

FAN TSONG TSENG

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Education

University of Texas at Dallas, Ph.D., December 1983, Management Science
Minor: Computer Science
University of Texas at Dallas, M.S.1980, Management
Concentration: Operations Research
National Chiao-Tung University, Taiwan, B.S., 1977, Management Science

Academic Experience

University of Alabama in Huntsville	Professor of Management Science	2005-current
	Chair of Management , Marketing & Information Systems	5/2015-current
	Associate Professor	1990-2005
	Assistant Professor	1985-1990
University of Texas at Dallas	Instructor	1984-1984

Also served as visiting professor/scholar in several other institutions

Principle Teaching Areas

Graduate and undergraduate courses in Business Analytics , Management Science, and Operations Management.

Principle Research Areas

Scheduling, discrete optimization, network optimization, metaheuristics, and simulation. Currently working on applications of operations research techniques in healthcare, supply chains and scheduling.

Other Experiences

Co-founder of Decision Innovations, Inc. Huntsville, Alabama, 2011 - 2016

Honors

Alabama Launchpad Business Competition First Place, UAH College of Business Administration Outstanding Graduate Teaching Award, C. David Billings Fellowship (UAH COB), Stephen Zelnak Professor of Business Award (UAH COB), Outstanding Undergraduate Teaching Award (UAH COB), Outstanding Service Award (UAH COB), Outstanding Research Award (UAH COB), UAH Faculty Award for Excellence (COB) and NASA/COSMIC Software Innovation Awards.

Publications in Refereed Journals (Recent)

F.T. Tseng, Laird Burns, James T. Simpson, & David Berkowitz, "Increasing Army Supply Chain Performance: Using an Integrated End-to-End Metrics System", *Defense Acquisition Research Journal*, January 2017, Vol. 24, No. 1:66-100.

Allen Wilhite, Laird Burns, Ravi Patnayakuni, Fan Tseng, "Military supply chains and closed-loop weapon systems", *International Journal of Production Research*, 52, Issue 7, April 2014, pages 1926-1939.

Frith, K.H., Anderson, E.F., Tseng, F., Fong, E. Nurse staffing is an important strategy to prevent medication errors in community hospitals. *Nursing Economics*.30,(5). 288-294, 2012.

Frith, KH, Anderson, F., Caspers, B., Tseng, F., Sanford, K., Hoyt, N., & Moore, K., "The Effect of Nurse Staffing on Patient Outcomes in Acute Care Hospitals", *Quality Management in Health Care*, 19(2), 1-10, 2010.

F.T. Tseng and E.F. Stafford, "New MILP Models for the Permutation Flowshop Problem," *Journal of the Operational Research Society*, 59 (2008) 1373-1386.

E.F. Stafford, F.T. Tseng, "MILP Models for the Regular MxN Flowshop Sequencing Problem with Separated Setup Times," *International Journal of Operations Research*, 3 (2006), 155-172.

F.T. Tseng, J.N.D. Gupta and E.F. Stafford, "A Penalty Based Heuristic Algorithm for Flowshop Problem with Sequence Dependent Setup," *Journal of Operational Research Society*, 57 (2006) 541-551.

E.F. Stafford, F.T. Tseng, and J.N.D. Gupta, "Comparative Evaluation of MILP Flowshop Models," *Journal of Operational Research Society*, 56 (2005) 88-101.

F. Tseng, E. Stafford, and J. Gupta, "An Empirical Analysis of Integer Programming Formulations for the Permutation Flowshop," *Omega - International Journal of Management Science*, 32 (2004), 285-293.

E. Stafford and F. Tseng, "A Note on 'Redundant' Constraints in Stafford's MILP Model for the Permutation Flowshop Problem," *Journal of Operational Research Society*, 54 (2003), 1102-1105.

E. Stafford and F. Tseng, "Two Models for a Family of Flowshop Sequencing Problems," *European Journal of Operational Research*, 142 (2002) 282-293.

F. Tseng and E. Stafford, "Two MILP Models for the NxM SDST Flowshop Sequencing Problem," *International Journal of Production Research*, 39(8) (2001), 1777-1809.

Publications in Refereed Proceedings (Selected)

Burns, L. A., Tseng, F. (2013). Risk and resilience in global supply networks: how demand, design, and coordination affect financial and operational performance. Cambridgeshire, Cambridge: *Annual Cambridge International Manufacturing Symposium*.

"The effects of demand patterns on supply chain costs for suppliers and manufacturers under supply chain constraints," *Annual Cambridge International Manufacturing Symposium, Cambridge, UK, September 2012*. (with Laird Burns)

"Global network analysis in a military supply chain: Using a systems-based approach to develop a next-generation end-to-end supply chain performance measurement and prediction system," *15th Annual Cambridge International Manufacturing Symposium, Cambridge, September 2010*.(with Laird Burns and David Berkowitz)

"Development of a New Model for the Flowshop Problem," *Proceedings of 2007 IEEE International Conference on Industrial Engineering and Engineering Management*, December 8-11, 2007, Singapore, pp.935-939. (with M. M. Mashhadi and E. F. Stafford)

"New Algorithms for Selecting R Best Elements From an Array," *The Fifth Metaheuristics International Conference Proceedings*, August 25-28, 2003, Kyoto, Japan, 731-737.

"Two MILP Models for the SSIST Flowshop Sequencing Problem," *2001 Decision Sciences Institute National Meetings Proceedings*, San Francisco, California, November 2001, 1010-1012 (with E. Stafford).

Other Research Presented at Conferences (Recent)

Laird Burns and Fan Tseng, "Supply Chain Performance: The Effects of Flexible Inventory Controls on Total Supply Chain Costs", POMS 27th Annual Conference, Orlando, May 6-9, 2016.

Fan Tseng, Karen Frith, Faye Anderson and Patricia Patrician, "Nurse Staffing Performance Evaluation: Data Envelopment Analysis vs. Expert Assessment," *INFORMS Annual Meetings*, Philadelphia, PA, November, 2015.

Fan Tseng, Karen Frith, Faye Anderson and Eric Fong, "Balancing Outcomes of Care: Examining the Contribution of Nurse Staffing to Patient Outcomes," *INFORMS Annual Meetings*, San Francisco, CA, November, 2014.

Laird Burns and Fan Tseng, "Risk and resilience in global supply networks: how demand, design, and coordination affect financial and operational performance", *The Annual Cambridge International Manufacturing Symposium, Cambridge, UK. September 2013*.

Laird Burns and Fan Tseng, "The Impact of Customer Power On Demand Variation And Supply Chain Design: How Savvy Customers Use Negotiating Power With Suppliers to Competitive Advantage", *Decision Sciences Institute 2011 Conference, Boston, MA*.

David Berkowitz, Laird Burns, Wes Colley, Nelson Martin, Ravi Patnayakuni, Fan Tseng, Al Wilhite, "Supply Chain Management End-to End Metrics Initiative", 2011 *NASA/Army/Industry/Academia Systems and Software Engineering Forum, Huntsville, AL*.

Karen Frith, Faye Anderson, Fan Tseng, Eric Fong and Gregory Reed, "The RN Link to Quality Outcomes: Research Findings & Dashboard Proof of Concept Testing", *Catholic Health Initiatives Nurse Executive Summit*. Phoenix, Arizona. October, 2011.

Laird Burns, Fan Tseng, David Berkowitz, "Piercing the Veil of Complexity: The Meaningful Measurement of the Integrated Supply Chain", *Production and Operations Management Society Conference 2011, Reno, NV*.

Tapan P Bagchi, Siddharth Singh, Rajmani Prasad, Aditya H K, J N D Gupta, and Fan Tseng, "Exploring Extreme Value Theory Applications in Operations Scheduling," *Production and Operations Management Society Conference 2011, Reno, NV*.

Laird Burns, Fan Tseng, David Berkowitz, "Military Supply Chains: Characteristics, Challenges and Next Generation Metrics for an Army Supply Chain Command", *Decision Sciences Institute 2010 Conference, San Diego, CA*.

Laird Burns, Fan Tseng, and Berkowitz, David (2010), "Global network analysis in a military supply chain: Using a systems-based approach to develop a next-generation end-to-end supply chain performance measurement and prediction system," *15th Annual Cambridge International Manufacturing Symposium, Cambridge, UK*.

Laird Burns, Fan Tseng, and Berkowitz, David (2010), "Military supply chains: Characteristics, challenges and next-generation metrics for an Army supply chain command," *Decision Sciences Institute 2010 Conference, San Diego, CA*.

Berkowitz, David , Laird Burns, Fan Tseng, and Al Wilhite (2010), "Characteristics, challenges and performance metrics in military supply chains," *INFORMS Deep South Conference 2010 Huntsville, AL*.

Berkowitz, David, Fan Tseng and Jatinder N. Gupta (2010), "Developing Products for A Complex Global Supply Chain," to be presented at the EIRASS conference in Istanbul.

Berkowitz, David, Jatinder N.D. Gupta, Fan Tseng, Laird Burns and Greg Harris (2010), "Designing Products and International Supply Chains," presented in a special session "Examining Issues at the Intersection between Technology and Global Marketing," *Winter Marketing Educators' Conference AMA, New Orleans*.

Berkowitz, David, Ravi Patnayakuni, Fan Tseng, Allen Wilhite (2009), "An End to End View of the AMCOM Supply Chain," Presented at *Forty-Eight Annual Army Operations Research Symposium, Ft. Lee, VA*.

Frith, K., Anderson, F., & Tseng, F. "Nurse Staffing and Patient Outcomes in Acute Care Hospitals." *20th Annual International Nursing Research Congress. Cancun, Mexico, July 17, 2009*.

Frith, K., Anderson, F., & Tseng, F., "Nurse Staffing and Patient Outcomes in Acute Care Hospitals." Catholic Health Initiatives 2008 Nurse Executive Summit. Phoenix, Arizona. Oct. 7 & 8, 2008 (invited speaker).

Frith, K., Anderson, F., & Tseng, F., "Nurse Staffing and Patient Outcomes in Acute Care Hospitals." Beta Phi Research Day, Huntsville, AL. November 12, 2008.

Tseng, F., Gupta, J. N. D., Hsu, K.H., "A Framework for Classifying Hospital Scheduling Problems," The 3rd World Conference on Production Operations Management, Tokyo, Japan, August 5-7, 2008.

Gupta, J.N.D., Tseng F. T., "A Review of Operation Room Scheduling Problems," POMS Annual Conference, La Jolla, CA, May 9-12, 2008.

Tseng, F., Hsu, K.H., "Patient Flow Analysis using Existing Data," Eighteenth Annual Conference of the Production and Operations Management Society, Dallas, TX, May 2007.

Tseng, F., Gupta, J. N. D., "A Review of Scheduling Problems in Hospitals," The Conference on Healthcare Industry & Biotech Industry Management, Taipei, Taiwan, July 2006.

Gupta, J. N. D., Stafford, E., F., Tseng, F., "Minimizing Makespan in Two-Stage Parallel Flowshops," International Conference of the Production and Operations Management Society, Shanghai, China, June 2006.

Tseng, F., Stafford, E., F., Gupta, J. N. D., and Schrage, L., "MILP Models for the Lot Streaming Flowshop," Seventeenth Annual Conference of the Production and Operations Management Society, Boston, MA, May 2006.

"Collinearity and Interaction Terms: Mean Centering vs. Residual Centering," College of Administrative Science Faculty Brown Bag Presentation, September 2005 (with A. Wilhite.)

"Heuristics and Optimal MILP Models for the SDST Flowshop Scheduling Problem," Chang Gung University, College of Management, Seminar, June 2005.

"TSP Formulations for the SDST Flowshop Scheduling Problem," Sixteenth Annual POMS Conference, Chicago, April 29 - May 2, 2005 (with J. Gupta.)

Research Grants or Contracts (Recent)

"Developing a Data Envelopment Analysis (DEA) Module for Implementation in Nurse Staffing Decision Support Software," UAH Charger Innovation Fund, \$46,715, Tseng, F. (PI), Anderson, E. Frith, K., & Fong, E. April 2013- July 2014.

"End to End Supply Chain Metrics," U.S. Army Materiel Command, May 2010 – April 2012, \$2,600,000 (with D. Berkowitz et al.)

"Refinement and Testing of Nursing Services Dashboard," UAH University Infrastructure Investment Grant Program, \$82,932, May 2010 – April 2011 (with K. Krith and F. Anderson).

“End to End Supply Chain Metrics,” U.S. Army Materiel Command/ U.S. Army Aviation and Missile Command, August 2009 – August 2010, \$800,000 (with D. Berkowitz et al.)

“Enhancing The Army Supply Chain,” U.S. Army Aviation and Missile Command, February 2009 – December 2009, \$500,000 (with R. Greenwood et al.)

Development of a Nursing Services Dashboard to Predict and Track the Effect of Nurse Staffing on Patient Outcomes, UAHuntsville Research Infrastructure Investment Grant, Frith, K. (PI), Anderson, F., & Tseng, F. March 2009.

“Analysis of Nursing Staffing and Adverse Patient Events in Acute Care Hospitals,” UAH University Infrastructure Investment Grant Program, 2008 (with K. Krith and F. Anderson).

“Group Technology and the Efficiency of Hospital Operations”, UAH College of Administrative Science, Stephen Zelnak Business Professorship, 2006.

Other grants and contracts include a number of optimization and simulation projects funded by the NASA, U.S. Army, State of Alabama and other organizations on topics such as loop optimization, efficiency of hospital operations, and complex manufacturing system simulation.