  - Mauro Giormenti (*Asignacion de votantes a centros de votacion minimizando su tiempo invertido*, Math Department, Universidad Nacional de Buenos Aires, Argentina, 2014).
  - Jeremias Lenzi (*Asignacion Eficiente de Votantes a Escuelas mediante Programacion Matematica: La Ciudad de Pergamino*, Math Department, Universidad Nacional de Cordoba, Argentina, 2013).
  - Dana Maria Pizarro (*Efficiency of Linear Contracts in the Principal-Agent Problem*, Math Department, Universidad Nacional de Rosario, Argentina, 2013).
  - Daniela Saban (*Analysis and Models of Bilateral Investment Treaties using a Social Networks Approach*, Computer Science Department, Universidad de Buenos Aires, Argentina, 2009).
- Advisor MBA students:
  - Ariel Altarriba and Alejandro Perez Santillán, MBA, Universidad Di Tella, Argentina, *Pick-It Business Plan*, 2014.
  - Eduardo Moroni, MBA, Universidad Di Tella, Argentina, *Revenue Management in the Printing Industry*, 2013.
  - Juan Ruiz, MBA, Universidad Di Tella, Argentina, *Production planning and pricing for wine and products derived from grapes for Gancia Argentina*, July 2012. Gancia is a market leader in Argentina for products derived from grapes, like wines, juice, and other beverages.
- Advisor ECLA students (Emprendedores Competitivos de Latino America, Columbia Business School):
  - Santiago Alemán and Eugenia Schettini, ECLA Program, Columbia University, *Optimizing Interview Pipelines*, 2014. iTalent Connection.
  - Matias Muñoz and Alfonso Díaz, ECLA Program, Columbia University, *Production and Demand Planning, Inventory Control and Supply Chain Management for Calister Uruguay*, 2012. Calister a biotechnological and agrochemical solutions firm in Uruguay.
  - Mauricio Ulla and Jan Jakob, ECLA Program, Columbia University, *Drivers of Sales for Manufacturing-Support Software for Ulasoft Argentina*, 2012. Ulasoft is a software development company specialized in manufacturing management solutions.
  - Santiago Caniglia, ECLA Program, Columbia University, *A Simulation Model for Agro-Entrepreneurship Management for Faro Capital Argentina*, 2010.
  - Pablo Salomon, ECLA Program, Columbia University, *Process Tracking for the Development of New Products for Interactive Networks Uruguay*, 2010.

## Other Activities Related to Teaching

- Doctoral Committee of David de la Nuez (IEOR, Columbia University, 2007), Stergios Athanassoglou (IEOR, Columbia University, 2008), Serkan Eren (Columbia Business School, 2008), A. Abhivav Verma (IEOR, Columbia University, 2009), Paul K. Njoroge (Laboratory for Information and Decision Sciences, MIT, 2010), Juan J. Miranda Bront (Computer Science Department, Fac. de Cs. Exactas y Naturales, Universidad de Buenos Aires, 2012), Eugenio Della Vecchia (Math Department, Fac. de Cs. Exactas, Ingeniería y Agrimensura, Universidad Nacional de Rosario, Argentina, 2013), Thomas Pradeau (Paris Tech and Ecole Nationale des Ponts et Chaussées, France, 2014), Leslie Murray (Universidad de la Republica, Uruguay, 2014).
- Hosted Visiting Scholars: Patrick Maillé (Assistant Professor at Telecom Bretagne, Rennes, France, 2006), Enrico Malaguti (PhD Candidate at DEIS, Università di Bologna, Italy, 2006 and 2007), José Correa (Assistant Professor at Universidad Adolfo Ibáñez and Associate Professor, 2006 and Universidad de Chile, Santiago, Chile, 2008), Charles Thraves (Master student at the Industrial Engineering Department of Universidad de Chile, 2011), Thomas Pradeau (Doctoral student Ecole des Ponts et Chaussées, Paris, France, 2013), Eddie Nikolova (Texas A&M and UT Austin, 2013 and 2014), Jose Verschae (Postdoc at Industrial Engineering Department, Universidad de Chile, 2014), and Mario Bravo (Postdoc at Industrial Engineering Department, Universidad de Chile, 2014).
- Study trips for MBA Students (Argentina and Chile, 2007; Japan 2013) and for ECLA Students (Israel 2014), Columbia Business School.
- Member of the Evaluation Committee of the Process Improvement Project for the program Emprendedores Competitivos en Latino America (ECLA), Buenos Aires, August 2010.
- Coached the Argentine team for the **International ACM Programming Contest**, Orlando, FL, March 2000. The team won the Latin American Prize.

## University Service and Professional Activities

- Member of the Board of the program Emprendedores Competitivos en Latino America (ECLA), Columbia Business School, 2009-present.
- Promotion committees: Associate Professor of Damian Pinasco (Math Dept, UTDT, May 2013) and of Pablo Shmerkin (Math Dept, UTDT, June 2013).
- External reviewer (promotions and proposals) for the Argentina Commission for Scientific and Technological Development (CONICET, 2015), the Canadian Natural Sciences and Engineering Research Council (NSERC, 2010), the Uruguayan Agencia Nacional de Investigación e Innovación (2013), the Chilean Government Commission for Scientific and Technological Development (CONICYT, 2010-2012), and the Singapore Ministry of Education (2013).
- Member of the Doctoral Student Admission Committee, Decision Risk and Operations Division, Columbia Business School (2004-2012).
- Member of the “**2009 INFORMS Transportation Science and Logistics Dissertation Prize**” Committee.
- Panelist for NSF’s Service Enterprise Systems Program, 2009.
- Member of Faculty Search Committee: Decision Risk and Operations Division, Columbia Business School (2007), Finance and Economics Division, Columbia Business School (2007).
- Coordinator, **DRO/IEOR Seminar Series**, Columbia University, 2005-2007.
- Student Coordinator, **Operations Research Seminar Series**, MIT, 2001-2002.
- Member of **INFORMS** and **MPS**.

## Invited Talks in Universities and Conferences

- *Asymptotically tight bounds for inefficiency in risk-averse selfish routing*, Seminar 15412 – Dynamic Traffic Models in Transportation Science, **Schloss Dagstuhl**, Germany, Oct 2015.
- *The Price of Risk Aversion*
  - **IFORS Conference**, Barcelona, Spain, July 2014.

- Game Theory Seminar at the **Institute Henri Poincare**, Paris, France, July 2014.
- *Operations Strategy*, Industrial Training Week, **Tenaris University**, Dalmine, Italy, February 2014.
- *Design and Control of a Public-Transportation Service Contract*
  - **VI Seminar Latin-American Network on Discrete Optimization**, Instituto de Cálculo, Universidad Nacional de Buenos Aires, Argentina, December 2013.
- *The Competitive Facility Location Problem in a Duopoly*
  - Math Department, Fac. de Cs. Exactas, Ingeniería y Agrimensura, **Universidad Nacional de Rosario**, Argentina, August 2014.
  - DEIS, **Università di Bologna**, Bologna, Italy, February 2014.
  - **V Seminar Latin-American Network on Discrete Optimization**, Universidad Nacional de General Sarmiento, Los Polvorines, Pcia de Buenos Aires, Argentina, November 2012.
  - Computer Science and Engineering Dept., **Texas A&M University**, College Station, TX, September 2012.
  - Industrial Engineering Dept., **Universidad de Chile**, Santiago, Chile, July 2012.
- *Investment in Two Sided Markets and the Net Neutrality Debate*
  - Panelist in a seminar on Network Neutrality, **Universidad Torcuato Di Tella**, Buenos Aires, Argentina, August 2013.
  - School of Business, **Universidad Torcuato Di Tella**, Buenos Aires, Argentina, October 2012.
  - **Institut National de Recherche en Informatique et en Automatique (INRIA)**, Paris, France, May 2011.
- *Game Theory in Operations Research*
  - Physics Department, **Universidad Nacional de Buenos Aires**, Argentina, December 2013.
  - School of Business, **Universidad Torcuato Di Tella**, Buenos Aires, Argentina, November 2011.
  - **IV Seminar Latin-American Network on Discrete Optimization**, Universidad Nacional de Rosario, Santa Fe, Argentina, August 2011.
  - Plenary Talk at the VI Latin-American Algorithms, Graphs and Optimization Symposium (**LAGOS'11**), Bariloche, Argentina, March 2011.
- *The Cost of Moral Hazard and Limited Liability in the Principal-Agent Problem*
  - Instituto de Cálculo, **Universidad de Buenos Aires**, Buenos Aires, Argentina, April 2012.
  - Industrial Engineering Dept., **Universidad de Chile**, Santiago, Chile, November 2010.
- *Pricing with Markups under Horizontal and Vertical Competition*
  - **Universidad Nacional de General Sarmiento**, Los Polvorines, Pcia de Buenos Aires, Argentina, June 2010.
  - **Behavioral & Quantitative Game Theory Conference**, Newport Beach, CA, May 2010.
  - Fuqua School of Business, **Duke University**, March 2010.
  - **Utah Winter Operations Conference**, Park City, UT, January 2010.
- *Normal form games: Equilibria and Algorithms*, Invited lecture in an undergraduate Algorithmic Game Theory course, Industrial Engineering Dept., **Universidad de Chile**, Santiago, Chile, August 2009.
- *Wardrop Equilibria With Risk-Averse Users*
  - Plenary Talk at the **Workshop on Dynamic Game theory and its Applications**, Valparaiso, Chile, December 2012.
  - Algorithms and Combinatorial Optimization Group, Industrial Engineering Dept., **Universidad de Chile**, Santiago, Chile, June 2009.
- *Pricing with Markups in Industries with Increasing Marginal Costs*
  - JFIG Award Finalists, **INFORMS Annual Meeting**, San Diego, CA, October 2009.
  - Industrial Engineering Dept., **Universidad de Chile**, Santiago, Chile, June 2009.
  - **IESE School of Business**, Barcelona, Spain, May 2009.
  - Computer Science Department, **Rensselaer Polytechnic Institute**, Troy, NY, Feb 2009.
  - Math Department, **Universidad de Buenos Aires**, Buenos Aires, Argentina, Dec 2008.
  - Graduate School of Business, **Columbia University**, New York, NY, May 2008.

- *Eliciting Coordination with Rebates*
  - Center for Applied Economics, Industrial Engineering Dept., **Universidad de Chile**, Santiago, Chile, June 2009.
  - Operations Management Seminar, Sloan School of Business, **Massachusetts Institute of Technology**, Cambridge, MA, Apr 2008.
  - Graduate School of Business, **University of Chicago**, Chicago, IL, Nov 2007.
  - JFIG Award Finalists, **INFORMS Annual Meeting**, Seattle, WA, November 2007.
  - Department of Industrial and Enterprise Systems Engineering, **University of Illinois at Urbana Champaign**, Urbana, IL, Oct 2007.
  - Mittagsseminar, Operations Research Center, **Massachusetts Institute of Technology**, Cambridge, MA, Feb 2007.
- Network Games with Atomic Players*
  - Bell Labs, **Lucent Technologies**, Murray Hill, NJ, June 2006.
  - Discrete Math Seminar, Dept. of Math, **Universidad de Chile**, Santiago, Chile, May 2006.
  - McCombs School of Business, **University of Texas at Austin**, Austin, TX, May 2006.
  - Industrial & Systems Engineering Dept., **Lehigh University**, Bethlehem, PA, March 2006.
  - Dept. of Mathematics & Statistics, **McGill University**, Montreal, Canada, March 2006.
  - DS/TOM Divisions, **INSEAD**, Fontainebleu, France, January 2006.
- *Tutorial: The Price of Anarchy*
  - Transportation and Logistics Dept., **Universidad Católica**, Santiago, Chile, June 2009.
  - Industrial Engineering Dept., **Universidad de Concepción**, Concepción, Chile, June 2009.
  - School of Business, **Universidad Adolfo Ibáñez**, Santiago, Chile, May 2008.
  - IRISA, **Institut National de Recherche en Informatique et en Automatique (INRIA)**, Rennes, France, January 2006.
  - Graduate School of Business, **Columbia University**, New York, NY, December 2005.
  - Daniel J. Epstein Department of Industrial and Systems Engineering, **University of Southern California**, Los Angeles, CA, November 2005.
  - Workshop on Operations and Management Science, **Universidad de Chile**, Santiago, Chile, July 2005.
- *On the Inefficiency of Equilibria in Congestion Games*
  - Workshop on Operations and Management Science, **Universidad de Chile**, Santiago, Chile, July 2005.
  - School of Business, **Universidad Adolfo Ibáñez**, Santiago, Chile, July 2005.
  - Math Department, **Universidad de Buenos Aires**, Buenos Aires, Argentina, March 2005.
  - School of Business, **Universidad Torcuato Di Tella**, Buenos Aires, Argentina, March 2005.
  - International Conference on Industrial Logistics (**ICIL'05**), Montevideo, Uruguay, February 2005.
- *Selfish versus Coordinated Routing in Network Games*
  - Operations Research Ctr, **Massachusetts Institute of Technology**, Cambridge, MA, 2004.
  - IEOR-DRO Seminar, **Columbia Business School**, New York, NY, 2004.
  - Kenan-Flagler Business School, **University of North Carolina**, Chapel Hill, NC, 2004.
  - Daniel J. Epstein Department of Industrial and Systems Engineering, **University of Southern California**, Los Angeles, CA, 2004.
- *Selfish Routing in Capacitated Networks*
  - IRISA, **Institut National de Recherche en Informatique et en Automatique (INRIA)**, Rennes, France, 2003.
  - Department of Civil & Environmental Engineering, **Massachusetts Institute of Technology**, Cambridge, MA, 2003.
  - Stern School of Business, **New York University**, New York, NY, 2003.
  - Industrial Engineering Department, **Universidad de Chile**, Santiago, Chile, 2003.

- Computational Game Theory Seminar, Laboratory for Computer Science, **Massachusetts Institute of Technology**, Cambridge, MA, 2003.
- *Splitting Techniques for Rare Event Simulation*
  - IRISA, **Institut National de Recherche en Informatique et en Automatique (INRIA)** Rennes, France, 1999.
  - **Universidad de Buenos Aires**, Buenos Aires, Argentina, 1999.

### **Presentations in Non-refereed Conferences**

- *Game Abstractions for Counterfactual Prediction in Online Markets* (Poster) (with M. Hou and E. Sodomka), ACM Conference on Electronic Commerce (**EC'16**), Maastricht, Netherlands, July 2016.
- *Asymptotically tight bounds for inefficiency in risk-averse selfish routing* (Poster) (with T. Lianes and E. Nikolova), ACM Conference on Electronic Commerce (**EC'16**), Maastricht, Netherlands, July 2016.
- *Optimal Sourcing and Planning for the Agriculture Industry*, Congress on Industrial, Computational and Applied Mathematics (**MACI**), Buenos Aires, Argentina, 2013. (Presented by P. Watfi, Coauthor: N. Merener)
- *Assignment of Voters to Schools in the City of Pergamino*, Congress on Industrial, Computational and Applied Mathematics (**MACI**), Buenos Aires, Argentina, 2013. (Presented by J. Lenzi, Coauthor: G. Duran)
- *A Facility Location Problem under Competition*
  - International Symposium in Math Programming (**ISMP**), Berlin, Germany, August 2012.
  - **INFORMS Annual Meeting**, Charlotte, NC, November 2011.
  - **INFORMS Pricing and Revenue Management Conference**, New York, NY, June 2011.
- *Stochastic Selfish Routing* (Poster), 43rd ACM Symposium on Theory of Computing (**STOC'11**), San Jose, CA, June 2011.
- *Pricing with Markups under Horizontal and Vertical Competition*
  - **INFORMS Manufacturing & Service Operations Management Society Annual Conference**, Haifa, Israel, June 2010.
  - **INFORMS Annual Meeting**, San Diego, CA, October 2009.
- *Pricing with Markups in Industries with Increasing Marginal Costs*
  - **INFORMS Annual Meeting**, Washington, DC, October 2008.
  - **INFORMS Pricing and Revenue Management Conference**, Montreal, QC, May 2008.
- *Efficient and Fair Routing for Mesh Networks*
  - **ALIO-INFORMS International Conference**, Buenos Aires, Argentina, June 2010.
  - **VI ALIO/EURO Workshop on Applied Combinatorial Optimization**, Buenos Aires, Argentina, December 2008.
- *Competing for Scarce Capacity with Advance Purchasing Orders*, **INFORMS Annual Meeting**, Washington, DC, November 2008.
- *Stackelberg Routing in Atomic Network Games*, **INFORMS Annual Meeting**, Seattle, WA, November 2007.
- *Eliciting Coordination with Rebates*, **INFORMS Annual Meeting**, Pittsburgh, PA, November 2006.
- *Network Equilibrium Pricing under Uncertainty*, **INFORMS Annual Meeting**, Pittsburgh, PA, November 2006.
- *Robust Wardrop Equilibrium*, **19th International Symposium on Mathematical Programming**, Rio de Janeiro, Brazil, August 2006.
- *Network Games with Atomic Players*
  - **8th INFORMS Telecommunications Conference**, Dallas, TX, March 2006
  - **10th International Workshop on Combinatorial Optimization**, Aussois, France, January 2006.
- *On the Inefficiency of Equilibria in Congestion Games*
  - **INFORMS Annual Meeting**, San Francisco, CA, November 2005.
  - **DIMACS Workshop on Large Scale Games**, Northwestern University, Evanston, IL, April 2005.

- *Computational Complexity, Fairness, and the Price of Anarchy of the Maximum Latency Problem*, **INFORMS Annual Meeting**, Denver, CO, October 2004.
- *System-Optimal Routing of Traffic Flows with User Constraints in Networks with Congestion*, **INFORMS Annual Meeting**, Atlanta, GA, October 2003.
- *Selfish Routing in Capacitated Networks*, **18th International Symposium on Mathematical Programming**, Copenhagen, Denmark, August 2003.
- *On the Performance of User Equilibria in Traffic Networks*, **6th International Workshop on Combinatorial Optimization**, Aussois, France, January 2002.
- *On the Performance of User Equilibria in Traffic Networks*, **Workshop on Computational Issues in Game Theory and Mechanism Design**, DIMACS Center, Rutgers University, Piscataway, NJ, 2001.
- *GIS Representation of Buses in Buenos Aires*, **VII Transit and Transport Conference**, Santiago, Chile, 1995.

## Grants

- PI, Grant from the National Scientific and Technical Research Council (CONICET Argentina), jointly with CONICYT Chile. International Cooperation Project with Chile, “Operations Management and Operations Research: methodological problems and real-world applications”. Grant for 600,000 ARP (approximately 75,000 USD) plus extra funds from Chile, 2014-2018.
- Co-PI, Grant from the National Scientific and Technical Research Council (CONICET Argentina) PIP 112-201201-00450CO titled “Combinatorial Optimization, Graphs, Networks and Competition”. Grant for 205,000 ARP (approximately 34,000 USD), 2013-2015.
- Co-PI, Grant from the Fund for Scientific and Technologic Research (FONCYT Argentina) PICT 2012-1324 titled “Combinatorial Optimization and Graph Theory”. 3-year grant for 1,046,000 ARP (approximately 170,000 USD)
- PI, Grant from the National Scientific and Technical Research Council (CONICET Argentina), 5,000 ARP (approximately 1,000 USD), 2012-2013.
- Co-PI, Grant from the *Institut National de Recherche en Informatique et en Automatique* (INRIA) for the “Modélisation et Etude de la NEUtralité des Réseaux Network Neutrality Modeling and Analysis” (Research on Network Neutrality), 25,000 Euros (approximately 33,000 USD), 2011-2012.
- PI, Grants from the Center for International Business Education and Research and from the Center for Excellence in E-Business, Columbia University, approx 25,000 USD, 2006, 2007 and 2010.

## Honors and Awards

- **Best Teacher in the Intensive MBA Program**, 2014. Universidad Torcuato Di Tella Business School.
- **Best Teacher in the Evening MBA Program**, 2014. Universidad Torcuato Di Tella Business School.
- **Best Teacher in the EMBA Program**, 2013. Universidad Torcuato Di Tella Business School.
- Winner, **IIW Kenneth Easterling Best Paper Award**, for the paper “OMS: A computer algorithm to develop closed-form solutions to multicoupled, multiphysics problems” coauthored with Patricio F. Mendez, 2012.
- Second Place, **Best Teacher in the EMBA Program**, 2009 and 2010. Universidad Torcuato Di Tella Business School.
- Finalist, **2009 INFORMS Junior Faculty Interest Group (JFIG) Paper Competition**, for the paper “Pricing with Markups in Industries with Increasing Marginal Costs.”
- Winner, **2008 INFORMS Transportation Science and Logistics Section Best Paper Award**, for the paper “System-Optimal Routing of Traffic Flows with User Constraints in Networks with Congestion,” *Operations Research*, 53:4, 600-616, 2005.
- Young Researcher Roundtable Appointee, INFORMS, 2007
- Winner, **2006 Glover-Klingman Prize** (best paper published in *Networks* during 2006), for the paper “Efficiency and Fairness of System-Optimal Routing with User Constraints,” *Networks* 48, 223-234, 2006.

- Honorable Mention, **2006 INFORMS Transportation Science and Logistics Section Best Paper Award**, for the paper “Selfish Routing in Capacitated Networks,” Mathematics of Operations Research 29, 961-976, 2004.
- Honorable Mention, **2006 INFORMS Telecommunications Section Ph.D. Dissertation Award**.
- Finalist, **2004 INFORMS Transportation Science and Logistics Dissertation Prize**.
- 3rd Prize, **VI Master’s Thesis Contest** organized by CLEI-UNESCO (Computer Science Latin American Research Center), June 1999.
- Latin American Prize, **International ACM Programming Contest**, Enschede, The Netherlands, March 1999.
- 1st Prize, **South American ACM Programming Contest**, Rio de Janeiro, Brazil, November 1998.
- Participated in the **XXXIII International Mathematical Olympiad** as a member of the Argentine team, Moscow, Russia, August 1992.

### Conference Organization

- Co-Chair of the Program and Organizing Committee of the meeting “**Advances in Operations**”, Di Tella Business School, December 2015.
- Co-Chair of the Program and Organizing Committee of the meeting “**Pricing and Revenue Management**”, Di Tella Business School, May 2014.
- Chair of the Program and Organizing Committee of the meeting “**Perspectives and Visions on Supply Chain Management in Argentina**”, Di Tella Business School, March 2013.
- Co-Organizer and Program Committee member of the Workshop on Risk Aversion in the **2012 ACM Conference on Electronic Commerce**, Valencia, España, 2012.
- Organizer of the Cluster “Game Theory and Applications in Operations Research” for the conference **2010 ALIO-INFORMS Buenos Aires**.
- Session Chair for INFORMS Annual Conference (2004-present) and International Symposium in Math Programming (**ISMP**) (2006-present).
- Co-Chair of the Program and Organizing Committee of conference “**Entrepreneurship, Growth and Inclusion**,” Buenos Aires, Argentina, March 26 & 27, 2009.
- Member of the Program Committee: Ad Auctions Workshop (**Ads’16**), Symposium on Algorithmic Game Theory (**SAGT’16**), International Workshop on Internet Charging and QoS Technologies (**ICQT’09, ’11 and ’13**), ACM Conference on Electronic Commerce (**EC’12, ’16**), Latin-American Graphs and Optimization Conference (**LAGOS’07, ’09, ’17**), Latin American Networking Conference (**LANC’09, ’11, ’12, ’14**), Manufacturing and Service Operations Management Conference (**MSOM’09**), International Conference on Network Control and Optimization (**NET-COOP’07-’09**), International Conference on Performance Evaluation Methodologies and Tools (**VALUETOOLS’09, ’11**), Latin-American Symposium on Operations Research and Artificial Intelligence (**CLEI’12, ’13, ’14**), Argentine Operations Research Symposium (**SIO-JAIIO’15**), Triennial Symposium on Transportation Analysis (**TRISTAN’13, ’16**), Conference on Web and Internet Economics (**WINE’15, ’16**), Workshop on Pricing and Incentives in Networks and Systems in the conference ACM SIGMETRICS (**NetEcon’11, ’13, ’14, ’15**).
- Member of the Organizing Committee, Ninth International Conference on Integer Programming and Combinatorial Optimization (**IPCO’02**), MIT, May 2002.
- Member of the Organizing Committee, **XXXVIII International Mathematical Olympiad**, Mar del Plata, Argentina, August 1997.

### Editorial Activities

- Associate Editor: Management Science (area of Operations Management, 2010-2012), Operations Research (area of “Optimization” and special issue on “Computational Economics”, 2008-2011, area of “Games, Information and Networks”, 2013-present) and Operations Research Letters (area of Logistics and Revenue Management, 2009-present), Discrete Optimization (2013-present).

- Referee for journals: 4OR, Computational Optimization and Applications, Discrete Optimization, European Journal of Operations Research, IEEE Journal on Selected Areas in Communication, IEEE Transactions on Automatic Control, Information Processing Letters, International Transactions of Operations Research, Management Science, Mathematical Programming A, Mathematical Programming B, Mathematics of Operations Research, Naval Research Logistics, Networks, Networks and Spatial Economics, Operations Research, Physics Review Letters, Production & Operations Management Society Journal, Telecommunication Systems, Theory of Computing, Theory of Computing Systems, and Transactions of the Society for Computer Simulation International, Transportation Research.
- Referee for conferences: ACM Symposium on Theory of Computing (**STOC**), ACM-SIAM Symposium on Discrete Algorithms (**SODA**), ALIO/EURO Workshop on Applied Combinatorial Optimization, Behavioral and Quantitative Game Theory (**BQGT**), Conference in Honor of 80th Birthday of Egon Balas, Congreso Latinoamericano de Investigacion Operativa (**CLAIO**), European Symposium on Algorithms (**ESA**), Integer Programming and Combinatorial Optimization (**IPCO**), International Symposium on Theoretical Aspects of Computer Science (**STACS**), International Symposium on Transportation and Traffic Theory (**ISTTT**), International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (**APPROX**), Latin-American Graphs and Optimization Conference (**LAGOS**), Latin American Theoretical INformatics (**LATIN**), Manufacturing and Service Operations Management Conference (**MSOM**), Workshop on Approximation and Onlie Algorithms (**WAOA**), Workshop on Internet & Network Economics (**WINE**).

### Additional Experience

Summer 2002      **Department of Materials Science and Engineering, MIT**      **Cambridge, MA**  
*Research Assistant*

Conducted theoretical research and implemented a method to solve partial differential equations approximately but in closed form. This project led to the paper “OMS: A computer algorithm to develop closed-form solutions to multicoupled, multiphysics problems” coauthored with Patricio F. Mendez, winner of the **IHW Kenneth Easterling Best Paper Award**.

1998-1999      **Schonsoft Inc.**      **Los Angeles, CA**

Designed and implemented a prototype of a *distributed, fault-tolerant, and efficient object database system*. This Java-based product was central to the operation of the company.

### Computer Skills and Languages

- C++, C, Java, Python, R, HTML, SQL, Unix Scripting, Cplex, Ampl, Mosel, Maple and Matlab in Unix and Windows environments. Sys Admin in UNIX/Windows environments.
- Fluent in Spanish (native speaker), English and French.