

Juan Pablo Vielma
<http://web.mit.edu/jvielma/www/>

I Education

Ph.D. in Industrial Engineering	Georgia Institute of Technology	2009
Mathematical Engineering Professional Degree (Masters Equivalent)	Universidad de Chile	2003
Bachelor in Engineering Sciences, Major in Mathematics	Universidad de Chile	2003

II Principal Fields of Interest

Theory and Technology for Linear, Non-linear and Stochastic Mixed Integer Programming.
Optimization Models in Natural Resource Management, Marketing and Statistics.

III Non-MIT Employment

Department of Industrial Engineering, University of Pittsburgh	Assistant Professor	September, 2010 – June, 2012.
Department of Industrial Engineering, University of Pittsburgh	Visiting Assistant Professor	September, 2009 – August, 2010.
IBM Research	Postdoctoral Fellow	August, 2009 – August, 2010.
CPLEX R&D. ILOG, Inc.	Summer Intern	Summer, 2006.

IV History of MIT Appointments

Richard S. Leghorn (1939) Career Development Associate Professor (without Tenure), Sloan School of Management	July, 2017 – Present.
Associate Professor (without Tenure), Sloan School of Management	July, 2017 – Present.
Richard S. Leghorn (1939) Career Development Assistant Professor, Sloan School of Management	September, 2013 – June, 2017.
Assistant Professor, Sloan School of Management	July, 2012 – August, 2013.

V MIT Activities

Faculty Director, MIT-Chile Program, MIT International Science and Technology Initiatives (MISTI).	November, 2018–Present.
Faculty Selection Board for the MIT Global Partnerships Fund / Latin America	December, 2018.
Operations Research Center Qualifying Exam Committee. (Coordinator for the mathematical programming question in 2018)	Fall, 2013–2018.
Member of refereeing/judging committee for final projects of LGO program course on optimization (15.066).	Summer, 2018.
ORC Seminar Series Faculty Coordinator.	Spring, 2014 and Fall, 2017.
Operations Research Center General Exam Committee.	Spring, 2013–2018.
MISTI Global Seed Funds Evaluation Committee.	Fall, 2013 and Spring 2017.
Operations Research Center Admissions Committee.	Spring, 2013 and 2016.
Operations Research Center Best Student Paper Award Committee.	Summer, 2015.
MIT-Chile Club Board of Advisors.	December, 2013 – Present.

VI Awards

INFORMS Computing Society (ICS) Prize for “Mixed-integer models for nonseparable piecewise linear optimization: unifying framework and extensions”, J. P. Vielma, S. Ahmed and G. Nemhauser, “Modeling disjunctive constraints with a logarithmic number of binary variables and constraints”, J. P. Vielma and G. Nemhauser, and “Embedding Formulations and Complexity for Unions of Polyhedra”, J. P. Vielma.	October, 2017.
Presidential Early Career Award for Scientists and Engineers (PECASE).	January, 2017.
First prize in the INFORMS Junior Faculty Interest Group Paper Competition for “Embedding Formulations and Complexity for Unions of Polyhedra”, J. P. Vielma.	November, 2015.
INFORMS Section on Energy, Natural Resources, and the Environment Best Publication Award in Natural Resources for “Imposing connectivity constraints in forest planning models”, R. Carvajal, M. Constantino, M. Goycoolea, J. P. Vielma and A. Weintraub.	October, 2015.
National Science Foundation Grant. \$400,000. CMMI-1351619: “CAREER: Advanced Mixed Integer Programming Formulations”. PI: J. P. Vielma.	February 1, 2014 – January 31, 2019.
Second prize in the INFORMS Junior Faculty Interest Group Paper Competition for “Learning in combinatorial optimization: what and how to explore”, S. Modaresi, D. Saure and J. P. Vielma.	October, 2013.
Richard S. Leghorn (1939) Career Development Professorship	September, 2013.
Finalist for the INFORMS Junior Faculty Interest Group Paper Competition for “On the Chvátal-Gomory closure of a compact convex set”, D. Dadush, S. S. Dey and J. P. Vielma.	2011.

Finalist for the INFORMS Junior Faculty Interest Group Paper Competition. for “The Chvátal-Gomory closure of a strictly convex body”, D. Dadush, S. S. Dey and J. P. Vielma. 2010.

IBM Herman Goldstine Postdoctoral Fellowship. 2009.

“Thank a Teacher” recognition from the Center for the Enhancement of Teaching and Learning of the Georgia Institute of Technology. Spring, 2008.

INFORMS Optimization Society Student Paper Prize for “A lifted linear programming branch-and-bound algorithm for mixed integer conic quadratic programs”, J. P. Vielma, S. Ahmed and G. Nemhauser. November, 2007.

John Morris Fellowship. Georgia Institute of Technology. 2004 – 2008.

Academic Excellency Scholarship. School of Engineering Sciences, Universidad de Chile. 1996.

Bronze Medal, Chilean National Mathematics Olympiad. 1995.

VII Grants

National Science Foundation Grant. \$3,498,560. January, 2019 – December 31, 2023.
OAC-1835443: “Framework: Software: Next-Generation Cyberinfrastructure for Large-Scale Computer-Based Scientific Analysis and Discovery”. PI: A. Edelman, co-PI: J. P. Vielma.

Office of Naval Research Grant. \$303,174. January, 2018 – December, 2020.
N00014-18-1-2079: “Extended Formulations for Advanced Mixed Integer Convex Optimization”. PI: J. P. Vielma.

MIT-Chile UAI Seed Fund. \$25,080. January, 2018 – August, 2019.
“Facilitating The Use Of Advanced Optimization Tools in Chile and UAI”. PI: J. P. Viema, co-PIs: D. Moran, R. Carvajal and M. Goycoolea.

MIT-Chile PUC Seed Fund. \$25,080. January, 2018 – August, 2019.
“Facilitating The Use Of Advanced Optimization Tools in Chile, PUC, and USM”. PI: J. P. Viema, co-PIs: G. Angulo and V. Albornoz.

MIT Skoltech Next Generation Program, \$194,935. December 2017 – February, 2019.
“Energy Systems Planning for Government Regulations: New Formulations, Models and Algorithms”. MIT PI: J. P. Vielma, Skoltech PI: David Pozo, MIT co-PI: David Gamarnik, Skoltech co-PI: Michael Chertkov

Lawrence Livermore National Lab Subcontract, \$38,000. June 2017 – September 2017.
“Automatic Differentiation”. PI: J. P. Vielma.

MIT Research Support Committee Award, NEC Corporation Fund for Research in Computers and Communications. \$75,000. May 2017 – Present.
“Integrating Advanced Optimization and Automatic Differentiation Methods”. PI: J. P. Vielma.

- MIT Sloan Junior Faculty Research Assistance Program, \$19,800.** “Computational Infrastructure for Advanced Mixed Integer Nonlinear Programming”. PI: J. P. Vielma. May 2017 – Present.
- MIT Sloan Latin America Office Seed Funds Program, \$25,000.** “Use and development of open-source optimization software in Chile and Latin America using the JuMP modelling language”. PI: J. P. Vielma. April 2017 – April 2018.
- MIT Research Support Committee Award, Solomon Buchsbaum Research Fund. \$73,129.** “The Impact of Wearable Technology on Worker Well-Being and Productivity”. co-PIs: J. P. Vielma and T. Zaman. September 2015 – August 2016.
- MIT Sloan Junior Faculty Research Assistance Program, \$20,000.** “Making Advanced Optimization Techniques Accessible with JuMP”. PI: J. P. Vielma. June 2014 – December 2015.
- National Science Foundation Grant. \$400,000.** CMMI-1351619: “CAREER: Advanced Mixed Integer Programming Formulations”. PI: J. P. Vielma. February 1, 2014 – January 31, 2019.
- MIT-Chile UAI Seed Fund. \$25,050.** “Advanced Decomposition Techniques for Non-Linear Optimization”. PI: J. P. Vielma, co-PIs: M. Goycoolea and E. Moreno. January 1, 2012 – August 31, 2014.
- National Science Foundation Grant. \$260,000.** CMMI-1233441: “Repetitive Combinatorial Optimization with Learning”. PI: D. Saure, co-PI: J. P. Vielma. September 1, 2012 – August 31, 2015.
- MIT Research Support Committee Award, NEC Corporation Fund for Research in Computers and Communications. \$75,000.** “Real Time Sequential Mixed Integer Linear Programming”. PI: J. P. Vielma. September 2012 – August 2013.
- Air Force Office of Scientific Research, Defense University Research Instrumentation Program. \$245,286.** “CEMOR: Computing Equipment for Military Operations Research at the University of Pittsburgh”. PI: O. A. Prokopyev, co-PIs: J. Kharoufeh, L. Maillart, D. Saure, A. Schaefer and J. P. Vielma. June 2012 – May 2013.
- Office of Naval Research Grant. \$55,502.** N000141110724: “Crooked Cross Cuts for Linear and Nonlinear Mixed Integer Programming”. PI: J. P. Vielma, co-PIs: S. Dash and O. Günlük. July 1, 2011 – December 31, 2012.
- National Science Foundation Grant. \$200,000.** CMMI-1030662: “Collaborative Research: Fundamentals of Convex Mixed Integer Nonlinear Programming”. PI: J. P. Vielma. September 1, 2010 – August 31, 2014.

VIII Professional Membership and Activities

EDITORIAL AND REVIEWING ACTIVITIES

- Associate Editor for Operations Research. 2018–Present.
- Associate Editor for Operations Research Letters. 2014–Present.
- Reviewer for the INFORMS Junior Faculty Interest Group (JFIG) Paper Competition. 2018.
- Reviewer, FONDECYT National Research Funding Competition of the Chilean National Commission for Scientific and Technological Research (CONICYT). 2010, 2012–2015 and 2018.
- NSF Reviewer, Operations Engineering. 2017.
- NSF Panel Member, Operations Research. 2014.
- Reviewer for Advances in Engineering Software, AIAA Journal of Spacecraft and Rockets, Annals of Operations Research, APCOM, Computers and Chemical Engineering, Computers & Operations Research, Computational Optimization and Applications, Discrete Optimization, European Journal of Operational Research, INFORMS Journal on Computing, INFORMS Journal on Optimization, IPCO, Journal of Global Optimization, Journal of Optimization Theory and Applications, LAGOS, Mathematics of Operations Research, Mathematical Methods of Operations Research, Mathematical Programming A, Mathematical Programming B, Mathematical Programming Computation, Management Science, Naval Research Logistics, Operations Research, Operations Research Letters, Optimization Letters, Optimization Methods and Software, OR Spectrum, SIAM Journal on Optimization, and Wiley Encyclopedia of Operations Research and Management Science.

LEADERSHIP POSITIONS AND COMMITTEE MEMBERSHIP

- Member of the Board of Directors, INFORMS Computing Society. 2019–2021.
- Member of JuMP Steering Committee (for NumFocus fiscal sponsorship) July, 2018–Present.
- Vice-Chair for Integer and Discrete Optimization, INFORMS Optimization Society. October, 2013–October, 2015.
- Committee member, Best Presentation in ENRE Sponsored Mining Sessions at the INFORMS annual meeting. November, 2011.
- Chair, INFORMS Section on Energy, Natural Resources, and the Environment (ENRE). December, 2010–November, 2012.
- Chair-Elect, INFORMS Section on Energy, Natural Resources, and the Environment (ENRE). December, 2008–November, 2010.

CONFERENCE ORGANIZATION

- Chair of organizing committee, 16th Mixed Integer Programming Workshop (MIP 2018), Cambridge, MA. 2018–2019.
- Co-organizer, JuMP Developers Workshop. June, 2017, June, 2018, and March 2019.
- Session chair, International Symposium on Mathematical Programming (ISMP). July, 2015 and July, 2018.
- Mini-symposium organizer, SIAM Conference on Optimization. May, 2014 and May, 2017.

Session chair, INFORMS annual meeting.	November, 2010, October, 2012 and November, 2016.
Cluster chair, INFORMS annual meeting.	November, 2014 and November, 2015.
Member of program committee, JuliaCon.	June, 2015.
Member of program committee, First Workshop for High Performance Technical Computing in Dynamic Languages. New Orleans, LA.	November, 2014.
Session chair, EURO-INFORMS joint international meeting.	July, 2013.
Chair of program committee, 9th Mixed Integer Programming Workshop (MIP 2012), Davis, CA.	2011–2012.
Member of program committee, 8th Mixed Integer Programming Workshop (MIP 2011), Waterloo, ON.	2010–2011.
Member of program committee, 14th Symposium for Systems Analysis in Forest Resources (SSAFR 2010), Maitencillo, Chile.	2010–2011.
Co-Chair, ENRE sponsored cluster at ALIO-INFORMS Joint International Meeting, Buenos Aires, Argentina.	June, 2010.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Member, Society of Industrial and Applied Mathematicians (SIAM).	2006–Present.
Member, Mathematical Optimization Society.	2006–Present.
Member, Institute for Operations Research and Management Science (INFORMS).	2005–Present.

IX Subjects Taught

MIT Subjects

15.060	Data, Models, and Decisions	Fall 2013–2015, 2017–2018.
15.083J/6.859J	Integer Programming and Combinatorial Optimization	Spring 2014, 2016 and 2018.
15.099	Seminar in Operations Research	Spring 2013 and Spring 2019.
15.093J/6.255J	Optimization Methods	Fall 2012.

Other Subjects

IE 3088	Integer Programming	Fall 2011	University of Pittsburgh.
IE 3080	Conic Programming	Fall 2011	University of Pittsburgh.
IE 3080	Robust Optimization	Fall 2010	University of Pittsburgh.
ISyE 3133	Engineering Optimization	Spring 2008	Georgia Institute of Technology.

Guest Lectures

- Mathematical Optimization using JuMP
 - Massachusetts Institute of Technology. 18.337/6.338, Modern Numerical Computing. Fall, 2018.
- Modeling and Solving Discrete Optimization Problems in Practice
 - Massachusetts Institute of Technology. 18.095, Mathematics Lecture Series. IAP, 2018.
- Mixed Integer Programming for Daily Fantasy Sports, Statistics and Marketing
 - Massachusetts Institute of Technology. 15.093J/6.255J, Optimization Methods. Fall, 2016.
 - Harvard University. AM/ES 121, Introduction to Optimization: Models and Methods. Fall, 2016.
- Advanced Mixed Integer Programming Formulation Techniques
 - Pontificia Universidad Católica de Chile. ICS3143, Integer Programming. Summer, 2017.
 - Columbia University. B9124, Causal Inference. Fall, 2016.
- Winning at Daily Fantasy Hockey Using Analytics (together with Tauhid Zaman)
 - Massachusetts Institute of Technology. 15.071, The Analytics Edge. Spring, 2016.

Short Courses and Schools

- Mixed Integer Conic Optimization using Julia and JuMP. Los Alamos National Laboratory's (LANL) 3rd Grid Science Winter School and Conference, Santa Fe, NM, January 2019.
- Advanced Mixed Integer Programming Formulation Techniques (with Joey Huchette). Spring School of the International Symposium on Combinatorial Optimization (ISCO 2018), Marrakesh, Morocco, April 2018.
- MI(N)LP formulations in Julia. Summer School of the 18th Conference on Integer Programming and Combinatorial Optimization (IPCO 2016), Université de Liège, Liège, Belgium, May 2016.
- Advanced Mixed Integer Programming Modelling (in Spanish). Departamento de Ingeniería Química y Procesos de Minerales, Universidad de Antofagasta, Antofagasta, Chile, March 2011.

Software Tutorials and Demonstrations

- The JuMP Ecosystem for Mathematical Optimization. JuliaCon 2018, University College London, London, UK, August, 2018.
- JuMP Demonstration. Seminar 18081, Designing and Implementing Algorithms for Mixed-Integer Non-linear Optimization Schloss Dagstuhl, Leibniz-Zentrum für Informatik, Wadern, Germany, February, 2018.

X Thesis Supervision

1 Doctoral Theses Supervised

- Joey Huchette, *Advanced mixed-integer programming formulations: Methodology, computation, and application*, June, 2018.
Ph.D. in Operations Research.
- Miles Lubin, *Mixed-integer convex optimization: outer approximation algorithms and modeling power*, June, 2017.
Ph.D. in Operations Research.

2 Masters Theses Supervised

- Austin Herrling, *Optimization of Micro-Coaxial Wire Routing in Complex Microelectronic Systems*, June, 2018.
M.S. in Operations Research.
Co-supervised with Michael J. Ricard.
- Lee Carter Mundell, *Predicting Performance Using Galvanic Skin Response*, June, 2016.
M.S. in Operations Research.
Co-supervised with Tauhid Zaman.
- Paul Baxter, *Automation Techniques for Short Interval Scheduling in a Complex Manufacturing Environment*, June, 2016.
M.B.A. and M.S. in Aeronautics and Astronautics, Leaders for Global Operations Program.
Co-supervised with Olivier de Weck.
- Alberto Luna, *Characterizing and Improving the Service Level Agreement at Amazon*, June, 2015.
M.B.A. and M.S. in Engineering Systems, Leaders for Global Operations Program.
Co-supervised with Bruce Cameron.
- Paul W. Meggs, *A Systematic Approach to Internal Spare Parts Management*, June, 2014.
M.B.A. and M.S. in Engineering Systems, Leaders for Global Operations Program.
Co-supervised with Bruce Cameron.

3 Bachelors Theses Supervised

4 Theses in Progress

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|--|---|-----------------|--------------------------|
| Lea Kapelevich | Operations Research Center | Ph.D. | October, 2018–Present. |
| Chris Coey | Operations Research Center | Ph.D. | September, 2015–Present. |
| Katherine Burnham
(co-supervised with
Michael J. Ricard) | Operations Research Center | M.S. | September, 2018–Present. |
| Hans Kobor
(co-supervised with
Duane Boning) | Sloan School of Management
and School of Engineering | M.B.A. and M.S. | June, 2018–Present. |

5 Other Thesis and Supervision Activities

DOCTORAL THESES SUPERVISED

- Sina Modaresi, *Valid Inequalities and Reformulation Techniques for Mixed Integer Nonlinear Programming*, Ph.D. in Industrial Engineering, University of Pittsburgh. November, 2015.

DOCTORAL COMMITTEES

- Caroline J. Nielsen, *Optimal Industrial Symbiosis for the Jorf Lasfar Platform* July, 2018 (Proposal).
Department of Chemical Engineering,
Massachusetts Institute of Technology.
- Virgile Galle, *Optimization Models and Methods for Storage Yard Operations in Maritime Container Terminals*, December, 2017.
Operations Research Center,
Massachusetts Institute of Technology.

Gonzalo Muñoz, *Integer programming techniques for Polynomial Optimization*, July, 2017.
 Department of Industrial Engineering and Operations Research,
 Columbia University.

Nikita Korolko, *A Robust Optimization Approach to Online Problems*, May, 2017.
 Operations Research Center,
 Massachusetts Institute of Technology.

Iain Dunning, *Advances in Robust and Adaptive Optimization: Algorithms, Software, and Insights*, June, 2016.
 Operations Research Center,
 Massachusetts Institute of Technology.

Diego Morán, *Fundamental Properties of Convex Mixed-Integer Programs*, May, 2014.
 H. Milton Stewart School of Industrial and Systems Engineering,
 Georgia Institute of Technology.

Sumit Mitra, *Multi-scale Demand-Side Management for Continuous Power-intensive Processes*, April 2013.
 Chemical Engineering Department,
 Carnegie Mellon University.

Sakine Batun, *Scheduling Multiple Operating Rooms Under Uncertainty*, November, 2011.
 Department of Industrial Engineering, University of Pittsburgh.

Osman Y. Özaltın, *Optimal Design of the Annual Influenza Vaccine*, July, 2011.
 Department of Industrial Engineering, University of Pittsburgh.

Sebastian Terrazas Moreno, *Decomposition Strategies for the Optimal Design of Integrated Sites and Multi-Site Planning and Scheduling*, April, 2011.
 Chemical Engineering Department, Carnegie Mellon University.

Andrew C. Trapp, *On Solving Selected Nonlinear Integer Programming Problems in Data Mining, Computational Biology, and Sustainability*, March, 2011.
 Department of Industrial Engineering, University of Pittsburgh.

POST-DOCTORAL FELLOWS SUPERVISED

Mustafa R. Kilinç, Co-supervised with A. Schaefer at University of Pittsburgh. April 2011–August 2013.

OTHER LONG-TERM SUPERVISION ACTIVITIES

Jarrett Revels, Sponsored Research Technical Staff. May 2017–Present.

STUDENT AWARDS BY STUDENTS OR CO-AUTHORS

Joey Huchette, INFORMS Optimization Society Student Paper Prize (2nd Prize) for “A combinatorial approach for small and strong formulations of disjunctive constraints”. November, 2018

Diego Morán, INFORMS Optimization Society Student Paper Prize for “Strong dual for conic mixed-integer programs”. October, 2012

Daniel Dadush, INFORMS Optimization Society Student Paper Prize for “On the Chvátal-Gomory closure of a compact convex set”. November, 2011

OTHER

Ivan Zorin, visiting Ph.D. student from Skolkovo Institute of Science and Technology, host at MIT. January–February, 2019.

Quentin Lété, visiting Masters student from Université Catholique de Louvain, host at MIT. July–August, 2017.

- Orlando Rivera, visiting Masters student from Universidad Adolfo Ibañez, February, 2014.
host at MIT.
- Gonzalo Muñoz, visiting Masters student from University of Chile, November, 2011.
host at University of Pittsburgh.
- Nathalie Jamett Guillier, Member of Qualifying Exam Committee for June, 2011.
Ph.D. in Minerals Processing, Department of Chemical Engineering,
University of Antofagasta.
- Guido Lagos, visiting Masters student from University of Chile, April 2011.
host at University of Pittsburgh.

XI Publications

1 Theses

- T-1 “*Mixed integer programming approaches for nonlinear and stochastic programming*”. J. P. Vielma. Ph.D. Thesis, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA, 2009.
- T-2 “*Restricciones de volumen elásticas para un problema de planificación forestal con restricciones de área en múltiples períodos*”. J. P. Vielma. Mathematical Engineering Thesis (In Spanish), Department of Mathematical Engineering, University of Chile, Santiago, Chile, 2003.

2 Refereed Journal Articles

SELECTED ARTICLES SOLO-AUTHORED OR CO-AUTHORED WITH STUDENTS OR POSTDOCTORAL FELLOWS

- J-1 “*A combinatorial approach for small and strong formulations of disjunctive constraints*”. J. Huchette and J. P. Vielma. To appear in *Mathematics of Operations Research*, 2018.
- J-2 “*Small and strong formulations for unions of convex sets from the Cayley Embedding*”. J. P. Vielma. To appear in *Mathematical Programming*, 2018.
- J-3 “*Embedding Formulations and Complexity for Unions of Polyhedra*”. J. P. Vielma. *Management Science* 64, 2018. pp. 4721–4734.
- 2015 INFORMS JFIG Paper Competition, First Prize
 - 2017 INFORMS Computing Society (ICS) Prize
- J-4 “*Extended Formulations in Mixed Integer Conic Quadratic Programming*”. J. P. Vielma, I. Dunning, J. Huchette and M. Lubin. *Mathematical Programming Computation* 9, 2017. pp. 369–418.
- Cone disaggregation technique in this paper has been adopted by CPLEX v12.6.2, Gurobi v6.5, SCIP v4.0 and Xpress v8.0
- J-5 “*Convex hull of two quadratic or a conic quadratic and a quadratic inequality*”. S. Modaresi and J. P. Vielma. *Mathematical Programming* 164, 2017. pp. 383–409.
- J-6 “*Intersection cuts for nonlinear integer programming: convexification techniques for structured sets*”. S. Modaresi, M. R. Kilinç and J. P. Vielma. *Mathematical Programming* 155, 2016. pp. 575–611.
- J-7 “*Mixed integer linear programming formulation techniques*”. J. P. Vielma. *SIAM Review* 57, 2015. pp. 3–57.

OTHER SELECTED ARTICLES

- J-8 “*Ellipsoidal methods for adaptive choice-based conjoint analysis*”. D. Saure and J. P. Vielma. To appear in *Operations Research*, 2018.
- J-9 “*Polyhedral approximation in mixed-integer convex optimization*”. M. Lubin, E. Yamangil, R. Bent and J. P. Vielma. *Mathematical Programming* 172, 2018. pp. 139–168.
- J-10 “*On the Chvátal-Gomory closure of a compact convex set*”. D. Dadush, S. S. Dey and J. P. Vielma. *Mathematical Programming* 145, 2014. pp. 327–348.
- 2011 INFORMS JFIG Paper Competition, Finalist
- J-11 “*Imposing connectivity constraints in forest planning models*”. R. Carvajal, M. Constantino, M. Goycoolea, J. P. Vielma and A. Weintraub. *Operations Research* 61, 2013. pp. 824–836.
- 2015 Best Publication Award in Natural Resources, INFORMS Section on Energy, Natural Resources, and the Environment
- J-12 “*Strong dual for conic mixed-integer programs*”. D. Morán, S. S. Dey and J. P. Vielma. *SIAM Journal on Optimization* 22, 2012. pp. 1136–1150.
- J-13 “*The Chvátal-Gomory closure of a strictly convex body*”. D. Dadush, S. S. Dey and J. P. Vielma. *Mathematics of Operations Research* 36, 2011. pp. 227–239.
- 2010 INFORMS JFIG Paper Competition, Finalist
- J-14 “*Modeling disjunctive constraints with a logarithmic number of binary variables and constraints*”. J. P. Vielma and G. Nemhauser. *Mathematical Programming* 128, 2011. pp. 49–72.
- 2017 INFORMS Computing Society (ICS) Prize
- J-15 “*Mixed-integer models for nonseparable piecewise linear optimization: unifying framework and extensions*”. J. P. Vielma, S. Ahmed and G. Nemhauser. *Operations Research* 58, 2010. pp. 303–315.
- 2017 INFORMS Computing Society (ICS) Prize
- J-16 “*A lifted linear programming branch-and-bound algorithm for mixed integer conic quadratic programs*”. J. P. Vielma, S. Ahmed and G. Nemhauser. *INFORMS Journal on Computing* 20, 2008. pp. 438–450.
- 2007 INFORMS Optimization Society Student Paper Prize

OTHER ARTICLES

- J-17 “*Strong mixed-integer formulations for the floor layout problem*”. J. Huchette, S. S. Dey and J. P. Vielma. To appear in *INFOR: Information Systems and Operational Research*, 2017.
- J-18 “*Beating the SDP bound for the floor layout problem: A simple combinatorial idea*”. J. Huchette, S. S. Dey and J. P. Vielma. To appear in *INFOR: Information Systems and Operational Research*, 2017.
- J-19 “*On packing and covering polyhedra in infinite dimensions*”. L. Rademacher, A. Toriello and J. P. Vielma. *Operations Research Letters* 44, 2016. pp. 225–230.
- J-20 “*Split cuts and extended formulations for mixed integer conic quadratic programming*”. S. Modaresi, M. R. Kilinç and J. P. Vielma. *Operations Research Letters* 43, 2015. pp. 10–15.
- J-21 “*Solution strategies to the stochastic design of mineral flotation plants*”. N. E. Jamett, L. A. Cisternas and J. P. Vielma. *Chemical Engineering Science* 134, 2015. pp. 850–860.
- J-22 “*Restricted risk measures and robust optimization*”. G. Lagos, D. Espinoza, E. Moreno and J. P. Vielma. *European Journal of Operational Research* 241, 2015. pp. 771–782.

- J-23 “*Computational experiments with cross and crooked cross cuts*”. S. Dash, O. Günlük and J. P. Vielma. *INFORMS Journal on Computing* 26, 2014. pp. 780–797.
- J-24 “*Incremental and encoding formulations for mixed integer programming*”. S. Yıldız and J. P. Vielma. *Operations Research Letters* 41, 2013. pp. 654–658.
- J-25 “*Mixed integer linear programming formulations for probabilistic constraints*”. J. P. Vielma, S. Ahmed and G. Nemhauser. *Operations Research Letters* 40, 2012. pp. 153–158.
- J-26 “*Fitting piecewise linear continuous functions*”. A. Toriello and J. P. Vielma. *European Journal of Operational Research* 219, 2012. pp. 86–95.
- J-27 “*An integer linear programming approach for bilinear integer programming*”. A. S. Freire, E. Moreno and J. P. Vielma. *Operations Research Letters* 40, 2012. pp. 74–77.
- J-28 “*The split closure of a strictly convex body*”. D. Dadush, S. S. Dey and J. P. Vielma. *Operations Research Letters* 39, 2011. pp. 121–126.
- J-29 “*A note on ‘A superior representation method for piecewise linear functions’*”. J. P. Vielma, S. Ahmed and G. Nemhauser. *INFORMS Journal on Computing* 22, 2010. pp. 493–497.
- J-30 “*Evaluating alternative approaches for solving the area restriction model in harvest scheduling*”. M. Goycoolea, A. Murray, J. P. Vielma and A. Weintraub. *Forest Science* 55, 2009. pp. 149–165.
- J-31 “*Nonconvex, lower semicontinuous piecewise linear optimization*”. J. P. Vielma, A. Keha and G. Nemhauser. *Discrete Optimization* 5, 2008. pp. 467–488.
- J-32 “*A constructive characterization of the split closure of a mixed integer linear program*”. J. P. Vielma. *Operations Research Letters* 35, 2007. pp. 29–35.
- J-33 “*Improving computational capabilities for addressing volume constraints in forest harvest scheduling problems*”. J. P. Vielma, A. Murray, D. Ryan and A. Weintraub. *European Journal of Operational Research* 176, 2007. pp. 1246–1264.

3 Articles in Refereed Conference Proceedings

- P-1 “*Dynamic Automatic Differentiation of GPU Broadcast Kernels*”. J. Revels, T. Besard, V. Churavy, B. De Sutter and J. P. Vielma. To appear in In Proceedings of the Systems for Machine Learning Workshop at NeurIPS 2018 (NeurIPS MLSys 2018), 2018.
- P-2 “*Mixed-integer convex representability*”. M. Lubin, I. Zadik and J. P. Vielma. In F. Eisenbrand and J. Könemann, editors, Proceedings of the 19th Conference on Integer Programming and Combinatorial Optimization (IPCO 2017), Lecture Notes in Computer Science 10328, 2017. pp. 392–404.
- P-3 “*Extended Formulations in Mixed-Integer Convex Programming*”. M. Lubin, E. Yamangil, R. Bent and J. P. Vielma. In Q. Louveaux and M. Skutella, editors, Proceedings of the 18th Conference on Integer Programming and Combinatorial Optimization (IPCO 2016), Lecture Notes in Computer Science 9682, 2016. pp. 102–113.
- P-4 “*Risk averse approaches in open-pit production planning under ore grade uncertainty: a ultimate pit study*”. D. Espinoza, G. Lagos, E. Moreno and J. P. Vielma. In J. F. Costa, J. Koppe and R. Peroni, editors, Proceedings of the 36th International Symposium on Application of Computers and Operations Research in The Mineral Industry (APCOM 2013), 2013. pp. 492–501.
- P-5 “*On the Chvátal-Gomory closure of a compact convex set*”. D. Dadush, S. S. Dey and J. P. Vielma. In O. Günlük and G. J. Woeginger, editors, Proceedings of the 15th Conference on Integer Programming and Combinatorial Optimization (IPCO 2011), Lecture Notes in Computer Science 6655, 2011. pp. 130–142.

- P-6 “*The Chvátal-Gomory closure of an ellipsoid is a polyhedron*”. S. S. Dey and J. P. Vielma. In F. Eisenbrand and F. B. Shepherd, editors, Proceedings of the 14th Conference on Integer Programming and Combinatorial Optimization (IPCO 2010), Lecture Notes in Computer Science 6080, 2010. pp. 327–340.
- P-7 “*Risk control in ultimate pits using conditional simulations*”. J. P. Vielma, D. Espinoza and E. Moreno. In Proceedings of the 34th International Symposium on Application of Computers and Operations Research in The Mineral Industry (APCOM 2009), 2009. pp. 107–114.
- P-8 “*Modeling disjunctive constraints with a logarithmic number of binary variables and constraints*”. J. P. Vielma and G. Nemhauser. In A. Lodi, A. Panconesi and G. Rinaldi, editors, Proceedings of the 13th Conference on Integer Programming and Combinatorial Optimization (IPCO 2008), Lecture Notes in Computer Science 5035, 2008. pp. 199–213.
- P-9 “*Improved solution techniques for multi-period area-based forest harvest scheduling problems*”. J. P. Vielma, A. Murray, D. Ryan and A. Weintraub. In M. Bevers and T.M. Barrett, editors, Proceedings of the 10th Symposium for Systems Analysis in Forest Resources (SSAFR’03), USDA Forest Services General Technical Report PNW-GTR-656, 2005. pp. 285–290.

4 Articles in Non-Refereed Conference Proceedings

- N-1 “*Design of flotation circuits including uncertainty and water efficiency*”. N. E. Jamett, J. P. Vielma and L. A. Cisternas. In I. D. Lockhart Bogle and M. Fairweather, editors, Proceedings of the 22nd European Symposium on Computer Aided Process Engineering (Escape 22), Computer-Aided Chemical Engineering 30, 2012. pp. 1277–1281.
- N-2 “*Comparing alternative formulations for the ARM*”. J. P. Vielma, M. Goycoolea, A. Murray and A. Weintraub. To appear in In Proceedings of the 12th Symposium for Systems Analysis in Forest Resources (SSAFR’06), 2006.
- N-3 “*Improved solution techniques for multi-period area-based forest harvest scheduling problems*”. J. P. Vielma, A. Murray, D. Ryan and A. Weintraub. In Proceedings of the 38th Annual Conference of the Operational Research Society of New Zealand (ORSNZ’03), 2003. pp. 21–28.

5 Papers/Articles in Progress or Under Review

- S-1 “*Outer Approximation With Conic Certificates For Mixed-Integer Convex Problems*”. C. Coey, M. Lubin and J. P. Vielma. Submitted for publication, 2018.
- S-2 “*Building Representative Matched Samples with Multi-valued Treatments in Large Observational Studies: Analysis of the Impact of an Earthquake on Educational Attainment*”. M. Bennett, J. P. Vielma and J. R. Zubizarreta. Submitted for publication, 2018.
- S-3 “*Nonconvex piecewise linear functions: Advanced formulations and simple modeling tools*”. J. Huchette and J. P. Vielma. Submitted for publication, 2017.
- S-4 “*Regularity in mixed-integer convex representability*”. M. Lubin, I. Zadik and J. P. Vielma. Submitted for publication, 2017.
- S-5 “*Picking winners in daily fantasy sports using integer programming*”. D. S. Hunter, J. P. Vielma and T. Zaman. Technical Report, 2016.
- S-6 “*Learning in combinatorial optimization: what and how to explore*”. S. Modaresi, D. Saure and J. P. Vielma. Submitted for publication, 2012.

- 2013 INFORMS JFIG Paper Competition, Second Prize

6 Other Publications

7 Technical Reports

- E-1 “*A mixed-integer branching approach for very small formulations of disjunctive constraints*”. J. Huchette and J. P. Vielma. Submitted for publication, 2017.
- E-2 “*Predicting performance under stressful conditions using galvanic skin response*”. C. Mundell, J. P. Vielma and T. Zaman. Technical Report, 2016.
- E-3 “*Two-sided linear chance constraints and extensions*”. M. Lubin, D. Bienstock and J. P. Vielma. Submitted for publication, 2016.
- E-4 “*Strategic Timing of Content in Online Social Networks*”. S. Modaresi, J. P. Vielma and T. Zaman. Technical Report, 2015.

XII Invited Oral Presentations

Details and slides at <http://www.mit.edu/~jvielma/presentations>

PRESENTATIONS AT ACADEMIC INSTITUTIONS

- Mechanical and Industrial Engineering Department, Northeastern University, Boston, MA, October 2018.
- Michigan Institute for Computational Discovery & Engineering, and Department of Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI, October 2018.
- Cornell University (School of Operations Research and Information Engineering), Ithaca, NY, November, 2017 and January 2012.
- University of Chicago (Booth School of Business), Chicago, IL, October 2017.
- Universidad de Valparaíso (Escuela de Ingeniería Civil Biomédica), Valparaíso, Chile, August 2017.
- Pontificia Universidad Católica de Chile (Departamento de Ingeniería Industrial y de Sistemas), Santiago, Chile, August 2017.
- Universidad de Chile (Departamento de Ingeniería Industrial), Santiago, Chile, August 2017 and December 2013.
- Universidad Adolfo Ibañez (Grupo de Ingeniería Industrial e Investigación de Operaciones), Santiago, Chile, August 2017.
- Universidad de Santiago (Departamento de Ingeniería Industrial), Santiago, Chile, August 2017.
- Massachusetts Institute of Technology (Center for Transportation & Logistics), Cambridge, MA, June, 2017.
- University of Toronto (Rotman School of Management), Toronto, Canada, December, 2016.
- Columbia University (Columbia Business School), New York, NY, October, 2016.
- Los Alamos National Laboratory (Center for Nonlinear Studies), Los Alamos, New Mexico, August 2016.
- Massachusetts Institute of Technology (Sloan School of Management), Cambridge, MA, March 2016 and February 2012.

- Georgia Institute of Technology (H. Milton Stewart School of Industrial & Systems Engineering), Atlanta, GA, October 2015, November 2008, October 2008, April 2008, February 2007 and October 2006.
- Columbia University (Department of Industrial Engineering & Operations Research), New York, NY, September, 2015.
- Carnegie Mellon University (Tepper School of Business), Pittsburgh, PA, April, 2015.
- IBM Thomas J. Watson Research Center, Yorktown Heights, NY, December 2014 and March 2010.
- Universidad Adolfo Ibañez (Escuela de Negocios), Santiago, Chile, October 2013 and July 2008.
- Massachusetts Institute of Technology (Operations Research Center), Cambridge, MA, December 2012.
- Rutgers University (Center for Discrete Mathematics and Theoretical Computer Science), Piscataway, NJ, November 2011.
- Carnegie Mellon University (Department of Chemical Engineering), Pittsburgh, PA, April, 2011.
- Universidad de Antofagasta (Departamento de Ingeniería Química), Antofagasta, Chile, March, 2011.
- University of Pittsburgh (Department of Industrial Engineering), Pittsburgh, PA, September 2009 and December 2008.
- Georgia Institute of Technology (School of Chemical and Biomolecular Engineering), Atlanta, GA, March 2009.

PRESENTATIONS AT INVITED WORKSHOPS

- Seminar 18081, Designing and Implementing Algorithms for Mixed-Integer Nonlinear Optimization Schloss Dagstuhl, Leibniz-Zentrum für Informatik, Wadern, Germany, February, 2018.
- Seventh Cargèse Workshop on Combinatorial Optimization, Institut d'Etudes Scientifiques de Cargèse, Corsica, France, October, 2016.
- Workshop in Consumer Analytics, San Pedro de Atacama, Chile, January 2016.
- Modern Techniques in Discrete Optimization: Mathematics, Algorithms and Applications, CMO-BIRS Casa Matemática Oaxaca, Oaxaca, Mexico, November 2015.
- Mixed-integer Nonlinear Optimization: A Hatchery for Modern Mathematics, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, October 2015 (one of the five hour-long focus talks).
- Workshop on Combinatorial Optimization, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, November 2014 (one of the five hour-long focus talks).
- Mixed Integer Programming Workshop, Madison, WI, July 2013 and Atlanta, GA, July 2010.
- Bellairs Workshop on Combinatorial Optimization, Holetown, Barbados, April 2013 and March 2008.
- Integer Programming Workshop, Valparaiso, Chile, March 2012.

CONFERENCE PRESENTATIONS

- International Symposium on Mathematical Programming (ISMP), 2018, 2015, 2012, 2009 and 2006.
- INFORMS Optimization Society Conference, 2018, 2012 and 2008.
- INFORMS Annual Meeting, 2015–2017, 2012 and 2005–2010.
- INFORMS Society for Marketing Science Conference, 2017.

- SIAM Conference on Optimization, 2017, 2014, 2011 and 2008.
- Workshop in Management Science, Puerto Varas, Chile, January 2017.
- International Indian Statistical Association Conference, 2016.
- MIT Sloan Sports Analytics Conference, 2016.
- EURO - INFORMS MMXIII, Rome, Italy, July 2013.
- Symposium for Systems Analysis in Forest Resources (SSAFR), 2011 (Semi-Plenary), 2006 and 2002.
- International Symposium on Application of Computers and Operations Research in The Mineral Industry (APCOM), Vancouver, Canada, October 2009.
- 13th Conference on Conference on Integer Programming and Combinatorial Optimization (IPCO), Bertinoro, Italy, May 2008.
- 38th Annual Conference of the Operational Research Society of New Zealand, Hamilton, New Zealand, November 2003.
- V Chilean Operational Research Conference, Valparaiso, Chile, September 2003.

MEDIA APPEARANCES

- Emol TV, August, 2017.
- CNN Dinero, May and September, 2017.

OTHER PRESENTATIONS

- MIT Club Chile, MIT Sloan Latin America Office and Everis, Santiago, Chile, August 2017.
- Boston Security Analysts Society, Boston, MA, May 2016.