

Kelly M. Sullivan

Assistant Professor
University of Arkansas
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Education

Ph.D. Industrial and Systems Engineering, University of Florida (August 2012).
Dissertation: "Two-Level System Interdiction"
Advisor: J. Cole Smith
M.S. Industrial Engineering, University of Arkansas (August 2008)
B.S. Industrial Engineering, University of Arkansas (December 2006)

Employment

Academic Appointments

Assistant Professor, Industrial Engineering, University of Arkansas (2012–Present)

Other Work Experience

Graduate Assistant, Industrial and Systems Engineering, University of Florida (2008–2012)

Intern, Summer Program for Operations Research Technology (SPORT), National Security Agency (Summer 2010)

Graduate Assistant, Industrial Engineering, University of Arkansas (2006–2008)

Research Interests

Network Optimization
Network Interdiction
Cybersecurity

Optimization in Reliability
Defense Applications

Awards & Honors

2014 **Glover-Klingman Prize**, best paper published in *Networks*

Publications

Papers Accepted or in Print

1. Sullivan, K.M., J.C. Smith, and D.P. Morton. Convex Hull Representation of the Deterministic Bipartite Network Interdiction Problem. *Mathematical Programming*, 145(1-2), 349–376, 2014.

2. Sullivan, K.M., D.P. Morton, F. Pan, and J.C. Smith. Securing a Border Under Asymmetric Information. *Naval Research Logistics*, 61(2), 91–100, 2014.
3. Sullivan, K.M. and J.C. Smith. Exact Algorithms for Solving a Euclidean Maximum Flow Network Interdiction Problem. *Networks*, 64(2), 109–124, 2014. (Winner of the 2014 Glover-Klingman Prize awarded to the best paper published in *Networks*.)
4. Sullivan, K.M., D.T. Abdul-Malak, J.P. Kharoufeh, and R.O. Baldwin. Optimally Locating Application Virtualization Resources on a Network. *Military Operations Research*, 20(1):5–20, 2015.

Papers Under Review

5. Sullivan, K.M. Mixed-Integer Linear Models for Reliable System Design. Under revision for *IIE Transactions*.
6. Magagnotti, M., K.M. Sullivan, and S.J. Mason. Improving Supply Chain Robustness through Acquisition: A Multi-Objective Approach. *Submitted*.

Papers in Refereed Conference Proceedings

7. Sullivan, K.M. and C.R. Cassady. The CMS+ System for Ranking College Football Teams. *Proceedings of the 2009 Industrial Engineering Research Conference*.
8. Heydari, M., K.M. Sullivan, and E.A. Pohl. Optimal Allocation of Testing Resources in Reliability Growth. *Proceedings of the 2014 Industrial and Systems Engineering Research Conference*.

Presentations

Invited Seminar Presentations

1. Mixed-Integer Linear Programming Models for Reliable System Design. *Invited Seminar, Clemson University, October 2014, Clemson, SC*.
2. Mixed-Integer Linear Programming Models for Reliable System Design. *Invited Seminar, Oklahoma State University, October 2014, Stillwater, OK*.

Grants and Sponsored Projects

1. Co-Principal Investigator (50% responsibility with S.E. Root) Sam's Club, Center for Excellence in Logistics and Distribution (CELDi) Project, \$45,117, 2013.
2. Co-Principal Investigator (50% responsibility with E.A. Pohl) Economic Design and Analysis of Reliability Growth Test Plans, Office of the Secretary of Defense, DT&E (through Air Force Institute of Technology) , \$129,940, 2013–2014.
3. Co-Principal Investigator (50% responsibility with E.A. Pohl) Science of Test: Economic Design and Analysis of Reliability Growth Test Plans, Office of the Secretary of Defense, DT&E (through Air Force Institute of Technology), \$99,992, 2014–2015.
4. Principal Investigator (100% responsibility) Efficient Dredging Strategies for Improving Transportation Infrastructure Resilience, Maritime Transportation Research and Education Center (MarTREC) Project, \$113,747, 2014–2016.
5. Principal Investigator (100% responsibility for UA funds, subcontracted through University of Missouri) Helmerich & Payne, Center for Excellence in Logistics and Distribution (CELDi) Project, \$36,363, 2014–2015.

6. Co-Principal Investigator (50% responsibility with E.A. Pohl) Optimal Allocation of Test Resources in a Reliability Growth Environment, Office of the Secretary of Defense, DT&E (through Air Force Institute of Technology), \$98,574, 2015.

Students Advised

Ph.D. Students Advised

1. Ahadi, Khatereh (anticipated May 2017)
2. Heydari, Mohammad H. (anticipated May 2017)
3. Enayaty, Negin (anticipated May 2018)

M.S. Theses Completed

1. Baycik, N. Orkun. Robust Network Interdiction with Invisible Interdiction Assets, May 2014. (Orkun is currently pursuing a Ph.D. at Rensselaer Polytechnic Institute.)

M.S. Students Advised

1. Yang, Tiffany (anticipated May 2016)

Teaching

University of Arkansas, Department of Industrial Engineering

INEG 2313: Applied Probability and Statistics for Engineers I (*required undergraduate course*)

Topics: Basic probability theory, engineering applications of probability, discrete random variables (binomial, negative binomial, Poisson), continuous random variables (normal, exponential, Erlang, Weibull), multiple random variables, fundamental data analysis, statistical inference for single sample, statistical inference for two samples.

Semester	Enrollment	Evaluations received	Instructor rating (/5)	Course GPA (/4)
Spring 2013	59	27	4.61	2.81
Fall 2014	73	33	4.30	2.70
Spring 2015	76	34	4.26	2.32

INEG 3613: Introduction to Operations Research (*required undergraduate course*)

Topics: Linear programming, simplex algorithm, sensitivity analysis, assignment problem, transportation problem, shortest path, integer linear programming.

Semester	Enrollment	Evaluations received	Instructor rating (/5)	Course GPA (/4)
Spring 2013	71	39	3.58	2.39
Fall 2015	TBD	TBD	TBD	TBD

INEG 6313: Network Optimization (*advanced graduate course, new course development*)

Topics: Graph theory, LP-based graph theory, complexity analysis, minimum spanning tree, shortest path, maximum flow, minimum cost flow, network simplex.

Semester	Enrollment	Evaluations received	Instructor rating (/5)	Course GPA (/4)
Fall 2012*	7	6	4.17	3.86
Fall 2013	6	6	4.50	3.50
Fall 2014	8	8	4.75	3.75
Fall 2015	TBD	TBD	TBD	TBD

*Course was listed as **INEG 514V: Graphs and Networks** in the Fall 2012 semester

University of Florida, Department of Industrial and Systems Engineering

ESI 4312: Operations Research I (*required undergraduate course*)

Topics: Formulating and solving linear programs, the simplex method, basic LP duality, sensitivity analysis, assignment problem, transportation problem, shortest path.

Semester	Enrollment	Evaluations received	Instructor rating (/5)
Spring 2011	50	25	4.8

Service

Intramural (at University of Arkansas)

College of Engineering Honors Committee, 2013–present

INEG Honors Program Coordinator, 2013–present

INEG Scholarship Committee, 2013–present

INEG Undergraduate Committee, 2014–present

INEG Research Committee, 2014–present

INEG Technology and Equipment Committee, 2014–present

INEG Faculty Search Committee, 2013–2014, 2014–2015

INEG Graduate Committee, 2012–2014

Extramural

Chair, IIE South Central Regional Student Paper Competition (2014).

Journal Referee, *Networks* (2010, 2012), *Omega* (2010, 2014), *European Journal of Operational Research* (2012), *IIE Transactions* (2013, 2014 x2), *Operations Research Letters* (2014).

Judge, *ISERC* Best Paper Competition, Homeland Security Track (2013, 2014).

Judge, *ISERC* Doctoral Colloquium Poster Competition (2015).

Panelist, *IIE Transactions* Best Paper Committee (2013).

Panelist, *ISERC* Doctoral Colloquium (2015)

Proposal Review Panelist, NSF (2013).

Session Organizer, INFORMS Annual Meeting (2012 x2, 2013, 2014), INFORMS Computing Society Conference (2013), *ISERC* (2013).

Last updated: June 4, 2015