

José H. Dulá

CURRICULUM VITA: RESEARCH ONLY.

Associate Professor of Operations Management
Department of Management
School of Business Administration
Virginia Commonwealth University
jdula@vcu.edu
www.people.vcu.edu/~jdula

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Research

PUBLISHED AND FORTHCOMING REFEREED RESEARCH ARTICLES:

(Corresponding author is underlined.)

- [1] Dulá, J.H., “A geometrical approach for generalizing the production possibility set in DEA.” *J. Oper. Res. Soc.*, in press.
- [2] Bournol, M.-L., Dulá, J.H., Estellita Lins, M. and Moreira da Silva, A.C., “Enhancing Standard Performance Practices with DEA.” *Omega*, in press.
- [3] Dulá, J.H. and López, F.J., “Preprocessing DEA.” *Computers and Operations Research*, Vol. 36, 2009, pp. 1204–1220.
- [4] Bournol, M.-L. and Dulá, J.H., “Anchor points in DEA.” *European Journal of Operational Research*, Vol. 192, 2009, pp. 668–676.
- [5] López, F.J. and Dulá, J.H. “Adding and removing an attribute in a DEA model: theory and processing.” *Journal of the Operational Research Society*, Vol. 59, 2008, pp. 1674–1684.
- [6] Dulá, J.H., “A computational study of DEA with massive data sets.” *Computers and Operations Research*, Vol. 35, 2008, No. 4, pp. 1191–1203.
- [7] Womer, N.K., Bournol, M.-L., Dulá, J.H. and Retzlaff-Roberts, D., “Benefit-Cost Analysis Using Data Envelopment Analysis.” *Annals of Operations Research*, Vol. 145, 2006, pp. 225–250.
- [8] Bournol, M.-L. and Dulá, J.H., “Validating DEA as a ranking tool: An application of DEA to assess performance in higher education.” *Annals of Operations Research*, Vol. 145, 2006, pp. 339–365.
- [9] Dulá, J.H. and López, F.J., “Algorithms for the frame of a finitely generated unbounded polyhedron.” *INFORMS Journal on Computing*, Vol. 18, No. 1, Winter 2006, pp. 97–110.
- [10] Bournol, M.-L., Dulá, J.H., Retzlaff-Roberts, D. and Womer, N.K., “Nonparametric frontier analysis with multiple constituencies.” *Journal of the Operational Research Society*, Vol. 56, 2005, No. 3, pp. 252–266.
- [11] Dulá, J.H., “Computations in DEA.” *Pesquisa Operacional*, Vol. 22, Dec. 2002, no.2, pp. 165–182, ISSN 0101-7438.
- [12] Dulá, J.H. and Thrall, R.M., “A computational framework for accelerating DEA.” *Journal of Productivity Analysis*, Vol. 16, July 2001, No. 1, pp. 63–78.

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- [13] Caporaletti, L.E., Dulá, J.H., and Womer, N.K., “Performance evaluation based on multiple attributes with nonparametric frontiers.” *Omega, The International Journal of Management Science*, Vol. 27, Nov. 1999, No. 6, pp. 637-645.
- [14] Dulá, J.H., R.V. Helgason, and N. Venugopal, “An algorithm for identifying the frame of a pointed finite conical hull.” *INFORMS Journal on Computing*, Vol. 10, Summer 1998, No. 3, pp. 323-330.
- [15] Dulá, J.H. and Hickman, B. L., “Effects of excluding the column being scored from the DEA envelopment LP technology matrix.” *Journal of the Operational Research Society*, Vol. 48, 1997, pp. 1001–1012.
- [16] Dulá, J.H., “Equivalences between Data Envelopment Analysis and the theory of redundancy in linear systems.” *European Journal of Operational Research*, Vol. 101, 1997, pp. 51–64.
- [17] Dulá, J.H. and Helgason, R.V., “A new procedure for identifying the frame of the convex hull of a finite collection of points in multidimensional space.” *European Journal of Operational Research*, Vol. 92, 1996, pp. 352–367.
- [18] Dulá, J.H. and Venugopal, N., “On characterizing the production possibility set for the CCR ratio model in DEA.” *International Journal of Systems Science*, Vol. 26, 1995, No. 12, pp. 2319-2325.
- [19] Dulá, J.H., Helgason, R.V., and Venugopal, N., “A nearly asynchronous parallel LP-based algorithm for the convex hull problem in multidimensional space.” in *The Impact of Emerging Technology on Computer Science and Operations Research*, S. Nash and A. Sopher, editors, Kluwer Academic Publishers, Boston, 1995, pp. 89–102.
- [20] Dulá, J.H., “Geometry of optimal value functions with applications to redundancy in linear programming.” *Journal of Optimization Theory and Applications*, Vol 81, 1994, No. 1, pp. 35–52.
- [21] Dulá, J.H., “Bounds and approximations in stochastic linear programming.” *Investigación Operacional*, (ISSN 0257-4306) Vol. 14, 1993, Nos. 2–3, pp. 127-147.
- [22] Dulá, J.H., “Designing a majorization scheme for the recourse function of two-stage stochastic linear programs.” *Computational Optimization and Applications*, Vol. 1, 1993, pp. 399-414.
- [23] Dulá, J.H., Helgason, R.V., and Hickman, B.L., “Preprocessing schemes and a solution method for the convex hull problem in multidimensional space.” in *Computer Science and Operations Research New Developments in their Interfaces*, O. Balci, editor, Pergamon Press, Oxford, England, 1992, pp. 59-70.
- [24] Dulá, J.H. and Murthy, R.V., “A Tchebysheff-type bound on the expectation of sublinear polyhedral functions.” *Operations Research*, Vol. 40, 1992, No. 5, pp. 914-922.
- [25] Dulá, J.H., “An upper bound on the expectation of simplicial functions of multivariate random variables.” *Mathematical Programming*, Vol. 55, 1992, pp. 69-80.
- [26] Birge, J.R. and Dulá, J.H., “Bounding separable recourse functions with limited distribution information.” *Annals of Operations Research*, Vol. 30, 1991, pp. 277-298.

ARTICLES OR CHAPTERS IN BOOKS AND OTHER COMPILATIONS:

- [27] Dulá, J.H. and López, F.J., “Repeated Solutions of Large Scale Linear Programs.” Accepted in *Large Scale Computations*. F. Columbus, ed. Nova Publishers.
Reprint at: <http://idisk.mac.com/jdula-Public/CHAPTERS/LargeScaleHulls.pdf>
- [28] Dulá, J.H., “Mining nonparametric frontiers.” in *Modeling Quantitative and Qualitative Data Varieties Using Data Envelopment Analysis: A Problem-Solving Handbook*, W. Cook and J. Zhu, eds., pp. 155–170, Springer New York, 2007. DOI:<http://dx.doi.org/10.1007/978-0-387-71607-7>
Reprint at: <http://idisk.mac.com/jdula-Public/CHAPTERS/DatMin07.pdf>
- [29] Dulá, J.H., “Fast algorithms for frames and point depth.” *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, Vol. 72: “Data Depth: Robust Multivariate Analysis, Computational Geometry and Applications.” R. Y. Liu, R. Serfling, and D. L. Souvaine (eds.), pp. 211-221, American Mathematical Society, 2006.
Reprint at: <http://idisk.mac.com/jdula-Public/CHAPTERS/DIMACS06.pdf>
- [30] Dulá, J.H., “Point sets and frame algorithms in management.” *Lecture Notes in Computer Science*, Vol. 3521, N. Megiddo, Y. Xu, and B. Zhu (eds.), pp. 450-459, Springer-Verlag, Berlin Heidelberg, 2005. DOI:http://dx.doi.org/10.1007/11496199_48
Reprint at: <http://idisk.mac.com/jdula-Public/CHAPTERS/AAIM05.pdf>
- [31] Dulá, J.H. and López, F.J., “Data Envelopment Analysis (DEA) in massive data sets.” in *Handbook of Massive Data Sets*, J. Abello, P.M. Pardalos and M.G.C. Resende, eds., pp. 419–437, Kluwer Academic Publishers, the Netherlands, 2002.
Reprint: <http://idisk.mac.com/jdula-Public/CHAPTERS/MassiveDEA02.pdf>
- [32] Dulá, J.H., “Data Envelopment Analysis (DEA).” in *Handbook of Applied Optimization*, P.M. Pardalos and M.G.C. Resende, (eds.), pp. 531–543, Oxford University Press, New York, 2002. ISBN 0-19-512594-0.
Reprint at: <http://idisk.mac.com/jdula-Public/CHAPTERS/HofA002.pdf>

OTHER PUBLISHED WORKS (ARTICLES, PROCEEDINGS, REVIEWS, ETC.):

- [33] Bognol, M.L., Dulá, J.H., and Womer, N.K., “Nonparametric performance evaluation with multiple constituencies.” in *Proceedings of the Second Meeting on Management and Control of Production and Logistics, Institut National Polytechnique de Grenoble, France, July 5-8, 2000*, Elsevier Science Ltd, Oxford, U.K. <http://idisk.mac.com/jdula-Public/REPRINTS/MCPL00.pdf>
- [34] Dulá, J.H. and Thrall, R. M. “Accelerating DEA over multiple models and forms with frames.” *Proceedings of the Decision Sciences Institute’s 5th International Meeting, July 4-7, 1999, Athens Greece*, D.K. Despotis and C. Zopounidis, eds., Vol. 1, p.128.
- [35] Corritore, C.L., Hickman, B.L., Ye, X., Conway, M. and Dulá, J.H., “Web-Based Data Envelopment Analysis.” 1998, *Proceedings of the Third INFORMS Meeting on Information Systems and Technology*, Montreal, April 26-28, 1998, V.S. Jacob and R. Krishnan, eds, pp. 359–371.
<http://idisk.mac.com/jdula-Public/REPRINTS/3rdINF-IS98.pdf>
- [36] Dulá, J.H., “Review of *Operations Research: Methods, Models and Applications*, J. Aronson and S. Zionts, eds.” *Managerial and Decision Economics*, Vol. 19, 1998, pp. 383–384.
Reprint: <http://idisk.mac.com/jdula-Public/REPRINTS/MDE98.pdf>

- [37] Dulá, J.H., “Workers and Management: Protagonists, not Antagonists, in the Evolution of Manufacturing.” *Mississippi Business Journal*, Vol. 19, No. 5, 1997.
<http://idisk.mac.com/jdula-Public/REPRINTS/MS-Business97.pdf>
- [38] Dulá, J.H., “Capstone design courses in OR/MS and other nontraditional engineering curricula.” *OR/MS Today*, Vol. 18, April 1991, No. 2, pp. 24-28.
Reprint: <http://idisk.mac.com/jdula-Public/REPRINTS/ORMS91.pdf>

PAPERS UNDER REVIEW:

- [39] Dulá, J.H. and López, F.J., “Competing output-sensitive frame algorithms.”
8/18/08: Submitted to *Computational Geometry*.
<http://idisk.mac.com/jdula-Public/WORKINGPAPERS/PolyFrOttmann.pdf>
- [40] Dulá, J.H., “An algorithm for Data Envelopment Analysis.”
11/19/07: Submitted to *INFORMS J. on Computing*.
12/10/08: Editor requests revisions and resubmission.
<http://idisk.mac.com/jdula-Public/WORKINGPAPERS/new-dea.pdf>

WORKING PAPERS, TECHNICAL REPORTS, AND WORK IN PROGRESS:

- [41] Dulá, J.H., Fagan, J.T. and Massell, P.M. “Tabular Statistical Disclosure Control: Optimization Techniques in Suppression and Controlled Tabular Adjustment.” Technical Report RRS2004-04, Statistical Research Division, U.S. Census Bureau. At: www.census.gov/srd/papers/pdf/rrs2004-04.pdf.
Reprint: <http://idisk.mac.com/jdula-Public/WORKINGPAPERS/SuppressionvsTBA.pdf>
- [42] Dulá, J.H., “A multidimensional semi-parametric upper bound for pricing a class of complex call options.” Technical Report 94-CSE-1, CSE Dept., Southern Methodist University, Dallas, Texas 75275.
Reprint: <http://idisk.mac.com/jdula-Public/WORKINGPAPERS/Free.pdf>
- [43] Dulá, J.H. and Hickman, B. L., “An opportunistic scheme for identifying efficient DMUs in DEA.” Technical Report 95-04, Department of Computer Science, University of Nebraska at Omaha, Omaha, NE 68182-0500.
Reprint: <http://idisk.mac.com/jdula-Public/WORKINGPAPERS/dual-pivot.pdf>
- [44] Conlon, J. and Dulá, J.H., “A geometric derivation and interpretation of Tchebyscheff’s Inequality.”
Reprint: <http://idisk.mac.com/jdula-Public/WORKINGPAPERS/tcheby.pdf>

PH.D. STUDENTS:

- M.-L. Bougnol, *Nonparametric Frontier Analysis with Multiple Constituencies*. Ph.D. Dissertation, The University of Mississippi, August 2001.
- F.J. López, *Algorithms to Obtain the Frame of a Finitely Generated Unbounded Polyhedron*. Ph.D. Dissertation, The University of Mississippi, August 1999.
- Y.-K. Suk, *Measuring the Impact of Total Quality Management (TQM) on Efficiency Using Data Envelopment Analysis (DEA) in the Hospital Industry: The case of the East South Central Region of the United States*. Ph.D. Dissertation, The University of Mississippi, May 1998.
- N. Venugopal, *A New Algorithm for Finding the Frame of a Polyhedral Cone*. Ph.D. Dissertation, Southern Methodist University, August 1994 (R.V. Helgason, co-advisor).

- T. Shurn, *A Pure Auction Algorithm for the Linear Semi-Assignment Problem*. Ph.D. Dissertation, Southern Methodist University, August 1993.

PH.D. COMMITTEE PARTICIPATION AT VCU:

- S. Sharma. Defended: October 30, 2008.
- S. Samolienko. Defended: May 5, 2006.
- F.K. Andoh-Baidoo. Defended: April 14, 2006.

MEETING ACTIVITIES AND PRESENTATIONS: (2004-Present.)

- Brooks, J.P., E. Boone, and J.H. Dulá “Robust L1 Principal Component Analysis.” *INFORMS National Meeting* Washington, D.C., October 13, 2008.
- Dulá, J.H., M.-L. Bournol, & P. Rouse, “Solutions from Interior Point Methods for DEA.” *INFORMS National Meeting* Washington, D.C., October 15, 2008.
- Dulá, J.H. “Mining Oriented Frontier Outliers.” *INFORMS National Meeting* Washington, D.C., October 15, 2008.
- Dulá, J.H. & López, F.J. “Competing output-sensitive frame algorithms for DEA.” *INFORMS National Meeting* Washington, D.C., October 13, 2008.
- Dulá, J.H. & M.-L. Bournol, “Primitive DEA: The unconscious use of DEA for evaluation and assessment of entities.” *INFORMS National Meeting*, Seattle, PA, November 6, 2007.
- Dulá, J.H. & M.-L. Bournol, “Prevalence of Anchor Points in DEA.” *INFORMS National Meeting*, Seattle, PA, November 4, 2007.
- López, F.J. & J.H. Dulá, “Adding and Removing an Attribute in a DEA model: Theory and Processing.” *22nd European Conference on Operational Research*, July 11, 2007 Prague, Czech Republic.
- López, F.J. & J.H. Dulá, “Preprocessing DEA.” *INFORMS National Meeting*, Pittsburgh, PA, November 8, 2006.
- Dulá, J.H., M.-L. Bournol, & P. Rouse, “Interior Point Methods to Determine Output Prices in DEA.” *INFORMS National Meeting*, Pittsburgh, PA, November 5, 2006.
- Dulá, J.H., & M.-L. Bournol, “The Role of Anchor Points in the Geometry of DEA.” *INFORMS National Meeting*, San Francisco, CA, November 15, 2005.
- Dulá, J.H., “Point Sets and Frame Algorithms in Management.” *First Annual International Conference on Algorithmic Applications in Management*, June 23, 2005, Xi An, China.
- Dulá, J.H., “Geometric Outliers in Massive Data Sets.” Workshop on Massive Geometric Data Sets, *21st ACM Symposium on Computational Geometry*, June 9, 2005, Pisa, Italy.
- Dulá, J.H. & T. Shurn, “DEA Computations with Mangasarian’s Newton LP Algorithm.” *INFORMS National Meeting*, Denver, CO, October 26, 2004.
- Bournol, M.-L. & J.H. Dulá, “Algorithms for Identifying Anchor Points in DEA.” *INFORMS National Meeting*, Denver, CO, October 26, 2004.

INVITED RESEARCH SEMINARS: (2004-Present.)

- February 13, 2009: Department of Biostatistics, VCU.
- December 10, 2008: Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.
- October 31, 2008: School of Business, VCU.
- March 11, 2008: The London School of Economics and Political Science, London.
- August 9, 2006: IBMEC: Instituto Brasileiro de Mercado de Capitais/Brazilian Capital Markets Institute, Rio de Janeiro, Brazil.
- February 3, 2006: CARMA Lecture, VCU.
- October 28, 2005: School of Business, VCU.
- March 17, 2005: Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.

GRANTS: (2004-Present.)

- VCU School of Business: *2008 Summer Research Program* “New Non-Parametric Frontiers,” \$14,000.
- VCU School of Business: *2006 Summer Research Program* “Data Mining with Non-parametric Frontiers,” \$14,000.
- VCU School of Business: *2005 Summer Research Program* “Data Envelopment Analysis (DEA) as a Data Mining Tool,” \$14,000.
- Office of Naval Research: “Constraint Programming” with K. Lewis and N. K. Womer, Co-PIs, April 2003 – May 2004, \$119,878.

PROFESSIONAL ACTIVITIES: (2004-Present.)

- Associate Editor, *Journal of Productivity Analysis*, March 2008-present
- Session Organizer and Chair, “Geometry and Computations in DEA.” INFORMS National Meeting, San Francisco, CA, November 15, 2005.
- Session Chair, “Algorithms and Computations in DEA.” INFORMS National Meeting, Denver, CO, October 26, 2004.
- Cluster Organizer, “Data Envelopment Analysis.” INFORMS National Meeting, Denver, CO, October 24-27, 2004.

AD-HOC JOURNAL REFEREE: (2004-Present.)

- 2008-09: *Applied Mathematical Letters, Computers and Operations Research, Omega: The International Journal of Management Science.*
- 2007-08: *Information Systems Frontiers, Journal of the Operational Research Society* (twice), *European Journal of Operational Research* (twice), *Journal of Productivity Analysis, Computers and Operations Research, Information Sciences, INFOR: The Canadian Journal of Operational Research.*
- 2006-07: *Journal of the Operational Research Society* (twice), *Computers and Operations Research* (twice), *European Journal of Operational Research, Annals of Operations Research.*
- 2005-06: *Journal of the Operational Research Society, Omega: The International Journal of Management Science, Journal of Productivity Analysis.*
- 2004-05: *Omega: The International Journal of Management Science, Journal of the Operational Research Society.*