

Julio C. Góez

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- Research interests My main work focuses on the development of optimization methodologies for solving mixed integer optimization problems and its applications.
- Education
- ◇ **Ph.D. in Industrial Engineering (2007–2013)**, Lehigh University, Bethlehem, PA.
Thesis supervisor: Tamás Terlaky.
Thesis Title: Mixed Integer Second Order Cone Optimization,
Disjunctive Conic Cuts: Theory and experiments.
 - ◇ **M.Sc. in Industrial Engineering (2002–2004)**, University of Los Andes, Colombia.
Major: Operations Research.
 - ◇ **B.S. in Industrial Engineering (1996–2002)**, University of Antioquia, Colombia.
- Experience
- ◇ **Assistant Professor**, Department of Business and Management Science,
Norwegian School of Economics (December 2015 – present)
 - Teach analytics courses for business students.
 - ◇ **Postdoctoral Fellow**, GERAD and École Polytechnique de Montréal
(November 2013 – November 2015)
 - Developed new relaxations for binary quadratic problems and algorithms to solve them.
 - Researched applications of these relaxations in combination with disjunctive conic cuts to solve binary second order cone optimization problems.
 - ◇ **System Administrator**, COR@L Lab, Industrial and Systems Engineering Department,
Lehigh University (August 2008 – July 2013)
 - Managed optimization software and tools including Xpress, Cplex, COIN-OR, Gams, Ampl, Matlab, for more than 30 students and faculty in the Department.
 - Set up parallel and distributed environments including Condor and MPI.
 - ◇ **Summer Intern**, Mathematics and Computer Science Division,
Argonne National Laboratory (summer 2009)
 - Studied the performance of an algorithm for estimating stochastic computational noise.
 - ◇ **Summer Intern**, Mathematical Science and Business Analytics Department,
Watson Research Center, IBM Research (Summer 2008)
 - Analyzed techniques for solving stochastic unit commitment problems.
 - Developed and implemented a rolling horizon heuristic based on linear programming.
 - ◇ **Instructor**, Industrial Engineering Department,
University of Los Andes (August 2004 – July 2007)
 - Shared responsibility for syllabus, lectures, exams, homework assignments, and grades for the following courses: Optimization Principles, Probability, Probability models, Probability and Statistics.

- Published refereed papers
- ◇ Pérez, J.F., Silva, D., Góez, J.C., Sarmiento, A., Sarmiento A., Akhavan, R., Riaño, G., jMarkov: an integrated framework for Markov chain modeling. To appear in *ACM Transactions on Mathematical Software (TOMS)*.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., A complete characterization of disjunctive conic cuts for mixed integer second order cone optimization. To appear in *Discrete Optimization*.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., and Terlaky, T., A conic representation of the convex hull of disjunctive sets and conic cuts for integer second order cone optimization. In Al-Baali, M., Grandinetti, L., and Purnama, A. (editors), *Numerical Analysis and Optimization*, Volume 134 of *Springer Proceedings in Mathematics & Statistics*, Pages 1 – 35. Springer International Publishing, 2015.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., and Terlaky, T., On families of quadratic surfaces having fixed intersections with two hyperplanes. *Discrete Applied Mathematics*, Volume 161, Issues 16 – 17, November, Pages 2778 – 2793, 2013.
- Submitted papers
- ◇ Çay, B.C., Góez, J.C., Terlaky, T., Effects of disjunctive conic cuts within a branch and conic cut algorithm to solve asset allocation problems. Submitted.
 - ◇ Góez, J.C., Anjos, M.F., Second order conic optimization formulations for service system design problems with congestion. Submitted.
- Conference proceedings papers
- ◇ Tascón, J.C., Torres, F., Góez, J.C., Optimization model for the task assignment problem in facilities offices, *WMSCI 2007: 11th world multi-conference on systemics, cybernetics and informatics, proceedings*, Vol 4, Pages 390–395, 2007, United States.
 - ◇ Riaño, G., Góez, J.C., jMarkov: An object oriented framework for modeling and analyzing Markov chains and QBDs, *ACM International Conference Proceeding Series*, Vol. 201, Proceeding from the 2006 workshop on tools for solving structured Markov chains, Article No. 6, October 10, 2006, Pisa, Italy.
- Invited talks
- ◇ Góez, J.C., Pérez, J.F., A conic optimization model for replicated data stores in geo-distributed cloud applications, *INFORMS Annual Meeting*, November 13 – 16, 2016, Nashville, TN, United States.
 - ◇ Anjos, M.F., Góez, J.C., Disjunctive conic cuts for hyperboloids and non-convex quadratic cones, *Workshop on Advances in Optimization*, August 12 – 13, 2016, Tokyo, Japan.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Disjunctive conic cuts for mixed integer second order cone optimization, *ICCOPT 2016*, August 8 – 11, 2016, Tokyo, Japan.
 - ◇ Anjos, M.F., Góez, J.C., Computational study of a second order cone relaxation for binary quadratic polynomial problems, *INFORMS Annual Meeting*, November 1 – 4, 2015, Philadelphia, PA, United States.
 - ◇ Anjos, M.F., Góez, J.C., Computational study of a second order cone relaxation for binary quadratic polynomial problems, *CORS/INFORMS 2015 Joint International Meeting*, June 14 – 17, 2015, Montréal, QC, Canada.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Disjunctive conic cuts for mixed integer second order cone optimization, *Departmental Seminar Series, Department of Mechanical & Industrial Engineering*, University of Toronto, February 23, 2015, Toronto, Canada.
 - ◇ Anjos, M.F., Góez, J.C., Strengthened second order cone relaxations for binary quadratic polynomial optimization, *INFORMS Annual Meeting*, November 9 – 12, 2014, San Francisco, CA, United States.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Disjunctive conic cuts for mixed integer second order cone optimization, *SIAM Conference on Optimization*, May 19 – 22, 2014, San Diego, CA, United States.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Computational issues on solving mixed integer second order cone optimization problems, *INFORMS Annual Meeting*, October 14 – 17, 2012, Phoenix, AZ, United States.

- ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Conic representation of convex hull of disjunctions in integer second order cone optimization (ISOCO), *INFORMS Optimization Society Conference*, February 24 – 26, 2012, Coral Gables, FL, United States.
- ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Generating the convex hull of disjunctions in mixed integer second order conic optimization, *Séminaires en Optimisation GERAD-MPRIME*, University of Montreal, February 16, 2012, Montréal, QC, Canada.
- ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Generating the convex hull of disjunctions in mixed integer second order conic optimization, *University of Calgary, Department of Mathematics and Statistics*, December 13, 2011, Calgary, AB, Canada.
- ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Generating the convex hull of disjunctions in mixed integer second order cone optimization (MISOCO), *INFORMS Annual Meeting*, November 13 – 16, 2011, Charlotte, NC, United States.
- ◇ Góez, J.C., Moré, J., Wild, S., Algorithm for the estimation of computational noise, *SASSy: Student Argonne Summer Symposium*, Argonne National Laboratory, Mathematics and Computer Science Division . July 22, 2009 , IL, United States.
- ◇ Góez, J.C., Riaño, G., jMarkov: An object oriented framework for modeling and analyzing Markov chains and QBDs, *Informatics and Mathematical Modeling Department Seminar*, Technical University of Denmark. January 19, 2007 Lyngby, Denmark.

- Contributed talks
- ◇ Góez, J.C., Pérez, J.F., A conic optimization model for replicated data stores in geo-distributed cloud applications, *EURO 2016*, July 3 – 6, 2016, Poznań, Poland.
 - ◇ Anjos, M.F., Góez, J.C., Optimizing service system designs with congestion by conic optimization formulations, *LOGMS 2016*, June 20 – 23, 2016, Sydney, Australia.
 - ◇ Góez, J.C. and Pérez, J.F., Minimizing costs in distributed cloud resource provisioning, *INFORMS Annual Meeting*, November 1 – 4, 2015, Philadelphia, PA, United States.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Disjunctive conic cuts for mixed integer second order cone optimization, *CORS Annual Conferences*, May 26 – 28, 2014, Ottawa, ON, Canada.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Disjunctive conic cuts for mixed integer second order cone optimization, *Optimization Days*, May 5 – 7, 2014, Montréal, QC, Canada.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Full characterization of disjunctive-conic-cuts for mixed integer second order cone optimization, *MOPTA*, August 14 – 16, 2013, Bethlehem, PA, United States.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Generating the convex hull of a disjunction for mixed integer second order cone optimization (MISOCO), at *MOPTA*, August 17 – 19, 2011, Bethlehem, PA, United States.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T., Disjunctive conic cuts for second order cone optimization, at *INFORMS Annual Meeting*, November 5 – 10, 2010, Austin, TX, United States.
 - ◇ Belotti, P., Góez, J.C., Pólik, I., Ralphs, T., Terlaky, T. Disjunctive conic cuts for second order cone optimization, at *MOPTA-2010*, August 18 – 20, 2010, Bethlehem, PA, United States.
 - ◇ Alvarado, J., Góez, J.C., Riaño, G., Modeling bucket brigades using phase-type distributions, at *the XIII Latin-Ibero-American Congress on Operations Research*, November 27 – 30 2006, Montevideo, Uruguay.

Skills

- ◇ Programming: Matlab, C++, Java, MPI, AMPL, php, MySQL.
- ◇ Optimization Solvers: COIN-OR, Cplex, Gurobi, MOSEK, SDPT3, SeDuMi.
- ◇ Operating Systems: Linux, Windows.
- ◇ Fluent spoken and written English, Spanish.
- ◇ Basic spoken and written French.

- Students supervision
 - ◇ Ph.D. Dissertation committees member:
 - ◇ Aykut Bulut, Ph.D. Candidate, Industrial and Systems Engineering, Lehigh University.
 - ◇ Sertalp Bilal Çay, Ph.D. Candidate, Industrial and Systems Engineering, Lehigh University.
- Service
 - ◇ Ph.D. students representative for the ISE Council at the Department of Industrial and Systems Engineering, Lehigh University, 2011 – 2012.
 - ◇ Graduate Student Senate representative for the Graduate Research Committee, Lehigh University, 2009 – 2010.
 - ◇ Treasurer, INFORMS students chapter, Lehigh University, 2007 – 2009.
- Memberships and activities
 - ◇ COIN-OR Foundation, full member.
 - ◇ Institute for Operations Research and Management Sciences (INFORMS), 2008 – Present.
 - ◇ INFORMS Computing Society, 2008 – Present.
 - ◇ INFORMS Optimization Society, 2008 – Present.
 - ◇ INFORMS students chapter, Lehigh University, 2008 – 2013.
 - ◇ Society for Industrial and Applied Mathematics (SIAM), 2008 – present.
 - ◇ Sigma Xi, The Scientific Research Society, 2013 – Present.
 - ◇ Served as referee for:
 - Discrete Optimization
 - Mathematics of Operations Research
 - Optimization & Engineering
 - Optimization Letters
 - Operations Research Letters
 - The IEEE Transactions on Automatic Control
- Awards
 - ◇ GERAD Postdoctoral Scholarship, 2013.
 - ◇ Ph.D. Student of the year, Department of Industrial and Systems Engineering, Lehigh University, 2012.
 - ◇ Ph.D. Student of the year, Department of Industrial and Systems Engineering, Lehigh University, 2010.
 - ◇ Rossin Doctoral Fellow, Faculty of Engineering, Lehigh University, 2009 – 2013.