Shivani Shukla

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Isenberg School of Management
University of Massachusetts, Amherst
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EDUCATION

Ph.D. Candidate, Management Science, University of Massachusetts, Amherst (May 2017 expected)
Department of Operations and Information Management
Isenberg School of Management
University of Massachusetts, Amherst

Dissertation Title: Game Theory for Security Investments in Cyber and Supply Chain Networks
Advisor: Professor Anna Nagurney
John F. Smith Memorial Professor, Isenberg School of Management at UMass Amherst

Fellow, Operations Management and Quantitative Techniques,
Indian Institute of Management, Indore (Aug 2011 – Apr 2012)

M.Sc., Statistics, Gujarat University, Ahmedabad, India (Jun 2009)

B.Sc., Statistics, Gujarat University, Ahmedabad, India (May 2007)

RESEARCH INTERESTS

- Network Economics of Supply Chains, Logistics, Transportation Security, and Cybersecurity
- Computational Game Theory
- Applied Operations Research and Optimization
- Data Analytics and Simulation

AWARDS AND HONORS

- Outstanding Doctoral Student Teaching Award, Isenberg School of Management, University of Massachusetts Amherst, 2016
- Selected for the INFORMS Doctoral Student Colloquium 2016, Nashville, TN, Nov 12, 2016
- Selected for the Production and Operations Management Society (POMS) Doctoral Consortium, Orlando, FL, May 7, 2016
- Best Research Poster Award, Air Force Association Cyber Workshop, Paul Revere Chapter, Sep 23,2015
- Summa Cum Laude for 2014, INFORMS Student Chapter Award (Position held: President, 2013-2014), INFORMS Annual Meeting, Philadelphia, PA, Nov, 2015
- Cum Laude for 2013, INFORMS Student Chapter Award (Position held: President, 2013-2014), INFORMS Annual Meeting, San Francisco, CA, Nov, 2014Full Scholarship from the University of Massachusetts, Amherst for Doctoral Studies; 2012-2016
- Fellowship from the Indian Institute of Management, Ahmedabad for Research, 2012
- Fellowship from the Indian Institute of Management, Indore for Research, 2011
- Shastri Scholarship for Undergraduate Studies, Gujarat University, 2004-2007

JOURNAL PUBLICATIONS

- Models of Cybersecurity Investment Competition vs. Cooperation and Network Vulnerability (with A. Nagurney) (2017), ***European Journal of Operational Research***, DOI: 10.1016/j.ejor.2016.12.034.

- A Supply Chain Network Game Theory Model of Cybersecurity Investments with Nonlinear Budget Constraints (with A. Nagurney and P. Daniele) (2017), ***Annals of Operations Research***, 248(1), 405-427.

- Supply Chain Network Competition in Price and Quality with Multiple Manufacturers and Freight Service Providers (with A. Nagurney, S. Saberi, and J. Floden) (2015), ***Transportation Research Part E***, 77, 248–267.

- A Game Theory Model for Freight Service Provision Security Investments for High Value Cargo (with A. Nagurney, L.S. Nagurney, S. Saberi) (2017), ***submitted.***

BOOK CHAPTER

- A Supply Chain Game Theory Framework for Cybersecurity Investments under Network Vulnerability (with A. Nagurney, L.S. Nagurney) (2015), ***Computation, Cryptography and Network Security***, edited by Nicholas Daras and Michael Themistocles Rassias, Springer International Publishing Switzerland, 381- 398.

ACADEMIC EXPERIENCE

Graduate Research Associate (Sep 2012 – present)

Department of Operations and Information Management
University of Massachusetts, Amherst

Center Associate (Sep 2012 - present)

The Virtual Center for Supernetworks
University of Massachusetts, Amherst

Instructor (Sep 2014 – present)

Department of Operations and Information Management
University of Massachusetts, Amherst

- Fall 2014 – OIM 240: Business Data Analysis
- Spring 2015 – OIM 240: Business Data Analysis
- Summer 2015 – OIM 240: Business Data Analysis (online)
- Fall 2015 – OIM 240: Business Data Analysis
- Fall 2016 – OIM 240: Business Data Analysis
- Fall 2016 – OIM 301: Introduction to Operations Management (online)
- Spring 2017 – OIM 240: Business Data Analysis

Teaching Assistant (Jan 2013 – Dec 2013)

Department of Operations and Information Management
University of Massachusetts, Amherst

- Spring 2013 – OIM 210-C: Introduction to Business Information Systems, Instructor: Professor Ryan Wright
- Fall 2013 – OIM 413: Logistics and Transportation, Instructor: Professor Anna Nagurney

Research Associate, Public Systems Group (Feb 2011 – Jun 2011)

Indian Institute of Management, Ahmedabad

Research Associate, Public Systems Group (Jul 2007 – Aug 2008)

Indian Institute of Management, Ahmedabad

INDUSTRY EXPERIENCE

InfoAnalytica Consulting Pvt. Ltd., Ahmedabad, India (Sep 2008 – Sep 2010)

Role: Project Manager, Research and Analytics
Research and Analysis Division

CONFERENCE AND POSTER PRESENTATIONS

- A Game Theory Model for Freight Service Provision Security Investments for High Value Cargo (with A. Nagurney, L.S. Nagurney, S. Saberi), **New England Decision Sciences Institute** Conference, Springfield, MA, Mar 23, 2017.

- A Supply Chain Network Game Theory Model of Cybersecurity Investments with Nonlinear Budget Constraints (with A. Nagurney and P.Daniele), Invited Session: Cyber Optimization, **INFORMS Annual Meeting,** Nashville, TN, Nov 13-16, 2016.

- A Supply Chain Game Theory Framework for Cybersecurity Investments Under Network Vulnerability (with A. Nagurney and L.S. Nagurney), Abstract selected, **POMS Annual Conference**, Orlando, FL, May 6-9, 2016.

- Multifirm Models of Cybersecurity Investment Competition vs. Cooperation and Network Vulnerability (with A. Nagurney), **New England Security Day, Harvard University**, Cambridge, MA, April 28, 2016.

- A Supply Chain Game Theory Framework for Cybersecurity Investments Under Network Vulnerability (with A. Nagurney and L.S. Nagurney), **INFORMS Annual Meeting**, Philadelphia, PA, Nov 1-4, 2015.

- Supply Chain Network Competition in Price and Quality with Multiple Manufacturers and Freight Service Providers (with A. Nagurney, S. Saberi, J. Floden), **INFORMS Annual Meeting**, Philadelphia, PA, Nov 1-4, 2015.

- A Supply Chain Network Game Theory Model of Cybersecurity Investments with Nonlinear Budget Constraints (with A. Nagurney and P.Daniele), **Poster, Air Force Association, Cyber15 Workshop**, University of Massachusetts, Lowell, MA, Sep 23, 2015.

- A Supply Chain Network Game Theory Model of Cybersecurity Investments with Nonlinear Budget Constraints (with A. Nagurney and P.Daniele), **Poster, New England Security Day, University of Massachusetts, Amherst**, MA, Sep 17, 2015.

- A Supply Chain Network Game Theory Model of Cybersecurity Investments with Nonlinear Budget Constraints (with A. Nagurney and P.Daniele), **Poster, NSF Future Internet Architecture Program Meeting, Massachusetts Institute of Technology**, Cambridge, MA, Jun 1-2, 2015.

- Supply Chain Network Competition in Price and Quality with Multiple Manufacturers and Freight Service Providers (with A. Nagurney, S. Saberi, J. Floden), **POMS Annual Conference**, Washington D.C., May 8-11, 2015.

- A Supply Chain Game Theory Framework for Cybersecurity Investments Under Network Vulnerability (with A. Nagurney and L.S. Nagurney), **Poster, Institute for Social Science Research, "Social Science Research Beyond the Academy", University of Massachusetts, Amherst**, MA, April 24, 2015.

PROFESSIONAL SERVICES/AFFILIATIONS AND LEADERSHIP POSITIONS

Co-editor (Jun 2015 – present)
ORMS Tomorrow, INFORMS Magazine

Volunteer (Sep 2015 – present)
Pro Bono Analytics, INFORMS Initiative

Ad hoc Journal Reviewer for: (i) Networks, (ii) International Journal of Production Economics, (iii) International Transactions in Operational Research

Acting Session Chair, INFORMS Annual Meeting, Philadelphia, PA, Nov 4, 2015

President (Sep 2013 – May 2014)
UMass Amherst Student Chapter of INFORMS

Communications Director (Sep 2012 – May 2013)
UMass Amherst Student Chapter of INFORMS

Member of:

(i) American Statistical Association
(ii) Production and Operations Management Society
(iii) INFORMS: The Institute for Operations Research and the Management Sciences