

# AMANDA J. SCHMITT, Ph.D.

77 Massachusetts Ave., E40-266, Cambridge, MA 02139  
[aschmitt@mit.edu](mailto:aschmitt@mit.edu) ~ (617) 253-1346 ~ <http://web.mit.edu/aschmitt/www>

## EDUCATION

### **LEHIGH UNIVERSITY**

#### ***PhD in Industrial Engineering***

P.C. Rossin College of Engineering and Applied Science

Majors: Stochastics, Logistics; Minor: Statistics

- PhD Dissertation Title: *Strategic Inventory Management for Supply Chains Subject to Supply Uncertainty*
  - Advisor: Dr. Lawrence V. Snyder
- Research focused on supply and demand risk in single and multi-echelon inventory systems

Bethlehem, PA

May 2008

GPA: 3.81

#### ***M.S. in Management Science***

P.C. Rossin College of Engineering and Applied Science

- Area of Concentration: Logistics and Supply Chain Management

May 2007

GPA: 3.80

### **THE PENNSYLVANIA STATE UNIVERSITY**

#### ***M.S. in Industrial Engineering and Operations Research***

The College of Engineering and The Graduate School

- Masters Thesis: *Benefit Analysis of Process Oriented Basis Representation as a Method of Multivariate Statistical Process Control*
  - Advisor: Dr. Russell Barton

University Park, PA

May 2002

GPA: 3.69

#### ***B.S. in Industrial Engineering***

The College of Engineering and The Schreyer Honors College

- Graduated with Honors in Industrial Engineering

May 2002

GPA: 3.71

## RESEARCH EXPERIENCE

### **MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

#### **Center for Transportation and Logistics**

##### ***Postdoctoral Associate***

- Conducting applied supply chain risk research with multiple companies
  - Constructing large simulation models using Arena
  - Quantifying the impact of disruption risk
- Developing analytical models for supply chain disruption risk mitigation
- Supervising thesis projects for Masters of Engineering in Logistics students
  - Advised four June 2009 graduates on industry-sponsored theses
- Refereeing papers for multiple journals, including POMS and IIE Transactions

Cambridge, MA

Aug. 2008-present

**LEHIGH UNIVERSITY****Industrial and Systems Engineering***Research Assistant**IGERT Fellow*

Bethlehem, PA

Sept. 2007-Dec. 2007

Aug. 2004-Aug. 2007

- Constructed analytical and simulation models of single and multi-echelon supply chain inventory levels and costs when supply is uncertain
- Optimized these systems analytically or using math programs
- Developed approximations for closed-form optimal inventory solutions
- Studied the trade-off of average cost and conditional value-at-risk in designing multi-echelon supply chains

**TECHNICAL UNIVERSITY OF EINDHOVEN****Operations Planning Accounting, and Control***Visiting Doctoral Student*

Eindhoven, The Netherlands

Jan.-June 2006

- Worked with Drs. Ton de Kok and Gudrun Keismüller
- Focused on the impact of supply chain disruptions on optimal inventory location in serial supply chains
- Constructed Matlab and Excel simulations to support expected inventory formulations
- Audited coursework on Operations, Planning and Control

**THE PENNSYLVANIA STATE UNIVERSITY****Industrial and Manufacturing Engineering***Research Assistant*

University Park, PA

Mar.-Aug. 2001

- Researched statistical process control methods for process-oriented basis representation of an Intel Corporation manufacturing process under a National Science Foundation grant
- Constructed Matlab simulations to generate multivariate data based on matrix models for statistical analysis

**TEACHING EXPERIENCE****LEHIGH UNIVERSITY***Instructor: Production Analysis*

Bethlehem, PA

Jan.-May 2008

- Taught a 3-credit undergraduate course in Production and Operations Analysis
  - Course was cross-listed as an engineering minor and an industrial engineering elective
  - 19 students came from a variety of majors, including science and business
- Managed lessons, homework, and exams for a cross-functional student base
  - Developed separate exams to address separate learning objectives
- Designed homework assignments to reinforce basic and analytical thinking skills

**THE PENNSYLVANIA STATE UNIVERSITY**

University Park, PA

***Lab Instructor: Simulation Modeling for Decision Support***

Aug. 2001-May 2002

- Instructed multiple sections of 15-25 senior-level industrial engineers in discrete-event simulation
- Taught all lab lecturers, outlining modeling steps and helping students learn the modeling process
- Assisted students with designing and executing Arena simulation models
- Evaluated written project reports and course exams

***Teaching Assistant: Introduction to Engineering Design***

Aug.-Dec. 1998

- Assisted instructing freshman engineers in engineering design and graphics course
- Supervised during lab instruction, assisting students with CAD modeling
- Led evening lab sessions, providing project input and support

**GUEST LECTURES**

- Massachusetts Institute of Technology, Oct. 2008
  - Taught two lectures on multi-echelon inventory for masters-level Logistics Systems course, ESD-260
- Lehigh University, Mar. 2008
  - Taught one lecture on supply disruptions for masters and PhD-level Industrial Engineering course, IE 412

**INDUSTRY EXPERIENCE**

**ETHICON, INC. (Johnson & Johnson)**

Somerville, NJ

***Design Quality Engineer***

June 2002-July 2004

- Led design control, quality, and risk management activities for new product development and changes to existing medical devices
- Achieved six-sigma Green Belt certification in Design Excellence for franchise-wide procedure design and implementation for quality planning
- Performed statistical analysis and reports for competitive assessments, process or product equivalency studies, and inspection threshold settings
- Authored, edited, and approved protocols, strategies, and reports for multidisciplinary team members, such as packaging strategies and design validation protocols
- Trained in Risk Management, Reliability, Quality Engineering, and Design Control

**VECTOR MARKETING CORP.**

Warminster, PA

***Sales Representative: Field Sales Leader***

May-Aug. 2000

- Achieved five sales promotions with \$18,000 in personal sales in 10 weeks
- Promoted to Key Staff member and Certified Field Trainer
- Acted as Team leader, responsible for motivational and instructive speeches at meetings and guiding team members in their daily responsibilities

**MCNEIL CONSUMER HEALTHCARE (J & J)**

Fort Washington, PA

*Assistant National Buyer*

Jan.-July 1999

- Developed and implemented a new method of replenishing backup stores of packaging materials at distribution centers, saving \$8,000 per year
- Expanded use of computer programs for coordinating purchase orders and supplier communication in the packaging-purchasing department
- Trained on SAP and Operations Purchasing tactics

**PUBLISHED PAPERS**

- Amanda J. Schmitt. Using Stochastic Supply Inventory Models to Strategically Mitigate Supply Chain Disruption Risk. *Logistics Spectrum*, Jan. 2008, pp. 22-27

**WORKING PAPERS**

- Amanda J. Schmitt. Strategies for Customer Service Level Protection Under Multi-Echelon Supply Chain Disruption Risk
- Amanda J. Schmitt and Mahender Singh. A Quantitative Analysis of Disruption Risk in a Multi-Echelon Supply Chain
- Amanda J. Schmitt and Lawrence V. Snyder. Infinite-Horizon Models for Inventory Control under Yield Uncertainty and Disruptions
- Amanda J. Schmitt, Lawrence V. Snyder, and Zuo-Jun (Max) Shen. Centralization versus Decentralization: Risk Pooling, Risk Diversification, and Supply Uncertainty in a One-Warehouse Multiple-Retailer System
- Amanda J. Schmitt, Lawrence V. Snyder, and Zuo-Jun (Max) Shen. Inventory Systems With Stochastic Demand and Supply: Properties and Approximations
- Deepak Avari, Naman Dayal, and Amanda J. Schmitt. Inventory Positioning for a Multi-Echelon Distribution Network.

**INVITED BOOK CHAPTERS**

- Amanda J. Schmitt and Brian Tomlin. Sourcing Strategies to Manage Supply Disruptions. In H. Gurnani, A. Mehrotra, and S. Ray, editors, *Managing Supply Disruptions*, Springer-Verlag London Ltd. (forthcoming, 2010 target)

**WHITE PAPERS**

- Amanda J. Schmitt. Learning How to Make Global Supply Networks More Resilient. *MIT Center for Transportation and Logistics White Papers*, Aug. 2009

### **REFEREED PROCEEDINGS PAPERS**

- Amanda J. Schmitt and Mahender Singh. Quantifying Supply Chain Disruption Risk Using Monte Carlo and Discrete-Event Simulation. *Proceedings of the 2009 Winter Simulation Conference*. (forthcoming)
- Amanda J. Schmitt, Lawrence V. Snyder and Zuo-Jun (Max) Shen. Centralization versus Decentralization: Risk Pooling, Risk Diversification, and Supply Uncertainty in a One-Warehouse Multiple-Retailer System. *MSOM 2008 Conference Proceedings*
- Amanda J. Schmitt and Lawrence V. Snyder. Infinite-Horizon Models for Inventory Control under Yield Uncertainty and Disruptions. *MSOM 2006 Conference Proceedings*

### **ADDITIONAL PROCEEDINGS PAPERS**

- Amanda J. Schmitt. Using Stochastic Supply Inventory Models to Strategically Mitigate Supply Chain Disruption Risk. *SOLE 2007 Conference Proceedings*
- Amanda J. Schmitt and Russell Barton. Process-Oriented basis Representation for Multivariate Statistical Process Control. *IIE 2002 Conference Proceedings*
- Lawrence V. Snyder, Amanda J. Schmitt, and Zuo-Jun (Max) Shen. Inventory Systems with Stochastic Demand and Supply: Properties and Approximations. *2008 NSF Engineering Research and Innovation Conference Proceeding*.

### **CONFERENCE PRESENTATIONS & INVITED TALKS**

- Winter Simulation Conference – Dec. 2009 – Austin, TX – *Quantifying Supply Chain Disruption Risk Using Monte Carlo and Discrete-Event Simulation* (forthcoming)
- INFORMS Annual Meeting – Oct. 2009 – San Diego, CA – *Insights from a Practical Application of Supply Chain Disruption Modeling* (forthcoming)
- Penn State OR Colloquium – Feb. 2009 – University Park, PA – *Modeling and Mitigating Supply Chain Disruptions*
- CTL Supply Network Risk Management Symposium – Dec. 2008 – Cambridge, MA – *Modeling Supply Network Risk from Disruptions*
- INFORMS Annual Meeting – Oct. 2008 – Washington, DC – *Inventory Systems with Stochastic Demand and Supply: Properties and Approximations*
- INFORMS Annual Meeting – Nov. 2007 – Seattle, WA – *Risk-Averse Policies in a One-Warehouse Multiple-Retailer System with Demand and Supply Uncertainty*
- SOLE International Logistics Conference – Aug. 2007 – Pittsburgh, PA – *Using Stochastic Supply Inventory Models to Strategically Mitigate Supply Chain Disruption Risk*
- INFORMS International Conference – July 2007 – Rio Grande, PR – *Risk Diversification in a One-Warehouse Multiple-Retailer System with Supply Disruptions*
- INFORMS Annual Meeting – Nov. 2006 – Pittsburgh, PA – *Infinite-Horizon Models for Inventory Control under Yield Uncertainty and Disruptions*

## **HONORS & AWARDS**

- Invited to chair a session at the 2009 Winter Simulation Conference on Transportation and Traffic Systems Simulation
- International Society of Logistics (SOLE) Doctoral Dissertation Proposal Award, 2007
- Selected to participate in the INFORMS 2007 Future Academician Colloquium
- National Science Foundation IGERT fellowship, 2004-2007
- The Marcus Scholarship from Penn State's Industrial Engineering department, 2001

## **ORGANIZATIONS**

- Institute for Operations Research and the Management Sciences (INFORMS), 2005-present
- MIT Postdoctoral Council, 2008-present
- Penn State Alumni Association, Boston Chapter, Philanthropy Committee, 2009
- Dance Marathon Alumni Interest Group (DMAIG) of Penn State, benefiting kids with cancer, 2002-present
- Harvard Radcliffe Chorus, 2008-present; Executive Committee, 2009
- Boston Cares, 2008-present

## **REFERENCES**

- Dr. Lawrence V. Snyder  
Assistant Professor  
Industrial and Systems Engineering  
Lehigh University  
200 W. Packer Ave.  
Bethlehem, PA 18015  
(610) 758-6696  
[larry.snyder@lehigh.edu](mailto:larry.snyder@lehigh.edu)
- Dr. Mahender Singh  
Research Director  
Center for Transportation and Logistics  
Massachusetts Institute of Technology  
77 Massachusetts Ave., E40-293  
Cambridge, MA 02139  
(617) 253-1701  
[msingh@mit.edu](mailto:msingh@mit.edu)
- Dr. Christopher Caplice  
Executive Director  
Center for Transportation and Logistics  
Massachusetts Institute of Technology  
77 Massachusetts Ave., E40-275  
Cambridge, MA 02139  
(617) 258-7975  
[caplice@mit.edu](mailto:caplice@mit.edu)
- Dr. Yossi Sheffi  
Director and Professor  
Engineering Systems Division  
Massachusetts Institute of Technology  
77 Massachusetts Ave., E40-257  
Cambridge, MA 02139  
(617) 253-5316  
[sheffi@mit.edu](mailto:sheffi@mit.edu)