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2002-Present *Assistant Professor*

Daniel J. Epstein Department of Industrial and Systems Engineering
University of Southern California

Education

2002 Ph.D. in Operations Research, *Massachusetts Institute of Technology, Cambridge, MA*

1997 Mathematical Civil Engineer, *University of Chile, Santiago, Chile*

1996 B.S. in Engineering Sciences, *University of Chile, Santiago, Chile*

Refereed Journal Publications

1. "Behavioral measures and their correlation with IPM iteration counts on Semi-Definite Programming Problems," R.M. Freund, F. Ordóñez, and K.C. Toh. USC ISE Working paper #2005-02. To appear in Math Prog. B.
2. "A Modeling Framework for Facility Location of Medical Services for Large-Scale Emergencies," H. Jia, F. Ordóñez, and M.M. Dessouky. USC ISE Working paper #2005-01. To appear in IIE Transactions.
3. "On an Extension of Condition Number Theory to Non-Conic Convex Optimization," by R.M. Freund and F. Ordóñez. Math of OR, Vol. 30, No. 1, pp. 173–194, 2005.
4. "Scaling Laws from Statistical Data and Dimensional Analysis," by P. Mendez and F. Ordóñez. ASME Journal of Applied Mechanics, Vol 72, No. 5, pp. 648–657, 2005.
5. "Optimal Information Extraction in Energy-Limited Wireless Sensor Networks," by F. Ordóñez and B. Krishnamachari. In IEEE JSAC, Vol. 22, No. 6, special issue on Fundamental Performance Limits of Wireless Sensor Networks, pp 1121-1129, 2004.
6. "Computational Experience and the Explanatory Value of Condition Measures for Linear Optimization," by F. Ordóñez and R.M. Freund. SIAM Journal on Optimization, Vol. 14, No. 2, pp 307–333, 2003.

Refereed Book Chapters

- "Fundamental Limits of Networked Sensing," by B. Krishnamachari and F. Ordóñez. Book chapter in Wireless Sensor Networks, Eds. T. Znati, K. Sivalingam, and C.S. Raghavendra, Kluwer Academic Publishers, 2004.

- "Rapid Distribution of Medical Supplies," by M. M. Dessouky, F. Ordóñez, H. Jia, Z. Shen, Delay Management in Health Care Systems, R. Hall (ed), Springer, 2006

Refereed Conference Proceedings

1. "Increasing security through communication and policy randomization in multiagent systems," by P. Paruchuri, M. Tambe, F. Ordóñez, S. Kraus. MSDM Workshop, AAMAS-06, Hakodate, Japan, May 2006.
2. "Security in multiagent systems by policy randomization," by P. Paruchuri, M. Tambe, F. Ordóñez, S. Kraus. Proceedings of the AAMAS-2006 conference. Hakodate, Japan, May 2006.
3. "Safety in multiagent systems by Policy Randomization," by P. Paruchuri, D. Dini, M. Tambe, F. Ordóñez, S. Kraus. SASEMAS workshop, AAMAS-05, Utrecht, Netherlands, July 2005. Received best paper award at the SASEMAS workshop.
4. "Intentional Randomization for Single Agents and Agent-teams," by P. Paruchuri, D. Dini, M. Tambe, F. Ordóñez, S. Kraus. GTDT workshop, IJCAI-05, Edinburgh, Scotland, July 2005.
5. "A Sub-Gradient Algorithm for Maximal Data Extraction in Energy-limited Wireless Sensor Networks," by W. Ye and F. Ordóñez. Symposium on Wireless Sensor Networks, in IEEE WirelessCom 2005, Maui, June 2005.
6. "Toward a Formalization of Teamwork with Resource Constraints," by P. Paruchuri, M. Tambe, F. Ordóñez, and S. Kraus. Proceedings of the AAMAS-2004 conference, New York, July 2004.
7. "Analysis of Energy-Efficient, Fair Routing in Wireless Sensor Networks through Non-linear Optimization," by B. Krishnamachari and F. Ordóñez. Workshop on Wireless Ad-hoc, Sensor, and Wearable Networks, in IEEE Vehicular Technology Conference - Fall, Orlando, October 2003.
8. "Determination of Scaling Laws from Statistical Data," by P. Mendez and F. Ordóñez. Proceedings of Fifth International Workshop on Similarity Methods, Stuttgart, November 2002.

Working Papers

1. "Solution Approaches for Facility Location of Medical Supplies for Large-Scale Emergencies," by H. Jia, F. Ordóñez, and M.M. Dessouky. USC ISE Working paper #2006-04.
2. "Mobility Allowance Shuttle Transit (MAST) Services: MIP formulation and strengthening with logic constraints," by L. Quadrioglio, M.M. Dessouky, and F. Ordóñez. USC ISE Working paper #2006-03.
3. "Robust Wardrop Equilibrium," F. Ordóñez, and N.E. Stier-Moses. USC-ISE Working paper #2006-02.
4. "Confidence Intervals for OD Demand Estimation," Y. Chen, F. Ordóñez, and K. Palmer. USC-ISE Working paper #2006-01.
5. "Robust Solutions for Network Design under Transportation Cost and Demand Uncertainty," S. Mudchanatongsuk, F. Ordóñez, and J. Liu. USC-ISE Working paper #2005-05.

6. "A Simulation Study of Demand Responsive Transit System Design," L. Quadrifoglio, M. M. Dessouky, and F. Ordóñez. USC-ISE Working paper #2005-04.
7. "Heuristic Approach for the Integrated Inventory-Distribution Problem," by T.F. Abdelmaguid, M.M. Dessouky, and F. Ordóñez. USC ISE Working paper, 2004.
8. "Robust Capacity Expansion of Network Flows," by F. Ordóñez and J. Zhao. Formerly "Robust Capacity Expansion of Transit Networks," USC ISE Working paper #2004-01.
9. "SLAW, a Package for Scaling LAWs from Statistical Data, Version 0.93, User's Guide," by F. Ordóñez, T. Li, and P. Mendez. USC ISE Working paper #2004-02. Also available from <http://illposed.usc.edu/~pat/SLAW/>

Funded Research

Principal Investigator

- USC/CSULB METRANS, "Better delivery/pick-up routes in the presence of uncertainty," February 2006 - February 2007, with M.M. Dessouky, \$85,000.
- NSF CMS-0409887, "The Robust Vehicle Routing Problem," July 2004 - June 2006, with M.M. Dessouky, \$192,112.
- USC/CSULB METRANS, "Confidence Intervals for Estimated Traffic Demand," January 2004 - August 2005, with K. Palmer, \$75,000.
- USC/CSULB METRANS, "Robust Investment Decisions for Highway Capacity Expansions," June 2003 - August 2004, \$35,000.

Co-Principal Investigator

- PATH Caltrans, "Productivity and Cost Effectiveness of DRTS," January 2004 - June 2005, PI: M.M. Dessouky, \$60,000.
- USC Zumberge Research and Innovation Fund, "Analysis of Wireless Sensor Networks Through Non-linear Optimization," July 2003 - June 2005, PI: B. Krishnamachari, \$50,000.

Participating Member

- USC's CREATE Center for Homeland Security, funded by US Department of Homeland Security. Research Focus on "Location and Distribution of Inventoried Items for Emergency Response."

Research Software

- SLAW, a Package for Scaling LAWs from Statistical Data", P. Mendez and F. Ordóñez, World Wide Web, <http://illposed.usc.edu/~pat/SLAW> (2004).

Presentations – Invited / abstract review

1. "Facility Location Problems for Medical Services of Large-scale Emergencies," H. Jia, F. Ordóñez and M.M. Dessouky, Invited session on network location, INFORMS 2005, San Francisco, November 2005.
2. "Robust Wardrop Equilibria," F. Ordóñez and Nicolas Stier-Moses. Invited session on robust optimization, INFORMS 2005, San Francisco, November 2005.
3. "Robust Airline Revenue Management," R. Caldentey and F. Ordóñez. Invited session on robust revenue management, INFORMS 2005, San Francisco, November 2005.
4. "Robust Optimization" an invited Tutorial given at the Workshop on Operations and Management Science, University of Chile, Santiago, Chile, July 2005
5. "Robust Network Capacity Expansion", Workshop on Operations and Management Science, University of Chile, Santiago, Chile, July 2005
6. "Robust Network Capacity Expansion", F. Ordóñez. IFORS 2005, Honolulu, July 2005.
7. "A Modeling Framework for Facility Location of Medical Services for Large-Scale Emergencies", H. Jia, F. Ordóñez, and M. Dessouky. IFORS 2005, Honolulu, July 2005.
8. "On the Causes of Variability in IPM Iterations for Semi-Definite Programming Problems," R.M. Freund, F. Ordóñez, and K.C. Toh. SIAM Conference on Optimization, Stockholm, Sweden May 2005.
9. "Estimation and Confidence Intervals of OD Traffic Demand," F. Ordóñez, Y. Chen, W. Tjangnaka, and K. Palmer. Poster presented at SIAM SoCAMS Meeting, Los Angeles, April 2005.
10. "Robust Capacity Expansion of Transit Networks," F. Ordóñez. Poster presented at METRANS Annual Research Conference, Los Angeles, February 2005.
11. "Robust Network Revenue Management," R. Caldentey and F. Ordóñez. Invited session on robust revenue management, INFORMS 2004, Denver, October 2004.
12. "Robust Capacity Expansion of Transit Networks," F. Ordóñez and J. Zhao. Optimization Days 2004, Montreal, May 2004.
13. "Condition Number Complexity for Non-Conic Convex Optimization," F. Ordóñez and R.M. Freund. 18th ISMP, Copenhagen, Denmark, August 2003.
14. "Optimization Models for Wireless Sensor Network Design," F. Ordóñez. UCLA/HSSEAS Electrical Engineering Department, Signals and Systems Seminar, May 2003.
15. "Condition Number Theory for Non-conic Convex Optimization," F. Ordóñez and R.M. Freund. Industrial Engineering Department Seminar, University of Chile, December 2002.
16. "IPM Practical Performance on LPs and the Explanatory Value of Complexity Measures," F. Ordóñez and R.M. Freund. SIAM Conference on Optimization, Toronto, Canada, May 2002.
17. "Are Condition Numbers Good Predictors of the Performance of Interior-Point Algorithms on Practical Problems?" F. Ordóñez and R.M. Freund. MOPTA01, Hamilton, Canada. August 2001.
18. "Computational Experience with Condition Numbers and Performance Guarantees for Linear Optimization." F. Ordóñez and R.M. Freund, HPCES Workshop & Symp., Singapore. January 2001.

Teaching

2002-Present *USC, Industrial and Systems Engineering Department*

- Lecturer.

Courses Code and Description	Semester	Instr. Eval.
ISE530 Introduction to Operations Research	20041	4.00
ISE532 Network Flows	20031	4.23
	20041	4.33
ISE536 Linear Programming and Extensions	20033	4.15
	20043	4.14
	20053	4.14
ISE650 Ph.D. Seminar in Industrial Eng.	20031	N/A
ISE599 Robust Optimization	20043	4.78

- Created four new graduate courses: ISE530, ISE532, ISE536, and ISE599

- Advisement: 4 current Ph.D. students, 3 MSORE students: