MARIA E. MAYORGA

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RESEARCH INTEREST

- Predictive Models of Health Outcomes, Application of Stochastic Optimization in Production and Service Systems with Emphasis on Health Care Services, Modeling Marketing and Operations Interface, Analysis of Queuing Systems

EDUCATION

- **University of California at Berkeley**
  Ph.D., Industrial Engineering and Operations Research, 2006
  Minors in Economics and Statistics
  Dissertation Title: *Essays on Consumer Heterogeneity and Optimal Stochastic Resource Allocation*

  Committee: Dr. Hyun-soo Ahn (Chair), Dr. Philip M. Kaminsky, Dr. J. George Shanthikumar, Dr. Xuanming Su.

- **University of California at Berkeley**
  M.S., Industrial Engineering and Operations Research, 2002

- **The George Washington University,** Washington, D.C.
  B.S., Mechanical Engineering, 2000
  Summa cum laude

ACADEMIC EXPERIENCE

- **North Carolina State University, Edward F. Pitts Department of Industrial and Systems Engineering**
  - *Associate Professor of Personalized Medicine, August 2013-*
- **Clemson University, Department of Industrial Engineering**
  - *Adjunct Professor, August 2013-*
  - *Associate Professor, August 2012– August 2013*
  - *Assistant Professor, August 2006 – August 2012*
- In addition to the research and funding endeavors, teaching responsibilities include graduate level optimization, queuing and dynamic programming courses and junior level stochastic OR and production planning courses.
- **University of Michigan, Ross School of Business**, *Research Associate*, Worked with Dr. Hyun-Soo Ahn and Dr. Goker Aydin in finding optimal assortment and inventory strategies for retailers when a product line is segmented according to quality attributes and consumers are heterogeneous. 2004, 2005.
- **U.C. Berkeley**, *Research Assistant*, Worked with Dr. Hyun-Soo Ahn and Dr. J.G. Shanthikumar in developing stock rationing policies and capacity acquisition

policies for a production system with multi-class customers and capacity expansion options. Found optimal policies when capacity is continuously adjustable and quantified the benefits of joint optimization when options are temporary. 2002, 2003.

TEACHING EXPERIENCE

- **Clemson University, Department of Industrial Engineering**, *Instructor,*
  - IE 803 "Engineering Optimization and Applications" (Fall 2006-09)
  - IE 860 "Dynamic Programming"(Spring 2010, 2011)
  - IE 880 "Queuing Applications" (Fall 2011)
  - IE 381 "Operations Research Methods II" (Spring 2007-09, 2011-12, Summer 2007-08, 2012)
  - IE 386 "Production Planning and Control" (Spring 2009)
  - IE 485/685 "Survey of Optimization Methods) (Fall 2010, Spring 2012)
  - IE 402 "Creative Inquiry— Introducing Authentic Engineering Projects and Concepts into McCants Middle School's 'Gateway to Technology' Program" (Fall 2008, Spring 2009):
  - IE 402 "Creative Inquiry—Applying Operations Research to Real World Problems in the Service Industry", (Fall 2007-08, Fall 2011,Spring 2012, Fall 2013)
  - IE 402 "Creative Inquiry—Health Care Systems Engineering", (Fall 2013)
  - IE 890 (Research based independent study project)
- **University of Michigan, Ross School of Business**, *Instructor,* "Operations Management" for BBAs. In complete charge of preparation and delivery of lectures for a class of 70 BA undergrads. Spring 2006
- **University of Michigan, Ross School of Business**, *Teaching Assistant,* "Business Statistics and Management Science" for BBAs. Duties included holding office hours, preparing and presenting tutorials and review sessions, and grading for class of 350 BA undergrads. Spring 2005
- **U.C. Berkeley,** *Graduate Student Instructor*, "Operations Management" for MBAs at the Haas School of Business. Duties included preparing and lecturing discussion sessions, holding office hours, preparing study guides, and grading for class of about 50 MBA students. Spring 2003
- **U.C. Berkeley**, *Graduate Student Instructor*, "Service Operations Design and Analysis". Assisted in lecturing, holding office hours, writing assignments, writing solutions and grading group work and projects for class of about 40 undergraduate students. Fall 2001, Fall 2002
- **U.C. Berkeley**, *Graduate Student Reader*, "Stochastic Processes II". Wrote assignment solutions for class 15 graduate engineering students. Spring 2002

SPONSORED ACTIVITIES

1. "Analytics for Instrumentation", LAS DO3 Task Order 2.3 Instrumentation, Laboratory for Analytic Sciences. $63, 260. (4/1/14-12/31/14). Principal Investigator.
2. "Scalable Clustering Methods for Dynamic Health Data", Research Innovation Seed Funding, North Carolina State University. $26, 000. (1/1/14-12/31/14). Key Personnel.

3. "Simulating donor liver availability and quality in the context of increasing donor diabetes and obesity: assessing the uncertain future of liver transplant", NC Translational & Clinical Sciences Institute, Pilot Grant Program. $12, 103, (7/1/2012-6/30/2013). Co-Principal Investigator.
4. "CAREER: Incorporating Patient Heterogeneity and Choice into Predictive Models of Health and Economic Outcomes", National Science Foundation, CMMI. $400,000, (6/1/2012-5/31/2017). Principal Investigator.
5. "An Innovative Approach to Estimating Inter-generational Burden of Maternal Drinking", The College of Health, Education, and Human Development (HEHD), Clemson University, $50,000 (direct), (5/16/11 to 5/11/12). Co-Principal Investigator.
6. Optimal Work Distribution; BMW Manufacturing Co., $472,275, (1/10/11 to 12/31/2013). Principal Investigator (Yr 1, Co-PI Yrs 2-3).
7. "Trans-generational Impact of Maternal Obesity and Diabetes on Health Disparities", National Institutes of Health, NCMHHD. $735, 517 (9/25/2009-4/30/2012). Co-Principal Investigator
8. Power Train Optimization; BMW Manufacturing Co., $133,797, (8/15/2009 to 12/31/2010). Principal Investigator.
9. Engine Line Optimization- Improving throughput using Simulation; BMW Manufacturing Co., $107, 819, (11/1/08-12/31/09). Co-Principal Investigator.
10. Complex Logistics Process Simulation- Impact of Quality Improvement Activities on Automated Warehouse; BMW Manufacturing Co., $107, 819, (11/1/08-12/31/09). Co-Principal Investigator.
11. Development of a New Forecast Model for Service Parts Demand; BMW Manufacturing Co., $29,419, (10/15/08-4/15/09). Co-Principal Investigator.
12. Assessment of the Savannah River Basin; SC Department of Natural Resources, $97, 827, (10/1/08-10/30/09). Co-Principal Investigator.
13. "Authentic Logistics Projects—a CELDi extension"—NSF IIP0641414 Amendment No.001, RET supplement to existing award, $10,000 (2008). Principal Investigator.
14. "Introducing Authentic Engineering Projects and Concepts into McCants Middle School's "Gateway to Technology" Program" – Undergraduate Studies, $12,500 (2008-2010). Principal Investigator.
15. "Implementation of Rest Tape Material Lot Change Standard"—Robert Bosch Company, $7,220 (2007). Principal Investigator.
16. Undergraduate Research Initiative, Clemson University – Undergraduate Studies, $12,500 (2007-2009). Principal Investigator.
17. University Research Grant, Clemson University – Research Division, $2,750 (2007). Principal Investigator.

REFEREED JOURNAL PUBLICATIONS (underline indicates current or former student)

1. Mayorga ME, Ahn HS and Shanthikumar JG, 2006. Optimal Control of a Make-to- Stock Production System with Adjustable Service Rate. *Probability in the Engineering and Informational Sciences*, 20 (4), 609-634.
2. Arumugam R, Mayorga ME and Taaffe KM, 2009. Inventory Based Allocation Policies for Flexible Servers in Serial Systems. *Annals of Operations Research*, 172, 1-23.
3. Mayorga ME, Taaffe KM and Arumugam R, 2009. Allocating Flexible Servers in Serial Systems with Switching Costs. *Annals of Operations Research*, 172, 231-242.

4. McLay LA and Mayorga ME, 2010. Evaluating Emergency Medical Service Performance Measures. *Health Care Management Science*, Vol 13, No. 2.
5. Mayorga ME and Subramanian R, 2010. Factoring Environmental Concerns in Supply Chain Decision-Making. *Int. Journal of Business and Systems Research*, 4 (4).
6. McElreath MH, Mayorga ME and Kurz ME, 2010. Metaheuristics for Assortment Problems with Multiple Quality Levels. *Computers & OR*, 37, 1797-1804.
7. McDonnell D, Mayorga ME, Benson L and Mears L, 2010. Stepping Out of Academics: The Effect of Authentic Learning Experiences on Attitudes of IE Students. *Journal of Applications and Practices in Engineering Education*, Vol 1 No (2).
8. Mayorga ME, Ahn HS, 2011. Joint Management of Capacity and Inventory in Make-to-Stock Production Systems with Multi-class Demand. *European Journal of Operational Research,* Vol 212 (2), 312-324.
9. Chanta S, Mayorga ME, Kurz ME, McLay, LA, 2011 The minimum p-envy location problem: a new model for equitable distribution of emergency resources. *IIE Transactions in Healthcare Systems Engineering*, Vol 1 (2), 101-115.
10. McLay LA and Mayorga ME, 2011 Evaluating the Impact of Dispatching in Emergency Medical Service Performance Measures. *IIE Transactions on Healthcare Systems Engineering*, Vol 1 (3), 185-196.
11. McElreath MH and Mayorga ME, 2012. A Dynamic Programming Approach to Solving the Assortment Planning Problem with Multiple Quality Levels. *Computers & OR*, Vol 39, 1521-1529.
12. Bandara D, Mayorga ME, McLay LA, 2012. Optimal Dispatching Strategies for Emergency Vehicles to Increase Patient Survivability. *International Journal of Operational Research*, Vol 15 (2), 195-214.
13. Bhattacharyya G, Mayorga ME and Melloy B, 2012. A Phenomenographic Analysis of Three Real-World Experiences in Clemson University's Industrial Engineering Program. *Journal of Applications and Practices in Engineering Education*, Vol 13 (1).
14. Chanta S, Mayorga ME and McLay LA, 2012. Improving Emergency Services in Rural Areas: A Bi-Objective Covering Location Model for EMS Systems. In Press, *Annals of Operations Research.*
15. Hunt KJ, Marlow NM, Gebregziabher M, Ellerbe CN, Mauldin J, Mayorga ME, Korte JE, 2012. Impact of maternal diabetes on birthweight is greater in non-Hispanic blacks than in non-Hispanic whites. *Diabetologia*, Vol 55(4), 971-80. (PMID: 22237686)
16. McLay LA and Mayorga ME, 2012. A model for optimally dispatching ambulances to emergency calls with classification errors in patient priorities. *IIE Transactions,* 45(1), 1-24.
17. Truong K, Reifsnider OS, Mayorga ME and Spitler H, 2012. Estimated Number of Preterm Births and Low Birth Weight Children Born in the United States Due to Maternal Binge Drinking. *Maternal & Child Health*, Vol 15 (1), (DOI 10.1006/s10995-012-1048-1).
18. Hunt KJ, Alanis MC, Johnson ER, Mayorga ME, Korte JE, 2013. Maternal pre-pregnancy weight and gestational weight gain and their association with birthweight with a focus on racial differences. *Maternal & Child Health.* Vol 17 (1), 85-94(PMID: 22322428)

19. McLay LA and Mayorga ME. 2013. A dispatching model for server-to-customer systems that balances efficiency and equity. *Manufacturing and Service Operations Management*, Vol 15 (2), 205-220.
20. Mayorga ME, Bandara D and McLay LA, 2013. Districting and Dispatching Polices to Improve the Efficiency of Emergency Medical Service (EMS) Systems. *IIE Transactions in Healthcare Systems Engineering*, Vol 3(1), 39-56.
21. Toro-Diaz HH, Mayorga ME, Chanta S and McLay LA, 2013. An optimization framework for joint location and dispatching of EMS vehicles. *Computers & IE*, Vol 64, 917-928.
22. Childers AK, Mayorga ME and Taffee KM. Prioritization Strategies for Patient Evacuations. *Health Care Management Science*, Vol 17(1),77-87. (doi: 10.1007/s10729-013-9236-0)
23. Bandara D, Mayorga ME and McLay LA, 2013. Priority Dispatching Strategies for EMS Systems. *Journal of the Operational Research Society, Sep 2013*. (doi:10.1057/jors.2013.95)
24. Mayorga ME, Reifsnider OS, Neyens D, Gebregziabher M and Hunt KJ. 2013. Simulated Estimates of Pre-pregnancy and Gestational Diabetes Mellitus in the US: 1980 to 2008. PLoS ONE 8(9): e73437. doi:10.1371/journal.pone.0073437
25. Mayorga ME, Ahn HS and Aydin G, 2013. Optimal Assortment and Stocking Decisions with Multiple Quality Levels. *Annals of Operations Research*, Vol 211(1), 301-331.
26. Sudtachat KS, Mayorga ME, McLay LA. 2014. Recommendations for Dispatching Emergency Vehicles under a Multi-tiered Response via Simulation. *International Transactions in Operational Research*. Vol 2, 581-617. (doi: 10.1111/itor.12083)
27. Chanta S, Mayorga ME, McLay LA. 2014. The minimum *p*-envy location problem: focusing on survivability of patients. *Computers & IE,* Vol 74, 228-239.
28. Toro-Diaz HH, Mayorga ME, Rajagopalan H, Saydam C. 2014. Reducing disparities in large scale emergency medical service system. Under Review, *Journal of the Operational Research Society*. Accepted August 2014.

PAPERS UNDER REVISION/REVIEW

29. Saydam C, Rajagopalan H, Zaffar A, Sharer E, Mayorga ME. Ambulance Location Models via High Fidelity Simulation-Optimization. Under Review, *IIE Transactions in Healthcare Systems Engineering*, Submitted March 2014.
30. Antani, K., Mears, L., Funk, K., Kurz, M., Mayorga, M. Manual Precedence Mapping and Application of a Novel Precedence Relationship Learning Technique to Real-World Automotive Assembly Line Balancing. *J. Manuf. Sci. Eng.*, Submitted April 2014.
31. Hosseini N, Taffee K, Mayorga ME. Optimal policy for accommodating elective and non-elective cases on the day of surgery. Under Review, *European Journal of Operational Research*, Submitted May 2014.
32. Sudtachat K, Mayorga ME, McLay LA. A Nested-Compliance Table Policy for Emergency Medical Service Systems under Relocation. *Under Review*, OMEGA, submitted July 2014.
33. Mayorga ME, Reifsnider OS, and Hunt KJ. Trends in BMI and Obesity in US Women of Childbearing Age from 1980 to 2010. Under Review, *Health Systems*, Rev 2 Submitted June 2014.

34. Toro-Diaz HH, Mayorga ME, Wheeler S, Orman E and Barritt S. Predicting Liver Transplant Capacity Using Discrete Event Simulation. Under Revision, *Medical Decision Making*, Submitted July 2013, Rev 1 Submitted June 2014.
35. Toro-Diaz HH, Mayorga ME, McLay LA. Title: Multi-criteria approach for the simultaneous optimization of location and dispatching of ambulances. Under Review, *IIE Transactions in Healthcare Systems Engineering.* Submitted Jan 2014, reviews received June 2014.
36. Ansari S, McLay LA, Mayorga ME. A maximum expected covering problem for locating and dispatching servers. Under Review, *Transportation Science,* Submitted December 2012, Rev 1 Submitted Jan 2014, Rev 2 Submitted July 2014.
37. Orman ES, Mayorga ME, Wheeler SB, Toro-Diaz HH, Townsley RM, Hayashi PM, Barritt AS. Declining Liver Graft Quality Threatens the Future of Liver Transplantation in the United States. *Hepatology*, Submitted July 2014.
38. Lynch CP, Baker N, Korte JE, Mauldin JG, Mayorga ME, Hunt KJ. Trends in Diabetes during Pregnancy in South Carolina 1996 through 2008. Under Review, *Journal of Women's Health*. Submitted July 2014.

WORKING PAPERS

1. Mayorga ME, Wheeler SM, Reifsnider OS, Simpson KN and Silvestri GA. Development of a Simulation Model to Predict Health and Economic Outcomes Associated with Smoking Cessation Interventions, Intended for *Health Care Management Science*.
2. Wheeler SM, Mayorga ME, Reifsnider OS, Simpson KN, and Silverstri GA. A study of the comparative effectiveness and intrinsic value of alternative smoking cessation strategies. Intended for *Medical Decision Making*.
3. Hassmiller Lich K, Mayorga ME, Wheeler SM, Pinone M. Recommendations on How to Nudge Populations toward Improved Colorectal Cancer Screening: A comparative cost-effectiveness study in North Carolina. Intended for *American Journal of Preventive Medicine*.
4. Wheaton W, Hassmiller Lich K, Mayorga ME, Chall S, Bobashev G. Validating a generic household synthetic population to simulate colorectal cancer screening policies. Intended for *Health Affairs*.
5. Yi Z, Mayorga ME, Hassmiller Lich K, Pearson J. A model for smoking status transitions. Intended for *American Journal of Preventative Medicine*.
6. Townsley R, Cornejo D, Mayorga ME. The effect of choice model structure in policy decisions for colorectal cancer screening. Intended for *Medical Decision Making*.

REFEREED PROCEEDINGS

1. Maria Mayorga, Odette Reifsnider, Stephanie Wheeler, Raquel Kholer. A Discrete Event Simulation Model to Estimate Health and Economic Impacts of Smoking Cessation Interventions. *Proceedings of the Winter Simulation Conference*, 2014, Savannah, GA.
2. Shadi Goodarzi, Nisha Nataraj, Kendall McKenzie, Jennifer Mason, Jeremy Tejada, Julie Ivy, Maria Mayorga. A Framework for Modeling the Complex Interaction between Breast Cancer and Diabetes. *Proceedings of the Winter Simulation Conference*, 2014, Savannah, GA.

3. David Cornejo, Maria Mayorga, Kristen Hassmiller Lich. Creating Common Patients and Evaluating Individual Results: Issues in Individual Simulation for Health Policy Analysis. *Proceedings of the Winter Simulation Conference*, 2014, Savannah, GA.
4. David Cornejo, Maria Mayorga, Kristen Hassmiller Lich. Improving Outcomes via Better Choices: Applications in Colorectal Cancer Screening. *Industrial and Systems Engineering Research Conference Proceedings 2014*, Montreal, Canada.
5. Shakiba Enayati, Maria E. Mayorga, Hari Rajagopalan, Cem Saydam. Real-time ambulance redeployment problem with workload restrictions. *Production and Operations Management Society (POMS) Conference Proceedings 2014*, Atlanta, GA.
6. Stephanie Wheeler, Raquel Kholer, Maria Mayorga, Odette Reifsnider. A Discrete Event Simulation Estimating Health and Economic Impacts of Smoking Cessation Approaches. *INFORMS Healthcare* 2013, Chicago, IL.
7. Maria Mayorga, Hector Toro-Diaz, Stephanie Wheeler, Sidney Barritt and Eric Orman. Assessing the uncertain future of liver transplant. *INFORMS Healthcare* 2013, Chicago, IL.
8. Hector Toro-Diaz, Maria Mayorga and Laura McLay. Joint Location and Dispatching Decisions for Emergency Medical Service Systems. *INFORMS Healthcare* 2013, Chicago, IL.
9. Kristen Hassmiller Lich, Stephanie Wheeler, Nadeepa Wickramage and Maria Mayorga. Perspective Matters: Insights from choosing the best simulation study design for optimizing colo-rectal cancer screening in North Carolina. *INFORMS Healthcare* 2013, Chicago, IL.
10. Kanchala Sudtachat and Maria Mayorga. A Simulation Model for Dispatching Emergency Vehicles under Multi-tiered Response. *Industrial and Systems Engineering Research Conference Proceedings 2013*, San Juan, Puerto Rico.
11. Kavit Antani, Laine Mears, Killian Funk, Mary E. Kurz, Maria E. Mayorga. Manual Precedence Mapping and Application of a Novel Precedence Relationship Learning Technique to Real-World Automotive Assembly Line Balancing. Proceedings of the *ASME 2013 Intl. Mfg. Science and Eng. Conference*, Wisconsin. 2013.
12. Kanchala Sudtachat and Maria Mayorga. A Periodic Blood Inventory Model with Crossmatched Blood and Two Demand Classes. *Industrial Engineering Research Conference Proceedings 2012*, Orlando, FL.
13. Sunarin Chanta, Maria Mayorga and Laura McLay. A Hybrid Tabu Search for Locating and Dispatching Emergency Response Units Using an Imbedded Queuing Model. *Industrial Engineering Research Conference Proceedings 2012*, Orlando, FL.
14. Kavit Antani, Laine Mears, Killian Funk, Mary E. Kurz, Maria E. Mayorga. Robust Work Planning and Development of a Decision Support System for Work Distribution on a Mixed-Model Automotive Assembly Line. Proceedings of the *ASME 2012 Intl. Mfg. Science and Eng. Conference*, Indiana, 2012.
15. Mayorga ME, Reifsnider OS, Gebregziabher M, Hunt KJ. "Generational Trends and impact of the overweight and obese intrauterine environment", *Proceedings of INFORMS Healthcare 2011*, Montreal, Canada, June 2011.
16. Reifsnider OS, Mayorga ME, Truong K. "Development of a model to estimate the burden of maternal alcohol use on preterm birth in the US", *Proceedings of INFORMS Healthcare 2011*, Montreal, Canada, June 2011.

17. Damitha Bandara and Maria E. Mayorga. "Optimal Geographical Districting of Emergency Vehicles". *Industrial Engineering Research Conference Proceedings 2011*, Reno, NV.
18. Odette S. Reifsnider, Maria E. Mayorga and Kelly J. Hunt. "Impact of maternal obesity and diabetes in infant health". *Industrial Engineering Research Conference Proceedings 2010*, Cancun, Mexico.
19. Greg Gunn and Maria E. Mayorga. "Allocating flexible servers when switching time is positive *Industrial Engineering Research Conference Proceedings 2010*, Cancun, Mexico.
20. Maria E. Mayorga, Mark H. McElreath and Laine Mears. "Impact Assigning Storage Locations in an Automated Warehouse". *Industrial Engineering Research Conference Proceedings 2010*, Cancun, Mexico.
21. Sunarin Chanta, Maria E. Mayorga, Mary E. Kurz and Laura A. McLay. "A minimum-envy covering location model for EMS systems". *Industrial Engineering Research Conference Proceedings 2010*, Cancun, Mexico.
22. Danielle Lanigan and Maria Mayorga, "Outreach and Real World Problem Solving Positively Affects Students" May 2009, IIE Annual Conference and Expo 2009, Miami, FL.
23. Maria E. Mayorga. "Inventory Decisions under Consumer Driven Substitution". *Industrial Engineering Research Conference Proceedings 2009*, Miami, FL. (CD-ROM).
24. Wennian Li, Yuan-Han Huang, Chansik Kim and Maria E. Mayorga. "Optimizing the Number and Location of Siren Warning Systems: A Case Study at Clemson University". *Industrial Engineering Research Conference Proceedings 2009*, Miami, FL. (CD-ROM).
25. Sunarin Chanta, Maria E. Mayorga, Laura McLay and Margaret Wiecek. "A Bi-Objective Location Covering Model for EMS Systems". *Industrial Engineering Research Conference Proceedings 2009*, Miami, FL. (CD-ROM).
26. Paul Goethals and Maria E. Mayorga. "Promoting Efficiency in Unmanned Military Systems". *Industrial Engineering Research Conference Proceedings 2009*, Miami, FL. (CD-ROM).
27. Arumugam, Ramesh, Mayorga, Maria E. and Taaffe, Kevin. "Allocating Flexible Servers in a Tandem Queuing System to Maximize Throughput", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008.
28. Devera, Valerie and Mayorga, Maria E. "Using Simulation to Enhance Patient Experience in a University Clinic", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008. (Undergraduate Honors Thesis Submission)
29. Gunn, Greg, Lanigan, Danielle, Aramugam Ramesh and Mayorga, Maria E. "Implementation of Rest Tape Material Lot Change Standard in a Serial System with Variable Yield", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008. (Creative Inquiry Submission)
30. Mayorga, Maria E, Chanta, S., Sangsawang, O., and Gonzales, R. "An optimization Model for the Selection of Lighting System Assortments in Households", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008.
31. Mayorga, Maria E. and Kimbler, Delbert. "Connecting Research and Lecture to Improve Student Learning", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008.
32. Mayorga, Maria E., Kurz, Mary E., and McElreath, Mark. "Optimal Attributes of Mixed Quality Assortments", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008. IERC Best Paper Award, Production Planning Track.

33. McElreath, Mark H, and Mayorga, Maria E. "Modeling Confusion: A Model Based Approach to Customer Queue Selection", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008.
34. Mrozik, Derek and Mayorga, Maria E. "Developing a Qualification Process for Transportation Logistics Providers", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008. (Undergraduate Honors Thesis Submission).
35. Yang, Yang, Shaibu, A.-B., Cho, Rae, and Mayorga, Maria E. "The Simultaneous Optimization of Process Target Levels and Specification region for Dual Quality Characteristics", Proceedings of the 2008 IIE Research Conference, Vancouver, Canada, 2008.
36. Mayorga, Maria E., "Optimal Retailer Assortment and Stocking Decisions," *IIE Research Conference* (CD-ROM), Nashville, Tennessee, USA, 2007.

REFEREED BOOK CHAPTERS

1. Leclerc, P.D., McLay, L.A., Mayorga, M.E. "Modeling equity for allocation in public resources". *Community-Based Operations Research: Decision Modeling for Local Impact and Diverse Populations*, (1 ed.) (M. Johnson, Ed.), New York, Springer, Vol 167, 2012, pp 3-36.

CONTRIBUTED BOOK CHAPTERS

1. Maria E. Mayorga and Ravi Subramanian. 2009. "Incorporating Environmental Concerns in Supply Chain Optimization". *Environmentally Conscious Material Handling*, John Wily & Sons, Inc. Edited by Myer Kutz.

CONFERENCE PRESENTATIONS/INVITED TALKS:

1. Rachel Townsley, Maria Mayorga, Kristen Hassmiller Lich, Jennifer Pearson. A model for smoking cessation treatment choice and associated health outcomes. IIE Annual Conference & Expo 2014, Montreal, Canada.
2. Maria Mayorga, Kristen Hassmiller-Lich. A Colorectal Cancer Screening Model Incorporating Patient Choice. INFORMS 2013, Minneapolis, MN.
3. Maria Mayorga, Rachel Townsley, A. Sidney Barritt, Eric Orman, Hector Toro-Diaz, Stephanie Wheeler. Donor Liver Discard via Procurement Strategies for Donation after Cardiac Death. INFORMS 2013, Minneapolis, MN.
4. Maria Mayorga. Incorporating Patient Heterogeneity and Choice into Predictive Models of Health & Economic Outcomes. INFORMS 2013, Minneapolis, MN.
5. Maria Mayorga, Hector Toro-Diaz, and Laura McLay. Scalable Approach to Joint Location and Dispatching Decisions for Emergency Medical Service Systems. INFORMS 2013, Minneapolis, MN.
6. Hector Toro-Diaz, Maria Mayorga, and Laura McLay. Location and Dispatching of Ambulances with Fairness Considerations. IIE Annual Conference & Expo 2013, San Juan, Puerto Rico.

7. Maria Mayorga and Kelly Hunt. Reducing the overall prevalence of diabetes among US women by targeting gestational diabetes. IIE Annual Conference & Expo 2013, San Juan, Puerto Rico.
8. Maria Mayorga, Hector Toro-Diaz, Stephanie Wheeler, Sidney Barritt and Eric Orman. Predicting Liver Transplant Capacity using Simulation. IIE Annual Conference & Expo 2013, San Juan, Puerto Rico.
9. Hector Toro-Diaz, Sunarin Chanta, Maria Mayorga and Laura McLay. Joint Location and Dispatching Decisions for Emergency Medical Services. INFORMS 2012, Phoenix, AZ.
10. Bryan Pearce, Kavit Antani, Kilian Funk, Mary E Kurz, Maria Mayorga and Laine Mears. Exploring the Efficient Frontier of the Multi-objective General Assembly Line Balancing Problem. INFORMS 2012, Phoenix, AZ.
11. Laura McLay and Maria Mayorga. Evaluating the Impact of Performance Goals on Emergency Medical Service Dispatching Decisions. INFORMS 2012, Phoenix, AZ.
12. Hector Toro-Diaz, Mulugeta Gebregziabher, Kelly Hunt, Odette Reifsnider and Maria Mayorga. Estimates of Pre-pregnancy and Gestational Diabetes in US Women from 1980 to 2008. INFORMS 2012, Phoenix, AZ.
13. Laura McLay, Sardar Ansari and Maria Mayorga. A Mixed Integer Programming Model for Locating and Dispatching Ambulances. INFORMS 2012, Phoenix, AZ.
14. Hector Toro-Diaz, Maria Mayorga, Sunarin Chanta and Laura McLay. Joint Location-Dispatching Model for EMS Systems Considering Various Performance Measures. IIE Annual Conference & Expo, Orlando, FL.
15. Damitha Bandara and Maria Mayorga. Integrated Dispatching and Districting policies for EMS vehicles. IIE Annual Conference & Expo, Orlando, FL.
16. Narges Hosseini, Kevin Taaffe and Maria Mayorga. Policies for Accommodating Elective and Non-Elective Surgeries. IIE Annual Conference & Expo, Orlando, FL.
17. Mayorga ME and Chanta S. An Integrated Facility Location and Vehicle Dispatching Model for EMS Systems. INFORMS 2011, Charlotte, NC.
18. Bandara D and Mayorga ME. Integrated Dispatching and Districting Policies for EMS Vehicles. Accepted to INFORMS 2011, Charlotte, NC.
19. Hosseini N, Mayorga ME and Taaffe KM. Policies for Managing Scheduled and Unscheduled Surgical Cases in Operating Rooms. INFORMS 2011, Charlotte, NC.
20. Reifsnider OS, Mayorga ME and Hunt KJ. Prevalence Estimates of Maternal Diabetes in the US. INFORMS 2011, Charlotte, NC.
21. Childers AK, Taaffe KM and Mayorga ME. Prioritizing Strategies for Healthcare Facility Evacuations. INFORMS 2011, Charlotte, NC.
22. Hunt KJ, Johnson ER, Mauldin J, Mayorga ME, Korte JE. The increasing Prevalence of Diabetes in Pregnancy in White, Black and Hispanic Women in South Carolina, 1996-2008. 71st American Diabetes Association Scientific Sessions, San Diego, CA, June 2011.

23. Hunt KJ, Alanis MC, Johnson ER, Mayorga ME, Korte JE. Impact of maternal pre-pregnancy weight and gestational weight gain on racial disparities in birthweight. SPER 2011 Annual Meeting, Montreal, Canada, June 2011.
24. Chanta S, Mayorga ME, McLay LA. "Selecting Equitably Efficient Solutions in EMS Facility Location Problems." May 2011, IIE Annual Conference and Expo 2011, Reno, NV.
25. Bandara D, Mayorga ME. "Priority Dispatching Strategies for EMS Systems." May 2011, IIE Annual Conference and Expo 2011, Reno, NV.
26. Hosseini N, Mayorga ME, Taaffe K. "Scheduling of Add-On and Urgent Surgeries Using Dynamic Programming." May 2011, IIE Annual Conference and Expo 2011, Reno, NV.
27. Maria E. Mayorga, Odette Reifsnider, Stephanie Wheeler. "A Predictive Model for Outcomes Associated with Smoking Cessation Interventions." November 8, 2010, INFORMS 2010, Austin, TX
28. Maria E. Mayorga, Odette Reifsnider, Kelly J. Hunt, Mulugeta Gebregziabher "Obesity Trends among White Women in the US." November 8, 2010, INFORMS 2010, Austin, TX
29. Sunarin Chanta, Maria E. Mayorga, Mary E. Kurz, Laura A. McLay. "A Tabu Search for Solving the Minimum p-envy Location Model in EMS Location Problems." November 9, 2010, INFORMS 2010, Austin, TX
30. Sunarin Chanta, Maria E. Mayorga, Laura A. McLay. "An Equitable EMS Location Model: Minimizing Envy toward Neighbors' Chance of Access to Service." November 10, 2010, INFORMS 2010, Austin, TX
31. Mark McElreath, Maria E. Mayorga. "Assortment planning with multiple quality levels: a dynamic programming approach." November 10, 2010, INFORMS 2010, Austin, TX
32. Laura A. McLay, Maria E. Mayorga. "Equitable Dispatching Policies for Emergency Medical Services." November 9, 2010, INFORMS 2010, Austin, TX
33. Laura A. McLay, Maria E. Mayorga. "Optimal Dispatching Policies for Emergency Medical Services." November 9, 2010, INFORMS 2010, Austin, TX
34. Narges Hosseini, Maria Mayorga, Kevin Taaffe. "Optimal Emergency Scheduling Policy using Dynamic Programming." November 9, 2010, INFORMS 2010, Austin, TX
35. Boeker, A., Mayorga, M.E. Mears, L., "Multivariate Throughput Analysis of a Sub-Assembly Line in the Automotive Industry." INFORMS Southern Regional Conference 2010, Huntsville AL.
36. Gunn, G., Mayorga, M.E., Mears, L., A Simulation Approach to Allocation of Flexible Servers when Switching Time is Included. INFORMS Southern Regional Conference 2010, Huntsville AL.
37. Mark H. McElreath, Maria E. Mayorga and Mary E. Kurz "Solution Representations for Assortment Planning With Locational Choice." June 2010, IIE Annual Conference and Expo 2010, Cancun, Mexico.
38. Odette Reifsnider, Maria E. Mayorga. "A Predictive Model for Outcomes Associated with Smoking Cessation Interventions." October 14, 2009, INFORMS 2009 Conference, San Diego, CA.
39. Laura McLay, Maria E. Mayorga. "Evaluating Emergency Medical Service Performance Measures." October 14, 2009, INFORMS 2009 Conference, San Diego, CA.
40. Laura McLay and Mayorga, Maria E. "An Optimal Dispatching Model for Emergency Medical Service Systems" October 14, 2009, INFORMS 2009 Conference, San Diego, CA

41. Marissa Grubb, Lindsay Balint, Danielle Lanigan, Maria E. Mayorga, Laine Mears. "WARNING! Engineers in Training." May 2009, IIE Annual Conference and Expo 2009, Miami, FL.
42. Greg Gunn and E. Mayorga. "A Simulation Optimization Approach to Flexible Server Systems." May 2009, IIE Annual Conference and Expo 2009, Miami, FL.
43. Odette Reifsnider, Maria Mayorga and Kelly Hunt, "Predicting the Impacts of Intrauterine Effects on Obesity and Diabetes over Generations" April 2009, Society for Health Systems Conference and Expo 2009, Chicago, IL.
44. Odette Reifsnider, Stephanie Wheeler, Maria Mayorga and Kit Simpson, "A Predictive Model for Outcomes Associated with Smoking Cessation Programs" Scheduled for April 2009, Society for Health Systems Conference and Expo 2009, Chicago, IL.
45. Ramesh Arumugam (presenter), Maria E. Mayorga, Kevin M. Taaffe. "Allocating Flexible Servers with Switching Costs and Switching Times." Scheduled October 15, 2008, INFORMS 2008 Conference, Washington, D.C.
46. Danielle Lanigan (presenter), Maria E. Mayorga. "Introducing Authentic Engineering Projects into a Middle School's "Gateway to Technology." Scheduled October 13, 2008, INFORMS 2008 Conference, Washington, D.C.
47. Mark H. McElreath (presenter), Maria E. Mayorga and Mary E. Kurz, " Approximation Metaheuristics for Assortment Problems with Multiple Quality Levels" Scheduled October 14, 2008, INFORMS 2008 Conference, Washington, D.C.
48. "Inventory based Allocation Policies for Flexible Servers in Serial Systems". *INFORMS* Annual Meeting, Seattle, Nov 07. Invited Session. With Kevin Taaffe and Ramesh Arumugam.
49. "Health Care Cost Containment strategies for Patients with Diabetes". *INFORMS* Annual Meeting, Seattle, Nov 07. With Odette Reifsneider.
50. "Optimal Retailer Assortment and Stocking Decisions". *INFORMS* Annual Meeting, San Francisco, Nov 05. Invited Session.
51. "Optimal Control of a Make-to-Stock Production System with Adjustable Service Rate". *INFORMS* Annual Meeting, San Francisco, Nov 2005. Minority Issues Forum Poster Session.
52. "Optimal Production and Capacity Policy in a Make-to-Stock Production System with Multi-class Demand," *INFORMS* Annual Meeting, Atlanta, Oct. 2003. Invited Session
53. "Optimal Production and Rationing Policy with Temporary Capacity," PRISMS, U.C. Berkeley, Mar. 2003
54. "Optimal Control of a Make-to-Stock Production System with Adjustable Capacity". Future Faculty Exploration Program, Rochester Institute of Technology. Oct 2005

INDUSTRY EXPERIENCE

- **LifeScan**, *Inventory Model Specialist*, Global Supply Chain group. Developed and administered a Corporate Certification Training Module for inventory model users consisting of General Supply Chain Management overview, Inventory Model Theory and Application. Worked with theoretical model that was developed by consultants to tailor to US and identified key opportunities for inventory reduction. Aided in the preliminary development of model for Europe and Canada. Summer 2002

- **LifeScan**, *Supply Chain Analyst*, Global Supply Chain group. Worked on improving "Finished Goods Process Flow" and increasing Line-Item Fill Rate. Created appropriate metrics (and methods of measuring them) to analyze the current state of the system. Statistically analyzed metrics (to find correlations) and made suggestions of process changes needed to improve metrics. Internally published results and created system for up-to-date (on-line) publishing of most important metrics. Summer 2001
- **Hewlett Packard**, *SEED*, Color LaserJet manufacturing group. Worked on Print quality defects due to engine and hardware problems. Found existing defects then investigated root cause, explored and tested possible solutions. A suggested change was approved and was implemented in production. Summer 1999
- **FEDTech**, *Intern*, Assisted in the development and distribution of Software to be used for the development and dismantling of nuclear facilities, and assisted in the *HODE* (High Output Diesel Engine) Project. Summer 1998
- **CNG** (Consolidated Natural Gas), *INROADS Intern*, Mapped natural gas engines to find their optimal settings and prepared manuals to be used at various stations. Summer 1997

PROFESSIONAL ACTIVITIES AND SERVICE:

- Co-Coordinator, Agent Based Modelling Boot-Camp, Week long workshop let by Nathaniel Osgood on ABM for Health Care Modeling. Co-coordinated with K. Lich (UNC School of Public Health)
- Committee Member, New Sources of Dept. Revenue (NCSU, ISyE)(Fall 2013-)
- Committee Chair, Honors and Awards Committee (Clemson University, IE Dept.) (Fall 2012-Spring 2013)
- Dept. Representative, Computing Resources Committee (Clemson University, COES) (2011-)
- Committee member, Undergraduate Committee (Clemson University, IE Dept.)
- Institute for Operations Research and Management Sciences (INFORMS), general member, Minority Issues Forum (Treasurer 2011-2013, President-elect 2013-2014), Women in OR/MS (WORMS) Forum
- Institute for Industrial Engineers (IIE), member since 2006, Board Member of Operations Research Division (2010-2011, elected office), President-elect (2013-2014, elected office)
- Industrial Engineering Research Conference, Co- Chair, Operations Research Track (May 2011)
- Member & Local Chapter Advisor, Society of Hispanic Professional Engineers (SHPE)
- Area Editor, Decision Support & Analytics, *Health Systems* (http://www.palgrave-journals.com/hs/index.html), 2011-
- Associate Editor, IIE *Transactions on Healthcare Systems Engineering* (http://www.tandf.co.uk/journals/uhse), 2012-
- Associate Editor, IIE *Transactions,* Focused Issue on Operations Engineering and Analysis; **Government, Public Policy, and Society Department** (http://www.tandfonline.com/toc/uiie20/current), 2013-

AWARDS AND HONORS

- Best Paper Award for IIE Transactions Focused Issue on Scheduling and Logistics, 2014,"A Model for Optimally Dispatching Ambulances to Emergency Calls with Classification Errors in Patient Priorities", co-author with McLay (UW Madison)
- "CAREER AWARD" Recipient, 2012-2017, National Science Foundation
- Faculty Mentoring Award 2012, College of Engineering and Science
- Faculty Collaboration Award 2010, College of Engineering and Science
- IIE Research Conference Best Paper Award 2009, Operations Research Track (" A Bi-Objective Location Covering Model for EMS Systems")
- IIE Research Conference Best Paper Award 2008, Operations Research Track ("Modeling Confusion: A Model based Approach to Customer Queue Selection")
- IIE Research Conference Best Paper Award 2008, Production Planning Track ("Optimal Attributes of Mixed Quality Assortments")
- IIE Research Conference Best Paper Award 2008, Engineering Education Track ("Connecting Research and Lecture to Improve Student Learning")
- Outstanding Graduate Student Instructor 2002-2003, Academic Senate's Advisory Committee for GSI Affairs, U.C. Berkeley
- SREB-AGEP Scholar, The Pew Charitable Foundation & The Ford Foundation
- Graduate Opportunity Fellowship (U.C. Berkeley)
- Presidential Academic Scholarship (GWU)
- Valedictorian Scholarship (GWU)
- Board of Trustees Scholarship (GWU)
- National Hispanic Scholarship Fund Recipient

STUDENT ADVISING

Thesis Advisor: 15 students

Completed

- Kanchala Sudtachat, Ph.D. May 2014, Clemson University Dissertation title "STRATEGIES TO IMPROVE THE EFFICIENCY OF EMERGENCY MEDICAL SERVICE (EMS) SYSTEMS UNDER MORE REALISTIC CONDITIONS", Assistant Professor, Thailand
- Hector Hernan Toro-Diaz, Ph.D. August 2013, Clemson University, Dissertation title "Joint Location and Dispatching Decisions for Emergency Medical Service Systems", Research Associate at United Biosource Corp., Lexington MA
- Damitha Bandara, Ph.D. August 2012, Clemson University, Dissertation title "Districting and Dispatching Policies to Improve the Efficiency of Emergency Medical Service (EMS) Systems", Research Assistant Professor, Dept. of Mathematical Sciences, Clemson University, now Assistant Professor of Supply Chain Management, Albany State University, College of Business
- Odette Reifsnider, Ph.D. Aug 2011, Clemson University, Dissertation title "Anticipating US Population-level Health and Economic Impacts Using Discrete-event Simulation to Guide Health Policy Decisions", Post-Doc Aug 2011-May 2012, Joint appointment: Industrial Engineering & Public Health Sciences, Clemson University; Research Associate at United Biosource Corp., Bethesda MD
- Sunarin Chanta, Ph.D. Aug 2011, Clemson University, Dissertation title "Improving Quality of Service in EMS Systems by Reducing Disparities Between Service Zones",

Assistant Professor, King Mongkut's University of Technology North Bangkok, Thailand

- Mark McElreath, Ph.D. Dec 2010, Clemson University, Dissertation title "Locational Choice Models for Assortment Planning with Multiple Quality Levels of Products", UPS Analytics Group, Atlanta GA
- Greg Gunn, M.S., May 2010, Clemson University, Bank of America, Charlotte NC
- Danielle Lanigan (now Danielle McDonnell), M.S., Aug 2009, Clemson University, INTUITIVE Research and Technology Corp., Huntsville AL
- Ramesh Arumugam (co-advisor), M.S. Dec 2008, Clemson University, Bank of America, Charlotte NC

In Progress

- David Cornejo (co-advised), Ph.D. expected May 2015, North Carolina State University
- Shakiba Enayati, Ph.D. expected May 2016, North Carolina State University
- Rachel Townsley, Ph.D. expected May 2016, North Carolina State University
- Zinan Yi, Ph.D expected Dec 2016, North Carolina State University
- Kendall McKenzie, Ph.D. expected May 2017, North Carolina State University
- Justin Wolczynski, M.S. Operations Research, expected May 2015, North Carolina State University

Undergraduate Honors Thesis Advisor: 2 students

- Valerie Devera, Derek Mrozik, May 2008, Clemson University

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