

Sarah G. Nurre

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Academic Experience

Assistant Professor, Department of Industrial Engineering, University of Arkansas, July 2015-Present.

Assistant Professor, Department of Operational Sciences, Air Force Institute of Technology, July 2013 - July 2015.

Education

Ph.D. Decision Sciences and Engineering Systems, Rensselaer Polytechnic Institute, August 2013
Dissertation Title: *Integrated Network Design and Scheduling Problems: Optimization Algorithms and Applications*.
Advisor: Thomas C. Sharkey. Committee Members: John E. Mitchell, William A. Wallace, Kristin P. Bennett.

M.Eng. Industrial and Management Engineering, Rensselaer Polytechnic Institute, December 2011.

B.S. Mathematics, Magna Cum Laude, Rensselaer Polytechnic Institute, May 2007. Minors: Computer Science and Economics.

Publications

† denotes student author

Accepted Refereed Journal Articles

1. N.R. Paul, B.J. Lunday, and **S.G. Nurre**. A Multiobjective, Maximal Conditional Covering Location Problem Applied to the Relocation of Hierarchical Emergency Response Facilities. Online first in *Omega*.
2. R.S. Widrick[†], **S.G. Nurre**, and M.J. Robbins. Optimal Policies for the Management of an Electric Vehicle Battery Swap Station. Forthcoming in *Transportation Science*.
3. T.C. Sharkey and **S.G. Nurre**. Video Tutorials within an Undergraduate Operations Research Course: Student Perception on Their Integration and Creating A Blended Learning Environment. Forthcoming in *INFORMS Transactions on Education*.
4. T.C. Sharkey, **S.G. Nurre**, H. Nguyen, J.H. Chow, J.E. Mitchell, and W.A. Wallace. Identification and Classification of Restoration Interdependencies in the Wake of Hurricane Sandy. *Journal of Infrastructure Systems*, 22(1), 04015007
5. T.E. Kannon[†], **S.G. Nurre**, B. J. Lunday, and R.R. Hill. The Aircraft Routing Problem with Refueling. *Optimization Letters*, 9(8), pp.1609-1624, December 2015.
6. **S.G. Nurre** and T.C. Sharkey. Integrated network design and scheduling problems with parallel identical machines: Complexity results and dispatching rules. *Networks*, 63(4), pp. 306-326, July 2014.
7. **S.G. Nurre**, R. Bent, F. Pan, T.C. Sharkey. Managing Operations of Plug-In Hybrid Electric Vehicle (PHEV) Exchange Stations for use with a Smart Grid. *Energy Policy*, 67, pp. 364-377, April 2014.
8. **S.G. Nurre**, B. Cavdaroglu, J.E. Mitchell, T.C. Sharkey, and W.A. Wallace. Restoring infrastructure systems: An integrated network design and scheduling problem. *European Journal of Operational Research*, 223(3), pp. 794-806, December 2012.

Accepted Refereed Book Chapter

9. **S.G. Nurre**, T.C. Sharkey, and J.E. Mitchell. Increasing the Resiliency of Local Supply Chain Distribution Networks against Multiple Hazards. Book Chapter in *Supply Chain Management and Logistics: Innovative Strategies and Practical Solutions*. Edited by Z. Liang, W. Art Chaovalitwongse, and L. Shi. Published by CRC Press, Taylor & Francis Group, 2016.

Submitted Journal Articles

1. **S.G. Nurre** and T.C. Sharkey. Online Integrated Network Design and Scheduling Problems with Flexible Release Dates. Submitted to *IIE Transactions*. Under third review.
2. **S.G. Nurre** and J.D. Weir. Interactive Excel based Gantt Chart Schedule Builder. Submitted to *INFORMS Transactions on Education*. Under revision for second review.
3. C.J. Gatti, J.D. Brooks, and **S.G. Nurre**. The History of the Field of OR/MS: A Topic Model Analysis.
4. J.M. Colombi, L.D. Buckle, J. Black, and **S.G. Nurre**. Optimal Launch Manifesting for Heterogeneous Disaggregated Satellite Constellations.

Selected Working Papers

1. K.R. Schneider and **S.G. Nurre**. Improving the Site Visit Schedule for a Local Foodbank using Vehicle Routing.
2. C. Hergenreter[†] and **S.G. Nurre**. Multi-Graph Vitality Measures as applied to a Communications Network.

Conference Proceedings

1. T.E. Kannon[†], **S.G. Nurre**, B.J. Lunday, and R.R. Hill. The Aircraft Routing with Air Refueling Problem: Exact and Greedy Approaches. *Proceedings of the Industrial and Systems Engineering Research Conference*, Montréal, Canada, June 2014. Recipient of the Best Paper Award in the Homeland Security Track.
2. M.T. Martin, **S.G. Nurre**, and M.R. Grimaila. Modeling Shared Drive Utilization Using Stochastic Techniques. *Proceedings of the International Conference on Information and Knowledge Engineering*, Las Vegas, NV, July 2014.
3. **S.G. Nurre**, T.C. Sharkey. On Student Use and Perception of Video Tutorials in an Undergraduate Operations Research Course within an Engineering Curriculum. *Proceedings of the Industrial and Systems Engineering Research Conference*, San Juan, Puerto Rico, May 2013.
4. B. Cavdaroglu, **S.G. Nurre**, J.E. Mitchell, T.C. Sharkey, and W.A. Wallace. Decomposition methods for restoring infrastructure systems. *Proceedings of the International Conference on Vulnerability and Risk Analysis and Management*, Hyattsville, MD, 2011.
5. **S.G. Nurre** and T.C. Sharkey. Restoring infrastructure systems: An integrated network flow and scheduling problem. *Proceedings of the Industrial Engineering Research Conference*, Cancun, Mexico, 2010.

Funded Research

- S.G. Nurre and S.V. Hernandez. *Truck Parking with Hours of Service Regulations*, University of Arkansas Honors College Faculty Equipment and Technology Grant, \$6,000 (Mar 2016 - March 2017).
- S.G. Nurre. *The Dependence of Infrastructure Restoration on Transportation Networks*, Southern Plains Transportation Center, \$20,411 (Aug 2016-Aug 2017).

Presentations and Posters

Invited Seminar Presentations

1. University of Arkansas. Department of Mathematical Sciences. *Optimal Policies for the Management of an Electric Vehicle Battery Swap Station*. February 2016.
2. University of Arkansas. Sam M. Walton College of Business. Department of Supply Chain Management. Brown bag series. *Integrated Network Design and Scheduling Problems with applications to Supply Chains*. December 2015.
3. The Ohio State University. Fisher College of Business. Department of Management Sciences. PhD Seminar on Dynamic Programming. *The Shortest Path Problem with Replenishment: Applications to Aircraft and Electric Vehicle Routing*. April 2015.
4. Los Alamos National Laboratory. Center for Nonlinear Studies Smart Grid Seminar Series. July 2011.

Conference Presentations

presenter listed first.

1. N. Enayaty[†], K.M. Sullivan, **S.G. Nurre**, B.J. Lunday, and M.J. Robbins. *Network Flow Models for Analyzing Vulnerabilities in Interdependent Infrastructures*. Invited Presentation. IISE Annual Conference (ISERC), Anaheim CA, May 2016.
2. R.S. Widrick[†], **S.G. Nurre**, M.J. Robbins. *Optimal Policies for the Management of an Electric Vehicle Battery Swap Station*. IISE Annual Conference (ISERC), Anaheim CA, May 2016.
3. B.J. Lunday, N.R. Paul, **S.G. Nurre**. *A Maximal Conditional Covering Location Problem to Relocate Emergency Response Enterprise Units*. INFORMS Annual Meeting, Philadelphia, PA, November 2015.
4. K.M. Sullivan, **S.G. Nurre**, B.J. Lunday, and M.J. Robbins. *Flow Networks with Interdependent Commodities*. Invited Presentation. INFORMS Annual Meeting, Philadelphia, PA, November 2015.
5. **S.G. Nurre** and C. Hergenreter[†]. *Multi-Graph Vitality Measures with Applications to A Communications Network*. Invited Presentation. INFORMS Annual Meeting, Philadelphia, PA, November 2015.
6. K.S. Schneider and **S.G. Nurre**. *Improving the Site Visit Schedule of A Hunger Relief Charity*. INFORMS Cincinnati-Dayton Fall Technical Conference, October 2015.
7. K.S. Schneider and **S.G. Nurre**. *Improving the Site Visit Schedule of A Hunger Relief Charity*. IIE Annual Conference (ISERC), Nashville TN, June 2015.
8. R.S. Widrick[†], **S.G. Nurre**, and M.J. Robbins. *Optimal Policies for the Management of a Plug-In Hybrid Electric Vehicle Swap Station*. INFORMS Computing Society Conference, Richmond, VA, January 2015.
9. **S.G. Nurre**, T.E. Kannon[†], and B.J. Lunday. *The Shortest Path Problem with Replenishment*. Invited Presentation, INFORMS Annual Meeting, San Francisco, CA, November 2014.
10. B.J. Lunday, T.E. Kannon[†], **S.G. Nurre**, and R.R. Hill. *Aircraft Routing with Aerial Refueling*. Invited Presentation, INFORMS Annual Meeting, San Francisco, CA, November 2014.
11. R.S. Widrick[†], **S.G. Nurre**, and M.J. Robbins. *Plug-In Hybrid Electric Vehicle Battery Swap Station Management*. Poster Presentation. INFORMS Cincinnati-Dayton Fall Technical Conference, August 2014.
12. **S.G. Nurre**, T.E. Kannon[†], B.J. Lunday, and R.R. Hill. *The Aircraft Routing with Air Refueling Problem: Exact and Greedy Approaches*, Invited Presentation, IIE Annual Conference (ISERC), Montréal, Canada, May 2014.
13. **S.G. Nurre** and T.C. Sharkey. *On Student Use and Perception of Video Tutorials in an Undergraduate Operations Research Course within an Engineering Curriculum*, IIE Annual Conference (ISERC), San Juan, Puerto Rico, May 2013.

14. **S.G. Nurre** and T.C. Sharkey. *Integrated Network Design and Scheduling Problems with Multi-Function Machines*, Invited Presentation, INFORMS Computing Society Conference, Santa Fe, NM, January 2013.
15. **S.G. Nurre** and T.C. Sharkey. *Integrated Network Design and Scheduling Problems with Release Dates*, Invited Presentation, INFORMS Annual Meeting, Phoenix, AZ, October 2012.
16. **S.G. Nurre** and T.C. Sharkey. *An Overview of Integrated Network Design and Scheduling Problems*, Poster Presentation, INFORMS Annual Meeting, Phoenix, AZ, October 2012.
17. **S.G. Nurre** and T.C. Sharkey. *Integrated Network Design and Scheduling Problems with Flexible Release Dates*, Invited Presentation, IIE Annual Conference (ISERC), Orlando, FL, May 2012.
18. **S.G. Nurre** and T.C. Sharkey. *Integrated Network Design and Scheduling Problems with Flexible Release Dates*, Invited Poster Presentation, IIE Annual Conference (ISERC), Orlando, FL, May 2012.
19. **S.G. Nurre** and T.C. Sharkey. *Integrated Network Design and Scheduling Problems with Release Dates*, Invited Presentation, INFORMS Optimization Society Conference, Miami, FL, February 2012.
20. **S.G. Nurre** and T.C. Sharkey. *Parallel Resource Integrated Network Design and Scheduling (INDS) Complexity Analysis and Dispatching Rules*, Invited Presentation, INFORMS Annual Meeting, Charlotte, NC, November 2011.
21. **S.G. Nurre** and T.C. Sharkey. *Dispatching Rules for Network-based Scheduling*, Invited Presentation, INFORMS Annual Meeting, Austin, TX, November 2010.
22. **S.G. Nurre**, B. Cavdaroglu, J.E. Mitchell, T.C. Sharkey, and W.A. Wallace. *Restoring Infrastructure Systems: An integrated network design and scheduling problem*, Poster Presentation, Health and Humanitarian Logistics Conference, Georgia Institute of Technology, Atlanta, GA, March 2010.

Student Supervision

1. Aniela Sianca. M.S. and Ph.D. *Infrastructure Restoration Interdependence on the Transportation Network*, expected May 2019.
2. Alexis Gaddy. Undergraduate Honors Thesis. *A Model of National Truck Parking Usage as a Function of Hours of Service (HOS) Regulations*, expected May 2017.
3. Jacob Forbes. M.S. Thesis. *Restoration and Humanitarian Aid Delivery on Interdependent Transportation and Communication Network*, March 2015.
4. Christopher Hergenreter. M.S. Thesis. *Determining the Most Vital Arcs Within a Multi-Mode Communication Network using Set-Based Measures*, March 2015.
5. Rebecca Widrick. M.S. Thesis. *Optimal Policies for the Management of a Plug-In Hybrid Electric Vehicle Swap Station*, March 2015.
6. Tanya E. Kannon. M.S. Thesis. *Improving the Air Mobility Command's Air Refueling Route Building Capabilities*, March 2014.
7. Committee Member for:
 - i. Tiffany Yang, M.S. Industrial Engineering, May 2016. Chair: Kelly Sullivan.
 - ii. Lyndsey Buckle, M.S. Systems Engineering. June 2015. Chair: John Colombi.
 - iii. Nicholas Paul, M.S. OR. March 2015. Chair: Brian Lunday.
 - iv. Margaret Martin, M.S. OR. June 2014. Chair: Michael Grimaila.
 - v. Garret Fett, M.S. OR. March 2014. Chair: Raymond Hill.
 - vi. Jonathan White, M.S. OR. March 2014. Chair: Jeff Weir.

Awards

- ISERC Best Paper Award, Homeland Security Track, 2014 Industrial and Systems Engineering Research Conference, Montréal, Canada, May 2014.
- The Del and Ruth Karger Dissertation Prize for Outstanding DSES Thesis, Rensselaer Polytechnic Institute, March 2014.
- Omega Rho - International Honor Society for Operations Research and Management Science.
- Fellow, Faculty Fellowship Program, Air Force Institute of Technology, December 2013 - Present.
- Sandia National Laboratories and Rensselaer Polytechnic Institute (RPI) Excellence in Engineering Research Fellowship, August 2011 - May 2013.
- RPI Founder's Award of Excellence, October 2010.
- Chauncey and Doris Starr Fellowship, Rensselaer Polytechnic Institute, August 2009 - August 2010.

Student Awards

- Rebecca Widrick. 2016. IISE Graduate Research Award. Awarded to the best master's research in the professional society.
- Rebecca Widrick. 2015. Dean's Award. Awarded to the best master's thesis in each department.
- Tanya Kannon. 2014. Distinguished Graduate. Top 10% of students based on GPA.

Professional Development

- IISE New Faculty Colloquium Attendee, IISE Annual Meeting, Anaheim, CA, May 2016.
- NSF CAREER proposal writing workshop, April 2016.
- Research Camp, University of Arkansas, September 2015.
- The Reader Expectation Approach to Writing Attendee, University of Dayton, January 2015.
- INFORMS New Faculty Colloquium Attendee, INFORMS Annual Meeting, November 2014.
- Preparing Future Faculty Workshop Attendee, Rensselaer Polytechnic Institute, October 2012.
- INFORMS Future Academician Colloquium Attendee, INFORMS Annual Meeting, Phoenix, AZ, October 2012.
- IIE Doctoral Colloquium Attendee, IIE Annual Meeting, Orlando, FL, May 2012.

Teaching Experience

University	Course Number	Course Title	Credits	Class	Term	Number Students	Overall Assessment (out of 5.0)	Role
UARK	INEG 3613	Intro to Operations Research	3	U.G.	Spring 2016	63	TBD	Instructor
UARK	INEG 5613	Optimization Theory	3	Grad.	Fall 2015	5	4.82	Instructor
AFIT	OPER 623	Heuristic Search Methods	3	Grad.	Spring 2015	9	4.4	Instructor
AFIT	OPER 500/601	Seminar in Operational Sciences	1	Grad.	Winter 2015	72	4.3	Instructor
AFIT	OPER 510	Introduction to Math Programming	4	Grad.	Fall 2014	33	3.8	Instructor
AFIT	OPER 626	Scheduling Theory	3	Grad.	Summer 2014	4	4.8	Instructor
AFIT	OPER 623	Heuristic Search Methods	3	Grad.	Spring 2014	5	4.4	Instructor
AFIT	OPER 540	Stochastic Modeling and Analysis	4	Grad.	Winter 2014	37	4.2	Instructor
AFIT	OPER 621	Multicriteria Optimization	3	Grad.	Fall 2013	34	4.5	Instructor
RPI	ISYE 4600/6610	Operations Research Methods	4	U.G.	Fall 2012	55	-	TA with Video Tutorials
RPI	PHIL 2140	Introduction to Logic	4	U.G.	Fall 2006	-	-	TA

Service and Professional Activities

Professional Community

- President Elect, Women in OR/MS, January 2016 - December 2016.
- Secretary, Women in OR/MS, January 2014 - December 2015.
- Member, Women in OR/MS, Advancement in ORMS Award Committee, Fall 2013.
- Referee for:

Annals of Operations Research
Computers & Industrial Engineering
Computers & Operations Research
Energy Policy
European Journal of Operational Research
IET Generation, Transmission & Distribution
IIE Transactions
INFORMS TutORials 2015
Journal of Aircraft
Int. Journal of Electrical Power & Energy Systems

Journal of Global Optimization
Journal of Industrial and Management Optimization
Journal of Mathematical Modeling and Algorithms
Journal of Military Operations Research
Omega
Optimization Letters
Transactions on Reliability
2014, 2013, 2012 Indu. and Sys. Eng. Research Conf.
2015 ICS Conference

Departmental and University Service

- Interviewer, University of Arkansas Engineering Research Coordinator Position, December 2015.
- Member, University of Arkansas INEG Search Committee, 2015 - 2016.
- Member, University of Arkansas INEG Global Studies Committee, 2015 - 2016.
- Member, University of Arkansas INEG Undergraduate Committee, 2015 - 2016.
- INEG Session, University of Arkansas Razorback Reveal, October 2015.
- Member, AFIT Center for Operational Analysis Center Director Search Committee, 2015.
- Panelist, New Faculty Orientation, Air Force Institute of Technology, September 2014.
- Member, AFIT Departmental Operations Research Curriculum Committee, 2014.

Conference Activities

- Session Chair, *IISE Annual Conference (ISERC) 2016*, Energy Systems Track, Anaheim, CA, May 2016.
- Session Chair (2 sessions), *IISE Annual Conference (ISERC) 2016*, Operations Research Track, Anaheim, CA, May 2016.
- Session Chair, *INFORMS Computing Society Conference 2015*, Richmond, VA, January 2015.
- Session Chair, *INFORMS Annual Meeting 2014*, San Francisco, CA, November 2014.
- Poster Judge, *INFORMS Annual Meeting 2014*, Interactive Sessions, San Francisco, CA, November 2014.
- Invited Session Chair, *INFORMS Annual Meeting 2013*, Minneapolis, MN, October 2013.

Diversity and Other Professional Activities

- President-Elect, *INFORMS Women in OR/MS*, Jan 2016-Dec 2016.
- Secretary, *INFORMS Women in OR/MS*, manager of the WORMS mentorship program, Jan 2014-Dec 2015.
- Guest Speaker, *NSF ADVANCE Engineering Institute for Young Women*, Rensselaer Polytechnic Institute, July 2012.
- Graduate Student Panelist, *NSF LSAMP REU Program*, Rensselaer Polytechnic Institute, June 2012.
- Guest Speaker, *Accepted Students Day 2012*, Rensselaer Polytechnic Institute, April 2012.
- Graduate Student Panelist, *Grad School Panel: I wish I knew then, what I know now*, SUNY Albany, March 2012.
- Teaching Session Chair, *Exploring Engineering Day*, Rensselaer Polytechnic Institute, February 2012.

Other Working Experience

Research Assistant, Department of Industrial and Systems Engineering, Rensselaer Polytechnic Institute, October 2009 - July 2013. Advisor: Thomas C. Sharkey.

Risk Analysis and Decision Support Graduate Intern, Los Alamos National Lab, Summer 2011. Managers: Feng Pan and Russell Bent.

Analyst Development Program Rotational Analyst, Progressive Insurance, August 2007 - August 2009. Rotations in HR Systems, Special Lines Pricing, Loss Reserving, and Claims Control.

Professional Affiliations

Institute for Operations Research and Management Science (INFORMS)

- Member 2009-Present
- Optimization Society, Computing Society
- Women in ORMS Forum Secretary

Institute for Industrial Engineers (IIE)

- Member 2011-Present

Omega Rho International Honor Society for Operations Research and Management Science

- Member 2013-Present

Skills

Excellent

★★★

C++, CPLEX ILOG Concert Technology, LaTeX, Microsoft Excel

Proficient

★★☆

Java, MATLAB, AMPL, GAMS, Microsoft Office, VBA