

Vera Tilson

Associate Professor of Operations Management and Analytics (tenured)
Simon Business School
University of Rochester

ACADEMIC RESEARCH

PAPERS PUBLISHED/ACCEPTED IN REFEREED JOURNALS

HEALTHCARE

1. "Intraday dynamic rescheduling under patient no-shows" with A. Shetty and H. Groenevelt, *Health Care Management Science*, forthcoming
2. "Accounting for Capacity: A Real Time Optimization Approach to Managing Observation Unit Utilization," with D. Pachamanova and K. Dwyer-Matzky, *Naval Research Logistics*, 68(2021), pp. 534– 555
3. "Machine Learning, Ethics and Change Management: A Data-Driven Approach to Improving Hospital Observation Unit Operations," with D. Pachamanova and K. Dwyer-Matzky, forthcoming in *INFORMS Transactions on Education*, 22(2022), pp. 178-194, **winner INFORMS 2020 case competition**
4. "Configuring Surgical Instrument Trays to Reduce Costs" with G. Dobson, A. Froix, and A. Seidmann, *IIE Transactions on Healthcare Systems Engineering*, 5(2015), pp. 225-237
5. "Optimizing the timing and number of batches for compounded sterile products in an in-hospital pharmacy", with G. Dobson and D. Tilson, *Decision Support Systems*, 76(2015), pp.53-62
6. "Mathematical Modeling to Reduce Waste of Compounded Sterile Products in Hospital Pharmacies", with G. Dobson, C.E. Haas., and D. Tilson, *Hospital Pharmacy*, 49(2014), pp.616-627
7. "Medication Waste Reduction in an In-hospital Pharmacy", with G. Dobson , *INFORMS Transactions on Education*, 16(2016), pp.68-78, **winner INFORMS 2015 case competition**
8. "Optimal Workflow Decisions for Investigators in Systems with Interruptions", with G. Dobson and T. Tezcan, *Management Science*, 59(2013), pp.1129-1141
9. "Queuing Model to Evaluate the Impact of Patient Batching on Throughput and Flow Time in a Medical Teaching Facility", with G. Dobson, H. Lee, and A. Sainathan, *MSOM*, 14(2012), pp. 584-599
10. "Use of a Markov Decision Process Model for Treatment Selection in an Asymptomatic Disease with Consideration of Risk Sensitivity", with D. Tilson, *Socio-Economic Planning Sciences, special issue on Healthcare*, 47(2013), pp. 172-182
11. "Vermillion OVA1 Test: Teaching Case", *INFORMS Transactions on Education*, 12(2012), pp. 157-163

PROJECT MANAGEMENT

12. "Technical Note -- Managing a Secret Project", with E. Pinker and J. Szmerekovsky, *Operations Research*, 61(2013), pp. 65-72
13. "Scheduling Projects with Stochastic Activity Duration to Maximize EPV", with M. Sobel and J. Szmerekovsky, *European Journal of Operational Research*, 198(2009), pp. 697–705

14. "On the Complexity of Project Scheduling to Minimize Exposed Time", with E. Pinker and J. Szmerekovsky, *European Journal of Operational Research*, 237(2014), pp.487-453

SUPPLY CHAIN

15. "The Impact of Custom Contracting and the Infomediary Role of Healthcare GPOs", with R. Saha and A. Seidmann, *Prod Oper Manag*, 28(2019), pp. 650-667
16. Monopoly Production and Pricing of Finitely Durable Goods with Strategic Consumers' Fluctuating Willingness to Pay", with X. Zheng, *International Journal of Production Economics*, 154(2014), pp.217-232
17. "Literature Survey: Mathematical Models in the Analysis of Durable Goods with Applications to IS Research", with R. Mantena and X. Zheng, *Decision Support Systems*, 53(2012), pp.331-344
18. "Channel Strategies for Durable Goods", with Y. Wang and Y. Wei, *Productions and Operations Management*, 18(2009), pp. 402-410
19. "Analytical model of adoption of item level RFID in a two-echelon supply chain with shelf-space and price-dependent demand", with J. Szmerekovsky and J. Zhang, *Decision Support Systems*, 51(2011), pp. 833-841
20. "Pricing and Allocation of Retail Space with One RFID Enabled Supplier and One Non-RFID Enabled Supplier", with J. Szmerekovsky and J. Zhang, *International Journal of Revenue Management*, 3(2009), pp. 37-55
21. "Monotonicity Properties of Wholesale Price Contracts", *Mathematical Social Sciences*, 56(2008), pp. 127-143

PAPERS PUBLISHED IN REFEREED CONFERENCE PROCEEDINGS

22. "Intra-day Dynamic Rescheduling under Patient No-shows", with A. Shetty and H. Groenevelt, *Proceedings of the 55th Hawaii International Conference on System Sciences* (2022)
23. "Simulation Model to Study Provider Capacity Release Schedules under Time-Varying Demand Rate for Acute Appointments, Demand for Follow-Up Appointments, and Time-Dependent No Show Rate", with F. Yuan, J. Szmerekovsky, R. Spurr, *Proceedings of the 52nd Hawaii International Conference on System Sciences* (2019)
24. "Reducing Costs of Managing Medication Inventory in Automated Dispensing System in Hospital Units", with G. Dobson, S. Sullivan and D. Webster, *Proceedings of the 52nd Hawaii International Conference on System Sciences* (2019)
25. "Quantitative Case Study: Use of Pharmacy Patient Information Systems to Improve Operational Efficiency", with G. Dobson, C.E. Haas, and D. Tilson, *Proceedings of the 47th Hawaii International Conference on System Sciences* (2014)
26. "The Impact of Technology on the Labor Procurement Process", with E. Pinker, *Proceedings of the 44th Hawaii International Conference on System Sciences* (2013)
27. "Inventory Decisions for Durable Goods with Volatile Demand", with X. Zheng, *Proceedings of the 45th Hawaii International Conference on System Sciences* (2012)
28. "Reminder Systems for Reducing No-shows in Office Practices", with L. Cui and G. Dobson, *Proceedings of the 45th Hawaii International Conference on System Sciences* (2012)
29. "Markov Decision Process Model for Treatment Selection for Asymptomatic Intracranial Aneurysm", with D. Tilson, *DSI Conference* (2011), **best Track Paper award**

30. "Literature Survey: Mathematical Models in the Analysis of Durable Goods with Applications to IS Research," with R. Mantena and X. Zheng, *Proceedings of the 44th Hawaii International Conference on System Sciences* (2011)
31. "Unexpected Motivations behind Joining Group Purchasing Organization (GPO)," with R. Saha and A. Seidmann, *Proceedings of the 44th Hawaii International Conference on System Sciences* (2011)
32. "Unanticipated influence of coordination mechanisms on physician workstyles and ED operational efficiency," with D. Tilson, V. Totten, and E. Michelson, *Proceedings of the AMCIS Conference* (2010)
33. "Analytical Model of Adoption of Item Level RFID in a Two-Echelon Supply Chain with Shelf-Space and Price-Dependent Demand," with J. Szmerekovsky and J. Zhang, *Proceedings of the 43rd Hawaii International Conference on System Sciences* (2010)
34. "A Research Agenda for Emerging Roles of Healthcare GPOs and Their Evolution from Group Purchasing to Information Sharing to Strategic Consulting," with R. Saha and A. Seidmann, *Proceedings of the 43rd Hawaii International Conference on System Sciences* (2010)
35. "Operational Performance of a US Emergency Department: Impact of Coordination Mechanisms and Physician Workstyles," with D. Tilson, G. Dobson, E. Michelson and V. Totten, *Proceedings of the 13th International Conference on Productivity and Quality Research* (2008)

WORKING PAPERS

36. "Streamlining ED Workflow: Reducing Length of Stay with Congestion-Triggered Standing Orders" with A. Ingolfsson and S. Samiedaluie, *under review*

PRESENTATIONS

- "Models of the Impact of Triage Nurse Standing and Orders on Emergency Department Length of Stay"
 - MSOM, Munich, June 2022
 - CanQueue Conference, Online, Aug. 2020
- "A Real-time Optimization Approach To Managing Hospital Observation Unit Utilization"
 - POMS International Meeting, Paris, France, July 2023
 - INFORMS Annual Conference, Indianapolis, Oct. 2022
 - INFORMS Annual Conference, Online, Oct. 2021
 - Conference on Health IT and Analytics (CHITA 2020), Online, Oct. 2020
- "Teaching Case: Machine Learning, Ethics and Change Management: A Data-Driven Approach to Improving Hospital Observation Unit Operations"
 - INFORMS Annual Conference, Online, Nov 2020
- "Appointment Management with Cancellations and No-Shows in Family Medicine Clinics"
 - INFORMS Annual Conference, Seattle, WA, Oct. 2019
 - INFORMS Annual Conference, Phoenix, AZ, Nov. 2018
- "Medication Inventory Management for Automatic Dispensing Systems"
 - EURO Conference on Operations Research, Valencia, Spain, July 2018
- "Custom Contract and the Role of Group Purchasing Organizations (GPOs) as Information Intermediaries"
 - POMS Annual Conference, Washington, DC, May 2019
 - Operations Management Seminar, Johnson School, Cornell University, Apr. 2016
 - Management Science Seminar Series, Ivey School, London, ON, Mar. 2016
 - Seminar Series, Stern, NYU, Dec. 2015
 - Decision Sciences Seminar Series, LeBow College of Business, Drexel University, Oct. 2015
 - Rotman School of Management, University of Toronto, Oct. 2015

- Boeing Center for Technology, Information and Manufacturing Seminar Series, Olin Business School at Washington University, Oct. 2015
- Operations and Information Management Faculty Seminars and Workshops, McDonough School of Business at Georgetown University, Sept. 2015
- Omega Seminar Series, Baruch College at CUNY, Sept. 2015
- Mini-conference in honor of Matthew J. Sobel, Weatherhead School of Management at Case Western Reserve University, Apr. 2014
- Fisher College of Business, Ohio State University, Oct. 2013
- EURO Conference on Operations Research, Rome, Italy, July 2013
- "Mathematical Modeling to Reduce Waste of Compounded Sterile Products in Hospital Pharmacies"
 - POMS Annual Conference, Seattle, WA, May 2017
 - INFORMS Conference on Computing, Austin, TX, Jan. 2017
 - INFORMS Annual Conference, Philadelphia, PA, Nov. 2015
 - Toyota-RIT Applied Mathematics Initiative Workshop for K-12 Math Teachers, RIT, July 2015
 - INFORMS Annual Conference, San Francisco, CA, Nov. 2014
 - Aalto University Seminar Series, Helsinki, Finland, June 2014
- "Configuring Surgical Kits to Reduce Costs"
 - MSOM Annual Conference, Toronto, Canada, July 2015
 - INFORMS Annual Conference, San Francisco, CA, Nov. 2014
 - IFORS Conference, Barcelona, Spain, July 2014
- "MDP Model for Asymptotic Intracranial Aneurysm Treatment Selection under Risk Aversion"
 - INFORMS Healthcare Conference, Nashville, TN, Aug. 2015
 - INFORMS Annual Conference, San Francisco, CA, Nov. 2014
- "Adoption of OVA1: A Teaching Case on Decision Making"
 - INFORMS Healthcare, Montreal, Canada, June 2011
- "Inventory Decisions for Durable Goods with Volatile Demand"
 - IFORS 2011, Melbourne, Australia, July 2011
- "Managing a Secret Project"
 - University of Iowa, Sept. 2011
 - KLU, Leuven, Belgium, May 2011
 - UCL, London, UK, May 2011
 - UC Riverside, Riverside, CA, May 2011
 - SMU, Dallas, TX, Apr 2011
 - University of Syracuse, Syracuse, NY, Apr 2011
 - RIT, Rochester, NY, Mar 2011
 - UW, Seattle, WA, Mar 2011
 - CWRU, Cleveland, OH, Feb 2011
- "Biting the Bullet: Investing in a New Health Information System"
 - POMS Annual Conference, Orlando, FL, May 2009
- "Operational Performance of a US Emergency Department: Impact of Coordination Mechanisms and Physician Work Styles"
 - 2008 CIIS Workshop at the Simon Business School, Rochester, NY
- "Impact of Physician Styles on Patient Flow in the ED"
 - INFORMS Annual Conference, Seattle, WA, Nov. 2007

TEACHING

CLASSROOM

Simon Graduate School of Business	Rochester, NY
Operations Management, OMG 402, MBA Core	2018-2022
Healthcare Operations Management, MMM Core	2011-2022
Advanced Quant Business Models, CIS418, MBA/MS elective	2006-2015
Introduction to Programming in Python, CIS191, Undergrad elective	2017
Business Process Redesign, CIS415, MBA elective	2016-2017
Probability Modeling, GBA411, PT MBA core	2016
<i>G. Graydon ('58) and Jane W. Curtis Award for Nontenured Faculty Teaching</i>	2016
<i>Superior MBA teaching award</i>	2009
<i>Teaching Honor Roll</i>	2012,2014,2015, 2020,2021
 Nigerian University of Technology and Management,	 Lagos, Nigeria
NUTM Scholars (Graduate) Program	
Introduction to Operations Management, 14 contact hours online	2021
Introduction to Operations Management, 30 contact hours online	2022
 BITSOM, The BITS School of Management	 Mumbai, India
Operations Management, MBA Core, 30 contact hours online	2021

SUPERVISION OF GRADUATE STUDENTS

- Dissertation Advisor for Xiaobo Zheng (defended in 2013, now at Accenture China)
- Dissertation Committee:
 - Yuting Yuan (now at William and Mary)
 - Aditya Shetty (graduated in 2022)
 - Jagan Jacob (graduated in 2020, now at Xavier University, OH)
 - Engin Cakici (graduated in 2012, now at American University, Washington, DC)
 - Rajib Saha (graduated in 2012, now at Indian School of Business, Hyderabad)
 - Arvind Sainathan (graduated in 2010, now at NTU, Singapore)
 - Bo Hu (graduated in 2009, now at Xerox)
- Advising on second-year papers:
 - Dawn He, 2020-2021
 - Yanting Li, 2020-2021
 - Jagan Jacob (with Gregory Dobson), 2016-2017
 - Leon Cui (with Gregory Dobson), 2010-2011
 - Engin Cakici, (with Minjae Song), 2007-2008
 - H-H Lee, (with Gregory Dobson), 2006
- Masters in Medical Management project supervision:
 - Dashboards for Decreasing Bed Turnover Times, 2020
 - Selection of Acuity Based Software for Nurse Scheduling, 2019
 - Prediction of Inpatient 'Flipping' in Observation Unit, 2018
 - Measuring Benefits of Additional Services in Inpatient Psychiatric Unit, 2018
 - Capacity Analysis Specialty Pharmacy, 2016
 - Strategies for Dealing with Patient No-Shows, 2016

Improving Hospital Patient Transport Services, 2015
 Improving Call Response Times at an Outpatient Clinic (with D. Tilson), 2014
 Reducing Patient Wait Times in Pediatric ED (with D. Tilson), 2014
 Improving Operations of IV Pharmacy, 2012
 Improving Operations at the Otolaryngology Clinic (with G. Dobson), 2006-2008

SERVICE

PROFESSIONAL SOCIETY SERVICE

Associate Editor:

- Health Care Management Science, 2019 - present
- Inform Transactions on Education, 2016 - present

Ad-hoc reviewer for journals:

- Journals: Management Science, Operations Research, MSOM, POMS, EJOR, DSS, IIE Transactions
- Conferences: MSOM, DSI, HICSS
- Textbooks: McGraw Hill Publishing, Sage
- *Inform Transactions on Education Reviewer of the Year, 2021*

Professional Society Committee Service:

- INFORMS Professional Development, Committee Chair, 2019-2021
- Advisory Board INFORMS Continuing Education, 2013-2019
- Judge for INFORMS Student Competition, 2019
- Judge INFORMS Wagner Prize, 2023
- POMS Emergent Scholars Workshop Panelist, 2023

UNIVERSITY OF ROCHESTER

- Academic Affairs Committee Faculty Senate, 2022-present
- Executive Committee, Faculty Senate, 2019-2022
- Faculty Senate Representative on the Board of Trustees Facilities Committee, 2019-2022
- Commission on Women and Gender Equity in Academia, 2017-2019
The commission was the winner of the 2018 Uof R Presidential Diversity Award

SIMON SCHOOL OF BUSINESS

Operations/CIS Area Service:

- Operations/ IS Faculty Search Committee – 2006-present
- Organized 2013, 2015 and 2017 regional workshops for the Center for Information-Intensive Services. Academic participants from Simon, RIT, Syracuse University, SUNY Binghamton, SUNY Buffalo, Cornell University, University of Toronto, Queen's University, Clarkson University, and RPI.

School-wide Committees:

- Decanal Search Committee, 2019-2020
- Decanal Review Committee, 2018
- Faculty Handbook Committee – 2019-present
- Ad hoc Faculty Grievance Committee, 2021
- Graduate Curriculum Committee – 2017-2020
- Dean's Committee on Facilities – 2014-2015
- Administrative Committee, Co-chair – 2013-2015
- Committee on Teaching and Learning – 2010-2012

Program Committees:

- MBA Program Committee – 2015-present
- MS in Business Analytics Program Committee 2016 - 2018
- Dean's Committee on Undergraduate Program 2013
- PhD Student Recruiting and Program Committee – 2007-2010, 2015-2016
- Executive Education Committee – 2013-2015

INDUSTRIAL EXPERIENCE

PROJECT MANAGEMENT EXPERIENCE

TravelAnalytics, Inc.

Cleveland, OH

Project Manager

Managed the development of interactive web-site for vendor rankings. The software developers were located in India.

News Digital Systems, Ltd.

Jerusalem, Israel

Project Manager

News Digital Systems provides video encryption technology to DirecTV in the United States, News Corporation's BskyB television in the UK, Foxtel in Australia, GloboSat in Brazil, and others. I worked with R&D developers and customers in defining requirements and solutions for scrambling BskyB digital broadcasting. Was responsible for scheduling, tracking and assuring quality and timely delivery of the company's product to the customer.

Systems Integration Engineer

I was responsible for installation and integration of digital TV scrambling system at the customer site in Rio de Janeiro, Brazil and of the analog TV scrambling at the customer site at Telstra MultiMedia in Melbourne, Australia. Was responsible for integration of the conditional access scrambling system with the subscriber management systems, video encoders and multiplexers and with the consumer decoder boxes. Provided application on-site support, customer technical training and developed training materials for NDS use.

SOFTWARE DEVELOPMENT EXPERIENCE

QuikCAT.com

Cleveland, OH

Software Developer

Developed a novel color reduction image compression algorithm.

Polydyne Development Corp.

Austin, TX

Software Developer

Polydyne is the industry leader in providing quote process management software for electronic contract manufacturers and their suppliers. Their customers include Motorola, Arrow Electronics, SCI Systems, etc. I worked on the development of QuoteWin – Polydyne's flagship product: a database/EDI supply-chain management software that utilizes SQLWindows and ORACLE technology.

News Digital Systems, Ltd.

Jerusalem, Israel

Software Engineer

As part of the R & D team I designed and developed headend system software for scrambling control of analog Pay TV systems utilizing UNIX, INFORMIX and C++ technologies. Was responsible for coordinating system release to QA, for product integration at the customer site at British Sky Broadcasting in London, UK.

MathSoft, Inc.

Cambridge, MA

Member of the Applied Mathematics Group

Developed dynamic link libraries that added computational functionality to Mathcad. Proposed, prototyped and developed a visual programming environment for in-house use. The introduction of the visual programming environment reduced DLL development time by 75%. Responsible for the definition

and implementation of the API that allows users to add their own functions to Mathcad using the DLL mechanism.

Cobe Laboratories

Lakewood, CO

Software Engineer

Cobe Laboratories was the leading manufacturer of kidney dialysis machines. I developed prototype hardware and embedded software for real-time microprocessor based modules for the dialysis machine, e.g., saline infusion module. I also developed PLC software for product testing in a large-scale manufacturing environment.

PATENT

U.S. Patent #4,899,100 "Microwave Measurement of Mass of Frozen Hydrogen"

EDUCATION

Weatherhead School of Management

Cleveland, OH

Case Western Reserve University

PhD Operations, 2006

Advisors: Matt Sobel and Yunzeng Wang

Colorado School of Mines

Golden, CO

M.S. in Applied Mathematics

Massachusetts Institute of Technology

Cambridge, MA

S.B. in Electrical Engineering