

Esma S. Gel

Arizona State University,
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- EDUCATION
- ◇ **Northwestern University**, Evanston, IL.
Ph.D. in Industrial Engineering, December, 1999, GPA 4.0.
 - *Specialization*: Stochastic modeling and control of production systems, queueing theory techniques for performance evaluation.
 - Major in Applied Probability, minor in Production and Economics, and minor in Optimization.
 - Advisors: Wallace J. Hopp, and Mark P. Van Oyen
 - Dissertation title: *Stochastic Models of Workforce Agility in Manufacturing Systems*
 - ◇ **Northwestern University**, Evanston, IL.
M.S. in Industrial Engineering, December 1995, GPA 4.0.
 - ◇ **Middle East Technical University (METU)**, Ankara, Turkey.
B.S. in Industrial Engineering, June, 1994.
GPA 3.9/4.0 with 1st ranking out of 77 graduates
 - ◇ **Scholarships & Fellowships**
 - Walter P. Murphy Fellowship for graduate study at Northwestern University (1994)
 - The Scientific and Technical Research Council of Turkey scholarship (1994)
 - Alarko, Inc. Scholarship for undergraduate academic achievement, Turkey (1993)
- HONORS & AWARDS
- ◇ **Award**: Dr. Hamed K. Eldin Outstanding Young Industrial Engineer of the Year, given by the Institute of Industrial Engineers (IIE), 2008
- SELECTED RESEARCH INTERESTS
- Stochastic modeling and control of manufacturing and service systems; Workforce engineering (workforce flexibility/agility and worksharing systems); Healthcare systems engineering (medical decision making and hospital/ER operations management); Supply chain management (dynamic price and lead time quotation, inventory systems with record inaccuracies); Multiple criteria combinatorial optimization (interactive solution methods)
- ACADEMIC EXPERIENCE
- ◇ **Associate Professor, Arizona State University**, July 2007 - Present
School of Computing, Informatics and Decision Systems Engineering,
Industrial Engineering, P.O. Box 5906, Tempe, AZ 85287-5906
 - ◇ **Program Chair, Arizona State University**, August 2011- Present
Industrial Engineering Program
 - ◇ **Visiting Associate Professor, Koç University**, Sept. 2008 - June 2009
On sabbatical leave at the Department of Industrial Engineering, Istanbul, Turkey
 - ◇ **Assistant Professor, Arizona State University**, January 2000 - June 2007
Department of Industrial Engineering, P.O. Box 5906, Tempe, AZ 85287-5906
 - Undergraduate Courses Taught:
 - IEE 470 Stochastic Operations Research
 - IEE 461 Production Control
 - IEE 376 Operations Research

- Graduate Courses Taught:
 - IEE 534 Supply Chain Modeling and Analysis (in-class and online)
 - IEE 561 Production Systems - Factory Physics (in-class and online)
 - IEE 575 Stochastic Operations Research (M.S. core course)
 - IEE 640 Probability and Stochastic Processes (Ph.D. core course)
 - IEE 598 Stochastic Dynamic Programming (Ph.D. elective course)

◇ **Graduate Student**, September 1994 - December 1999

Northwestern University, Department of Industrial Engineering and Management Sciences, Evanston, IL.

- **Research Assistant**, with Dr. Wallace J. Hopp and Dr. Mark Van Oyen, September 1996 - June 1997; October 1997 - December 1999
Stochastic control of manufacturing systems, queueing theory, stochastic modeling of workforce flexibility.
- **Research Assistant**, with Dr. Wallace J. Hopp, July - September 1997
Development and validation of the research code Queueing Cost of Ownership Model (QCoOM), a capacity planning tool for the design of new and reconfigured semiconductor fabrication facilities.
- **Summer Intern, Motorola Inc.**, June - August, 1996
Materials Research and Strategic Technologies, Semiconductor Products Sector, Phoenix, AZ. Verification and validation of QCOOM through comparisons with the company's simulation engine, ManSim and Sematech's Cost of Ownership Model using Motorola fab data.
- **Teaching Assistant**, September 1995 - May 1996
Assisted in the instruction of three undergraduate Industrial Engineering classes as well as graduate level courses including Probability, Statistics, Mathematical Programming, marketing, and Operations Management. Lectured several times, organized lab sessions, graded exams and homework assignments.
- **Research Aid, Argonne National Laboratory**, June - August, 1995
Reactor Analysis Division, Argonne, IL. Digital signal processing, development of statistical data analysis tools for the commercial implementation of a nuclear reactor surveillance system.

RESEARCH
PROJECTS

◇ **Funded Research Awards**

- **National Science Foundation**, "GOALI Collaborative Research: Matching Demand and Supply through Price and Lead Time Decisions," P. Keskinocak and E. S. Gel (50%), \$360,000, 9/1/2007-8/31/2010.
- **IBM**, "Supply Network Modeling: Tight integration versus Loose Integration," T. Callarman, J. W. Fowler and E. S. Gel (33%), \$54,000, 01/04-12/04.
- **National Science Foundation**, Division of Design, Manufacture and Industrial Innovation, Manufacturing Enterprise Systems; "SGER: Identification of General Probability Models for a Taxonomy of Manufacturing Processes" E. S. Gel (50%) and N. F. Hubele, \$99,936, 9/15/02 - 8/31/03.
- **National Science Foundation**, Division of Electrical and Communications Systems, and **Office of Naval Research**; "EPNES: Integrated MEMS and Advanced Technologies for the Next Generation Power Distribution System," G. T. Heydt, G. G. Karady, E. S. Gel (20%), B. C. Kim, N. F. Hubele, \$399,968, 10/1/02 - 9/30/05.
- **National Science Foundation**, Division of Mathematical Sciences, Applied Mathematics; "Dynamics of Production and Supply Networks," D. H. Armbruster, E. S. Gel (33%), and C. Ringhofer, \$189,922, 8/15/02 - 8/31/05.

- **National Science Foundation**, Division of Design, Manufacture and Industrial Innovation, Operations Research; “Collaborative SGER: Solution Evaluation Methods for Multi-Objective Combinatorial Optimization Algorithms,” W. M. Carlyle, J. W. Fowler, E. S. Gel (33%), Mark S. Daskin and Collette Coullard, \$100,000, 6/15/01 - 5/31/02.
- **ASU Institute of Manufacturing and Enterprise Systems**, “An Integrated Approach to Workforce Planning and Control,” E. S. Gel, W. M. Carlyle, J. W. Fowler and R. Cardy, \$35,000, 9/01-9/02.
- **Infineon Technologies, AG**, “Modeling and Simulation for Productivity Improvement of a Semiconductor Manufacturing Facility,” J. W. Fowler and E. S. Gel (33%), \$75,485, 1/1/00 - 12/31/01.
- **Semiconductor Research Corporation**, “Scheduling of Semiconductor Wafer Fabrication Operations,” J. W. Fowler, W. M. Carlyle, G. Runger and E. S. Gel (12%), \$271,088, 1/1/01 - 12/31/03.
- **Intel Corporation**, “A Modular, Scalable Approach to Modeling and Analysis of Semiconductor Manufacturing Supply Networks,” J. W. Fowler, H. D. Armbruster, W. M. Carlyle, L. M. Ellram, E. S. Gel (7%), K. Knutson, D. Rivera, D. Shunk, and T. E. Callarman, \$150,000, 4/1/01 - 12/31/02.

◇ **Awards for Research on Teaching, Curriculum Development, and Outreach**

- **National Science Foundation**, “Arizona State University Affiliation with the Center for Engineering Logistics and Distribution (CELDi),” R. Villalobos, E. S. Gel, and R. Askin, \$99,856, 09/01/2008-08/31/2010.
- **National Science Foundation**, “Arizona State University Affiliation with the Center for Engineering Logistics and Distribution,” R. Villalobos and E. S. Gel, \$10,000, 8/1/2007-7/31/2008.
- **USAID**, “US-Mexico Partnership on Education and Technology Transfer for the Aerospace Industry,” R. Villalobos, J. W. Fowler, and E. S. Gel (33%), \$299,956, 5/1/04 - 5/31/07.
- **National Science Foundation**, “A Plan for Competency-Based Individualized Curriculum for Engineering Education,” D. L. Shunk, E. S. Gel (40%), G. Hogg, W. M. Moor, D. Evans, \$100,000, 1/1/03 - 12/31/03.
- **CRESMET-ASU Faculty Grant-in-Aid**, “A New Multidisciplinary Approach to Stochastic modeling Education,” E. S. Gel (100%) and C. Greenwood, \$10,000, 3/1/01-6/31/01.

PUBLICATIONS ◇ **Refereed Journal Articles**¹

- Gel, E. S., W. J. Hopp, and M. P. Van Oyen, 2002, Factors affecting opportunity of worksharing as a dynamic line balancing mechanism, *IIE Transactions*, **34**(10), pp. 847-863.
- Van Oyen, M. P., E. S. Gel, and W. J. Hopp, 2001, Performance opportunity for workforce agility in collaborative and noncollaborative work systems, *IIE Transactions*, **33**(9), pp. 761-777.
- Hopp, W. J., M. L. Spearman, S. Chayet, K. L. Donohue, and E. S. Gel, 2002, Using an optimized queueing network model to support wafer fab design, *IIE Transactions*, **34**(2), pp. 119-130.
- Carlyle, M. W., J. W. Fowler, E. S. Gel, **B. Kim**, 2003, Quantitative comparison of approximate solution sets for bi-criteria optimization problems, *Decision Sciences*, **34**(1), pp. 63-82.

¹In chronological order, student participants listed in bold

- Ye, N., E. S. Gel, **X. Li**, T. Farley, and Y.-C. Lai, 2005, Web server QoS models: applying scheduling rules from production planning, *Computers & Operations Research*, **32**(5), pp. 1147-1164.
- Fowler, J. W., **B. Kim**, W. M. Carlyle, E. S. Gel, and S.-M. Horng, 2005, Evaluating A Posteriori Solution Techniques for Bi-Criteria Parallel Machine Scheduling Problems, *Journal of Scheduling*, **8**(1), pp. 75-96.
- **Kim, B.**, E. S. Gel, J. W. Fowler, W. M. Carlyle, and J. Wallenius, 2005, Evaluation of non-dominated solution sets for k -objective optimization problems: An exact method and approximations, *European Journal of Operational Research*, **173**(2), pp. 565-582.
- Karady, G. G. , G. T. Heydt, E. S. Gel, and N. F. Hubele, 2005, The utilization of Micromechanical Devices in a Power Circuit Breaker,” *Electric Power Component and Systems*, **33**(10), pp. 1159-1174.
- Hubele, N. F., **A. Berrado**, and E. S. Gel, 2005, A Wald Test for Comparing Multiple Capability Indices, *Journal of Quality Technology*, **37**(4), pp. 304-307.
- Armbruster, D. and E. S. Gel, 2006, Bucket Brigades Revisited: Are they always effective?, *European Journal of Operational Research*, **172**(1), pp. 213-229.
- **Berrado, A.**, N. F. Hubele, and E. S. Gel, 2006, An empirical investigation into the distribution of flatness measurements, *Quality Engineering*, **18**(3), pp. 351-357.
- Armbruster, D., E. S. Gel, and **J. Murakami**, 2007, Bucket brigades with worker learning, *European Journal of Operational Research*, **176**(1), pp. 264-274.
- Gel, E. S., W. J. Hopp, and M. P. Van Oyen, 2007, Hierarchical cross-training in WIP-constrained environments, *IIE Transactions*, **39**, pp. 125-143.
- **Duarte, B.**, J. W. Fowler, K. Knutson, E. S. Gel, and D. Shunk, 2007, A Compact Abstraction of Manufacturing Nodes in a Supply Network, *International Journal of Simulation and Process Modelling, (Special issue on Supply Chain Modeling and Simulation)*, **3**(3), pp. 115-126.
- **Wirojanagud, P.**, E. S. Gel, J. W. Fowler, and R. Cardy, 2007, Modeling inherent worker differences for workforce planning,” *International Journal of Production Research*, **45**(3), pp. 525-553.
- **Vardar, C.**, E. S. Gel, and J. W. Fowler, 2007, “A framework for evaluating remote diagnostics investment decisions for semiconductor equipment suppliers,” *European Journal of Operational Research*, **180**(3), pp. 1411-1426.
- Gel, A., S. Pannala, M. Syamlal, T. J. O’Brien, and E. S. Gel, 2007, “Comparison of frameworks for next-generation multiphase flow solver, MFIX: A group decision-making exercise,” *Concurrency and Computation: Practice and Experience*, **19**(5), pp.609-624.
- Fowler, J. W. , **P. Wirojanagud**, and E. S. Gel, 2008, “Heuristics for workforce planning with worker differences,” *European Journal of Operational Research*, **190**(3), pp. 724-740.
- **Bozkurt, B.**, J. W. Fowler, E. S. Gel, **B. Kim**, M. Koksalan, and J. Wallenius, 2010, “Quantitative Comparison of Approximate Solution Sets for Multi-Criteria Optimization Problems with Weighted Tchebycheff Preference Function,” *Operations Research*, **58**(3), pp. 650-659.
- Gel, E. S., N. Erkip, and **A. Thulaseedas**, 2010, “Analysis of simple inventory control systems with execution errors: Economic impact under correction opportunities,” *International Journal of Production Economics*, **125**, pp. 153-166.
- Fowler, J. W., E. S. Gel, M. Koksalan, P. Korhonen, **J. Marquis** and J. Wallenius, 2010, “Interactive Evolutionary Multi-Objective Optimization for Quasi-Concave Preference Functions,” *European Journal of Operational Research*, **206**(2), pp. 417-425.

- **Hafizoglu, A. B.**, E.S. Gel and P. Keskinocak, 2011, “Expected Tardiness Computations in Multi-class Priority $M/M/c$ queues,” **to appear**, *Journal of Computing*.

◇ **Under Review or Revision**

- **Ramirez-Nafarrate, A., A. B. Hafizoglu**, E. S. Gel, and J. W. Fowler. “Optimal Ambulance Diversion Control Policies, 2011, **under review**, *Manufacturing and Service Operations Management*.
- **Murguia, E.**, E. S. Gel and D. Armbruster, 2011, “Bucket Brigades with Handovers at Discrete Stations,” **under review**, *European Journal of Operational Research*.
- **Yucel, E.**, F. S. Salman, E. S. Gel, L. Ormeci, and A. Gel, 2011, “Optimizing Specimen Collection for Processing in Clinical Testing Laboratories,” **under minor revision**, *European Journal of Operational Research*.
- E. S. Gel, F. S. Salman, **A. B. Hafizoglu**, and **E. Sancak**, 2011, “Dynamic Parts Ordering under Random Supply with Bayesian Updates of Supplier Capability,” **under revision** for *IIE Transactions*.
- **Hafizoglu, A. B.**, E. S. Gel and P. Keskinocak, 2011, “Price and Lead Time Quotation for Contract and Spot Customers,” **to be submitted**, *Operations Research*.

◇ **Work In Progress**

- **Hafizoglu, A. B.**, P. Keskinocak, and E.S. Gel, Centralized and Decentralized Dynamic Price and Lead Time Quotation.
- **Morris, S.**, J. Smith, J. Paulauskis, R. Penny, D. Van den Boom, P. Oeth, and E. S. Gel, Two algorithms for Biospecimen Comparison and Differentiation using SNP Genotypes.
- **Clough, M. C.**, T. Jacobs, E. S. Gel, A Proposed Choice-based Mixed Integer Program for the Network Revenue Problem.
- **Yucel, E.**, E. S. Gel, L. Ormeci, and F. S. Salman, Logistics of Clinical Testing: A Bicriteria Hybrid Tabu Search for Routing and Scheduling of Specimen Collection.
- **Yucel, E.**, F. S. Salman, L. Ormeci, and E. S. Gel, An approximation algorithm for multi-vehicle collection for processing problem with accumulating workload at nodes.
- **Murguia, E.**, E. S. Gel and D. Armbruster, Effective Line Reset Policies for Bucket Brigades with Constrained Handover Points.
- **J. Marquis**, Fowler, J. W., E. S. Gel, M. Koksalan, P. Korhonen and J. Wallenius, Interactive Evolutionary Multi-Objective Scheduling.
- **J. Marquis**, E. S. Gel, Fowler, J. W., M. S. Daskin, M. Koksalan and J. Wallenius, Multi-Objective Facility Location with a Hybrid Interactive Evolutionary Algorithm.
- **J. Marquis**, E. S. Gel, Fowler, J. W., M. Koksalan and J. Wallenius, Impact of Decision maker Inconsistencies in an Interactive Evolutionary Algorithm for Multi-objective Combinatorial Optimization Problems.
- Gel, E. S., A. B. Keha, G. Runger, and **L. Xue**, Using Integer Programming to Reduce Redundancy in Rule Based Classification.
- Gel, E. S., J. W. Fowler and **K. Howala**, Queueing Approximations for Capacity Planning under Common Setup Rules.

◇ **Book Chapters/Refereed Conference Papers**

- Van Oyen, M. P., E. S. Gel and W. J. Hopp, 1997, Performance opportunity for flexible workers, Proceedings of the 35th Annual Allerton Conference on Communication, Control and Computing, September 1997, pp. 553-562.

- Hopp, W. J., M. P. Van Oyen and E. S. Gel, 1999, Workforce agility: Classification and Modeling, Part I", 1999 NSF Design and Manufacturing Grantees Conference, January 1999, Long Beach, CA.
- Kim, B., E. S. Gel, W. M. Carlyle, J. W. Fowler, 2001, A new technique to compare algorithms for bi-criteria combinatorial optimization problems, *MCDM in the New Millennium*, M. Koksalan and S. Zions, eds., Lecture Notes in Economics and Mathematical Systems, Vol. 507, Springer Verlag, pp. 113-123.
- Carlyle, W. M., B. Kim, J. W. Fowler and E. S. Gel, 2001, Comparison of multiple objective genetic algorithms for parallel machine scheduling algorithms, *Evolutionary Multi-Criteria Optimization*, Zitzler et al., eds. Lecture Notes in Computer Science, Vol. 1993, pp. 472-485.
- Scholl, W., E. S. Gel, **K. Khowala** and J. W. Fowler, Use of Analytical Queuing Approximations to Set Processing Step Performance Targets at Infineon Technologies, *Proceedings of the International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2002)*, Eds. Mackulak, Fowler and Schomig, April 2002, Dresden, pg. 206.
- Duarte, B.M., Fowler, J.W., Knutson, K., Gel, E., and Shunk, D., Parameterization of Fast and Accurate Simulations for Complex Supply Networks, *Proceedings of the Winter Simulation Conference*, San Diego, CA, Dec. 8-11, 2002, pp. 1327-1336.
- Daskin, M. S., W. M. Carlyle, E. S. Gel and J. W. Fowler, Experiments with an Integrated Preference Function for Assessing a Genetic Algorithm for the Center-Median Location Tradeoff, *Proceedings of 2003 NSF Design and Manufacturing Grantees Conference*, January 2003, Birmingham, AL.
- Heydt, G. T., D. S. James, E. Gel, M. Albu, and N. F. Hubele, The reliability analysis of high power switches composed of series and parallel branches, *Proceedings of the 2003 IEEE Power Engineering Society General Meeting*, 2003, 1:1-8.
- Hubele, N.F., E. S. Gel and **A. Berrado**, Identification of probability models for flatness data, *Proceedings of 2004 NSF Design and Manufacturing Grantees Conference*, January 2004, Dallas, TX.
- **Vardar, C.**, J. W. Fowler, and E. S. Gel, 2004, Designing a Field Service System for Semiconductor Manufacturing Systems for Remote Diagnostics Era, *Proceedings of the 12th Annual Industrial Engineering Research Conference*, May 15-19, 2004, Houston, TX.
- Callarman, T., J. W. Fowler, E. S. Gel, M. Pfund, D. Shunk, 2004, Creating a Research Agenda Framework for Semiconductor Supply Network Integration, *Evolution of Supply Chain Management: Symbiosis of Adaptive Value Networks and ICT*, edited by Y.S. Chang, H.C. Makatsoris, and H.D. Richards, Kluwer Academic Publishers, Ch. 6, pp. 161-201.
- Hubele, N. F., E. S. Gel, and **A. Berrado**. Probability Models, Control and Capability Comparison, *Proceedings of 2005 NSF Design and Manufacturing Grantees Conference*, January 2005, Scottsdale, AZ.
- **Vardar, C.**, E. S. Gel, and J. W. Fowler, 2005, Using transient simulations to improve field service systems for semiconductor manufacturing, *3rd International Conference on Modeling and Analysis of Semiconductor Manufacturing*, October 2005, Singapore, pp. 140-146.
- **Wirojanagud, P.**, J. W. Fowler, and E. S. Gel, 2005, Workforce Planning in Semiconductor Manufacturing, *3rd International Conference on Modeling and Analysis of Semiconductor Manufacturing*, October 2005, Singapore, pp. 222-230.
- **Marquis, J.**, J. Fowler, E. S. Gel, M. Koksalan, P. Korhonen, and J. Wallenius, 2007, Interactive Evolutionary Multicriteria Scheduling. *3rd Multidisciplinary International Conference on Scheduling: Theory and Applications*, pp. 591-594.

- **Bekki, Ö. B.** and E. S. Gel, 2008, Dynamic Price and Lead-time Quotation in a Make-to-order System: Approximate Solutions, *Proceedings of the 2008 Industrial Engineering Research Conference*, Vancouver, CA.
- Karady, G. G., G. T. Heydt, E. Gel, and N. Hubele, 2008, Power Circuit Breaker using MicroElectroMechanical Switches (MEMS), *Operation and Control of Electric Energy Processing Systems*, edited by J. Momoh and L. Mili, Wiley, Chp. 4.
- Gel, A., E. S. Gel, L. Örmeci, F. S. Salman, **E. Yücel**, 2009, Designing Routes to Match Collected Workload with the Processing Capacity, *Proceedings of the International Workshop on Freight Transportation and Logistics (ODYSSEUS)*, May 26-29 2009, Cesme, Turkey.
- Gel, E.S., Keskinocak, P., and A.B. Hafizoglu, 2011, Price and Lead Time Quotation Strategies for Systems with Contracted Customers and Spot Purchasers, *Engineering Research and Innovation Conference*, Atlanta, GA, USA.

STUDENTS	<p>Ph.D. Advisees: Cem Vardar, Pornsarun Wirojaganud, Özgün B. Bekki, Jon Marquis, Erika Murquia, Ahmet B. Hafizoglu, Eda Yucel (Koc University), Scott Morris, Michael Clough, Siddhartha Sampath</p> <p>M.S. Advisees: Anoop Thulaseedas, Ketan Khowala, Ashish Malhotra, Emin A. Tarriven (Koc University), Emre Sancak (Koc University)</p>
PROFESSIONAL AFFILIATIONS	<p>Institute for Operations Research and Management Science (INFORMS): Manufacturing and Service Operations Management Subdivision, Section on Multiple Criteria Decision Making, Women in OR/MS Forum</p> <p>Institute of Industrial Engineers (IIE)</p> <p>American Society of Engineering Education (ASEE)</p>
WORKSHOPS	<p>◇ Selected to participate in the New Century Scholars: Teaching, Learning and Your Academic Career Workshop at Stanford University as one of the thirty new engineering faculty members selected nationwide, July 28 - August 2, 2002.</p> <p>◇ Effective Teaching: A Workshop, by Richard M. Felder and Rebecca Brent, College of Engineering and Mines, The University of Arizona, April 13-14, 2000.</p> <p>◇ Making Grading a Delight, Center for Learning and Teaching Excellence, ASU, February 16, 2000.</p>
PROFESSIONAL SERVICE	<p>◇ Associate Editor; OMEGA, Flexible Services and Manufacturing Journal, Interfaces-Special Issue on Humanitarian Logistics</p> <p>◇ Reviewer for</p> <p>Misc. NSF Unsolicited Proposals Review Panel: DMII, MES, 2002, CMMI MES, 12/2007; CDI Type I Preproposal Review, 02/2008.</p> <p>Book McGraw-Hill, Factory Physics, 2/e by Hopp and Spearman, October 2002.</p> <p>Jour. Operations Research Manufacturing & Service Operations Management Journal of Operations Management IEEE Transactions on Engineering Management IIE Transactions - special issue on Workforce Agility European Journal of Operations Research Quality and Reliability Engineering International Journal of Manufacturing Systems IIE Transactions -on Manufacturing Systems Modeling Computers and Operations Research IIE Transactions -on Scheduling and Logistics</p>

- Conf. 35th Annual Allerton Conference on Communication, Control and Computing
 15th International Multiple Criteria Decision Making Conference
 2006 Manufacturing and Service Operations Management Conference
- ◇ **Chair**, First IIE Doctoral Colloquium Organization Committee, with B. Bidanda and M. Dessouky, IERC, May 2002.

CONFERENCES ◇ **Session Chair**

- Served as session chair in various conferences, since 2000.

◇ **Cluster Chair**

- “Semiconductor Manufacturing,” with W. M. Carlyle, INFORMS International Meeting 2001, Hawaii.
- “Workforce Agility: Issues of Planning and Control,” INFORMS Annual Meeting, 2003, Atlanta, GA.
- “Workforce Flexibility,” with N. Argon, INFORMS National Meeting, 2005, San Francisco, CA.
- “Workforce Engineering,” with R. Askin, INFORMS National Meeting, 2007, Seattle, WA.
- “Workforce Engineering and Management,” with Yun Fong Lim, INFORMS National Meeting, 2009, San Diego, CA.
- “Workforce Engineering and Management,” with Yun Fong Lim, INFORMS National Meeting, 2011, Charlotte, NC.

◇ **Conference Organizing Committee Member**

- Sponsored Sessions Chair for INFORMS National Meeting, 2005, San Francisco, CA.
- Program Co-chair, INFORMS National Meeting, 2012, Phoenix, AZ

◇ **Advisory Board Member**

- Second International Conference on Responsive Manufacturing, June 2002, Gaziantep, Turkey.

PRESENTATIONS ◇ **Invited Seminars**

- “Future Challenges in Lean Enterprises: Workforce Issues,” with W. M. Carlyle and J. W. Fowler, Continuous Improvement Symposium on Lean Enterprises, JACME²T, February 10, 2000, Motorola University, Tempe, AZ.
- “Stochastic Models of Workforce Agility,” Department of Systems and Industrial Engineering, University of Arizona, Tucson, AZ, April 13, 2000.
- “Factory Physics and The Theory of Constraints,” Continuous Improvement Learning Competency Team Symposium on the Theory of Constraints, JACME²T, March 9, 2001, Boeing, Mesa.
- “A New Solution Evaluation Method for Multi Objective Combinatorial Optimization Problems,” *Women in OR* Seminar Series, Department of Industrial Engineering and Management Sciences Northwestern University, Evanston, IL, November 27, 2001.
- “Bucket brigades when worker speeds do not dominate each other uniformly,” Department of Systems and Industrial Engineering, University of Arizona, Tucson, AZ, May 2, 2002.
- “Stochastic models of workforce agility in production systems,” Department of Industrial Engineering, Purdue University, West Lafayette, IN, April 28, 2003.
- “Models of workforce agility in production systems,” Dresden University of Technology, Dresden, Germany, June 29, 2006.

- “Dynamic price and lead time quotation in make-to-order systems,” Lee Kong Chian School of Business, Singapore Management University, Singapore, May 30, 2008.
- “Principles for Worksharing Control in Manufacturing Systems with Cross-trained Workers,” Koc University, Istanbul, Turkey, March 20, 2009.
- “Principles for Worksharing Control in Manufacturing Systems with Cross-trained Workers,” Sabanci University, Istanbul, Turkey, April 2, 2009.
- “Principles for Worksharing Control in Manufacturing Systems with Cross-trained Workers,” Middle East Technical University, Ankara, Turkey, May 8, 2009.

◇ **List of Presentations at Conferences**

- “Scheduling a machine shared by multiple CONWIP lines,” with M. P. Van Oyen (Presenter) and E. Kim, INFORMS National Fall Meeting 1996, Atlanta, GA.
- “Limits of performance for production systems with flexible workers” with M. P. Van Oyen and W. J. Hopp, INFORMS National Fall Meeting 1997, Dallas, TX.
- “Organization of flexible labor in stochastic production systems” with M. P. Van Oyen (Presenter) and W. J. Hopp, INFORMS International Meeting 1998, Montreal, Canada.
- “Analysis of flowline worksharing systems” with M. P. Van Oyen and W. J. Hopp, INFORMS National Fall Meeting 1998, Seattle, WA.
- “Coordination of cross-trained workers in serial lines” with M. P. Van Oyen (Presenter) and W. J. Hopp, 10th INFORMS Applied Probability Conference, 1999, Ulm, Germany.
- “Stochastic control of worksharing systems” with M. P. Van Oyen and W. J. Hopp, INFORMS National Spring Meeting 2000, Salt Lake City, UT.
- “Optimal worksharing in systems with hierarchical cross-training” with M. P. Van Oyen and W. J. Hopp, INFORMS National Fall Meeting 2000, San Antonio, TX.
- “An a posteriori evaluation technique for bi-criteria parallel machine scheduling algorithms” with **B. Kim**, W. M. Carlyle and J. W. Fowler, 15th International Conference on Multiple Criteria Decision Making, July 10-14, 2000, Ankara, Turkey.
- “An a posteriori evaluation technique for bi-criteria parallel machine scheduling algorithms” with **B. Kim**, W. M. Carlyle and J. W. Fowler, INFORMS International Meeting 2001, Maui, Hawaii.
- “Bucket brigades with varying worker speeds” with D. Armbruster, INFORMS International Meeting 2001, Maui, Hawaii.
- “Bucket brigades with varying worker speeds,” with D. Armbruster, MSOM Sponsored talk, INFORMS National Meeting, November 2001, Miami, FL.
- “Optimal work sharing in systems with hierarchical cross-training,” with W. J. Hopp and M. P. Van Oyen, Applied Probability Sponsored talk, INFORMS National Meeting, November 2001, Miami, FL.
- “Finding a Job in Academia,” First IIE Doctoral Colloquium, Industrial Engineering Research Conference, May 2002, Orlando, FL.
- “A Facility Location Problem to Expedite Disaster Relief,” with J. C. Smith and F. Ozel, INFORMS National Meeting, November 2002.
- “Statistical Operations Control For Wafer Fab Scheduling,” with G. Runger, **A. Burhanuddin**, E. S. Gel, **C. Vardar**, INFORMS National Meeting, November 2002.
- “Decision Rules for Adaptive Rescheduling for Wafer Fabs,” with **C. Vardar**, **A. Burhanuddin**, E. S. Gel, M. Pfund, G. Runger, INFORMS National Meeting, November 2002.

- “Dynamics of Bucket Brigades When Ranking of Worker Speeds Varies,” with H. D. Armbruster, INFORMS National Meeting, November 2002, San Jose, CA.
- “Modeling Inherent Worker Differences for Workforce Planning,” with **P. Wirojanagud**, M. Carlyle, J. Fowler and R. Cardy, INFORMS National Meeting, November 2002.
- “Reliability analysis of MEMS switches for high power applications,” with **S. Falcones**, N. F. Hubele, G. T. Heydt, G. Karady, EURO-INFORMS Joint International Meeting, July 2003, Istanbul, Turkey.
- “A facility location problem to expedite disaster relief,” with Cole Smith and F. Ozel, EURO-INFORMS Joint International Meeting, July 2003, Istanbul, Turkey.
- “Finding the Best Probability Model for Flatness Data,” with **A. Berrado** and N. Hubele, INFORMS National Meeting, October 2003, Atlanta, GA.
- “Designing A Field Service System For Semiconductor Manufacturing Systems For Remote Diagnostics Era,” with **C. Vardar**, and J. W. Fowler, INFORMS National Meeting, October 2003, Atlanta, GA.
- “Bucket Brigades Revisited: Are they Always Effective?” with D. Armbruster, INFORMS National Meeting, October 2003, Atlanta, GA.
- “Workforce planning under uncertainty,” with **P. Wirojanagud** and J. W. Fowler, Tenth International Conference on Stochastic Programming, October 2004, Tucson, AZ.
- “Stochastic optimization using several layers of models with different levels of abstraction,” with **C. Vardar** and J. W. Fowler, Tenth International Conference on Stochastic Programming, October 2004, Tucson, AZ.
- “Performance Evaluation of a Single Server Under Various Setup Policies,” with **K. Khowala** and J. W. Fowler, INFORMS Annual Meeting, October 2004, Denver, CO.
- “Bucket brigades with worker learning,” with D. Armbruster and **J. Murakami**, (invited), INFORMS Annual Meeting, November 2005, San Francisco, CA.
- “Dynamic quotation of price and lead time in a make-to-order system,” with **O. B. Bekki**, (contributed), INFORMS Annual Meeting, November 2005, San Francisco, CA.
- “Hierarchical cross-training in WIP-constrained environments,” with W. J. Hopp and M. P. Van Oyen, (invited), INFORMS Annual Meeting, November 2005, San Francisco, CA.
- “An interactive evolutionary approach based on convex preference cones to multiobjective optimization,” with J. W. Fowler, M. Koksalan, P. Korhonen, **J. Marquis**, and J. Wallenius, INFORMS Annual Meeting, November 2006, Pittsburgh, PA.
- “Joint price and lead-time quotation in make-to-order systems,” with **O. B. Bekki**, INFORMS Annual Meeting, November 2006, Pittsburgh, PA.
- “Interactive Evolutionary Multi-Criteria Scheduling,” with **J. Marquis**, J. W. Fowler, M. Koksalan, P. Korhonen, and J. Wallenius, INFORMS Annual Meeting, November 2007, Seattle, WA.
- “Workforce Planning Models with Individual Worker Differences,” with **P. Wirojanagud** and J. W. Fowler, (invited), INFORMS Annual Meeting, November 2007, Seattle, WA.
- “Dynamics of Bucket Brigades with Fixed Stations,” with **E. Murguia** and D. Armbruster, (invited), INFORMS Annual Meeting, October 2008, Washington D.C.
- “Analysis of Diversion Decisions in Emergency Departments Using a Markov Decision Process Model,” with **A. R. Nafarrate** and J. Fowler, INFORMS Annual Meeting, October 2008, Washington D.C.

- “Early Career Tips for Tenure and Promotion,” participant in invited panel on tenure process, INFORMS Annual Meeting, October 2008, Washington D.C.
- “Solution Methods for Workforce Planning Models with Individual Worker Differences,” with **P. Wirojanagud** and J. W. Fowler, (invited), INFORMS Annual Meeting, October 2008, Washington D.C.
- “Designing routes to match collected workload with the processing capacity,” with **E. Yucel**, S. Salman and L. Ormeci, ODYSSEUS 2009, Fourth International Workshop on Freight Transportation and Logistics, May 2009, Cesme, Turkey.
- “Design and Analysis of Ambulance Diversion Policies,” with **A. R. Nafarrate**, J. Fowler, and T. Wu, (invited in Health Applications Cluster), INFORMS Annual Meeting, October 2009, San Diego, CA.
- “Dynamics of Bucket Brigades in Systems with Fixed Stations,” with **E. Murguia** and D. Armbruster, (invited in Workforce Engineering and Management Cluster), INFORMS Annual Meeting, October 2009, San Diego, CA.
- “Interactive Evolutionary Multi-objective Optimization for Quasi-concave Preference Functions,” with **J. Marquis**, J. Fowler, M. Koksalan, and J. Wallenius, (invited in Multi-Criteria Decision Making Cluster), INFORMS Annual Meeting, October 2009, San Diego, CA.
- “Design and Analysis of Ambulance Diversion Policies,” with **A. R. Nafarrate**, J. Fowler, and T. Wu, INFORMS Annual Meeting, San Diego, CA, October 2009.
- “Dynamics of Bucket Brigades in Systems with Fixed Stations,” with **E. Murguia**, and D. Armbruster, INFORMS Annual Meeting, San Diego, CA, October 2009.
- “Interactive Evolutionary Multi-objective Optimization for Quasi-concave Preference Functions,” with **J. Marquis**, J. Fowler, M. Koksalan, P. Korhonen, and J. Wallenius, INFORMS Annual Meeting, San Diego, CA, October 2009.

INTERNAL
SERVICE

◇ **Committee Work**

- College Teaching Excellence Committee (09/06-present)
- Industrial Engineering Department Personnel Committee (09/07-06/08)
- School of Computing, Informatics and Decision Systems Engineering Personnel Committee (09/09-06/11)
- Dean’s Diversity Committee, College of Engineering and Applied Sciences, ASU (09/02 - 01/03)
- Joint Arizona Consortium for Manufacturing and Engineering Education for Tomorrow (JACME²T) Continuous Improvement Learning Competency Team Member, ASU (01/00 - Present)
- Faculty Advisor, Turkish Student Association (TUSA), ASU, (08/01 - 05/03)
- Chair; Publicity and Seminars Committee, IE, ASU (09/02 - 06/07)
- Organizer of the ASU Stochastic Modeling Community Seminar Series - joint with C. Greenwood (Math), IE, ASU, (01/01 - 08/05)
- Graduate Affairs Committee, IE, ASU (09/02 - 05/06)
- Statewide MS Program Committee, IE, ASU (09/01 -06/07)
- Course Coordinator for IEE 461 and IEE 561, IE, ASU (09/01 - 06/07)
- M.S.E. Comprehensive Exam Coordinator, IE, ASU (01/03 - 08/03)

- ◇ **Service on Master's Thesis (M), Ph.D. Qualifying Exam (QE) and Dissertation (DC) Committees:** (2009) Saylisse Davila (DC), Joseph Juarez (DC); (2007) Nuttha Lurponglukana (DC), Hussam Alshraideh (M), Sandipan Ganguly (DC), Harikrishnan Raghunathan (M, Electrical Engineering); (2000 through 2006) Cathy Lawson (DC), Abdelaziz Berrado (QE), Ahmed Algandoor (QE), Yo Huh (QE), Zuizhao Yao (DC, QE), Brett Duarte (M), Andy Burhanuddin (M), Jennifer Smith (M).

- ◇ **Minority Student Recruitment** Participated in three different summer programs: Minority Engineering Program (MEP), Women in Science and Engineering (WISE) and College of Engineering and Applied Science (CEAS) to attract high school students to Industrial Engineering, July 2001, 2002.