

## FACULTY VITAE

### Jeffrey S. Smith

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Industrial & Systems Engineering  
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## EDUCATION

**Ph.D. in Industrial Engineering;** Dec. 1992; The Pennsylvania State University, University Park, PA.,  
Dissertation Title: "A Formal Design and Development Methodology for Shop Floor Control in  
Computer Integrated Manufacturing," Major advisor: Sanjay B. Joshi.

**M.S. in Industrial Engineering;** Aug. 1990; The Pennsylvania State University, University Park, PA.,  
Thesis Title: "Development of A Hierarchical Control Model for Flexible Manufacturing Systems."

**B.S. in Industrial Engineering;** March 1986; Auburn University, Auburn, AL.

## EMPLOYMENT HISTORY

**August 2004 – present** – Professor of Industrial and Systems Engineering, Auburn University, Auburn, AL.

**August 2012 – May 2013** – Professional Improvement Leave (sabbatical), Senior Consulting Engineer, Simio, LLC, Sewickley, PA.

**August 2008 – May 2012** – Graduate Program Coordinator, Industrial and Systems Engineering, Auburn University, Auburn, AL.

**September 1999 – August 2004** – Associate Professor of Industrial and Systems Engineering, Auburn University, Auburn, AL.

**August 1998 – September 1999** – Associate Professor of Industrial Engineering, Texas A&M University, College Station, TX.

**August 1992 – August 1998** - Assistant Professor of Industrial Engineering, Texas A&M University, College Station, TX.

**August 1988 - August 1992:** Research Assistant, the Pennsylvania State University, University Park, PA.

**August 1987 - August 1988:** Industrial Engineer, Philip Morris U.S.A., Richmond, VA.

**April 1986 - August 1987:** Engineering Systems Development Program, Electronic Data Systems / General Motors, Troy, MI.

## PROFESSIONAL AND HONORARY SOCIETIES

Institute of Industrial Engineers (IIE) – Fellow, Member from 1985 - present

Institute for Operations Research and Management Science (INFORMS) - Member, 1992 - present

American Society for Engineering Education (ASEE) - Member, 2008 - 2012

Tau Beta Pi – Engineering honor society  
Alpha Pi Mu – Industrial Engineering honor society  
Phi Kappa Phi – National academic honor society

## HONORS AND AWARDS

- 2012 INFORMS I-SIM Distinguished Service Award, December 2012
- Awarded the Joe W. Forehand Jr. Professorship, October 2011
- 2011 Outstanding Faculty Award - Industrial & Systems Engineering Department
- 2007 Outstanding Faculty Award – Industrial & Systems Engineering Department
- 2005 Outstanding Faculty Award – Industrial & Systems Engineering Department
- 2004 Auburn Engineering Senior-level Research Award for Excellence
- 1998 *IIE Transactions on Operations* Best Paper Award
- 1998 IIE Publication Award

## SPONSORED RESEARCH

### Funded Projects

Smith, J.S., “Simulation Modeling of the BRP SSV Supply Chain,” BRP Corporation (subcontracted through the Georgia Institute of Technology), March 2016 – February 2017, \$59,905. Role – PI.

Smith, A.E. and J.S. Smith, “DATASEM Phase II,” Office of the Secretary of Defense / National Security Agency (subcontracted from the Systems Engineering Research Center / Stevens Institute of Technology, Richard Turner, Stevens PI, with the participation of University of Southern California), March 2016-February 2017, \$52,373, Role – Co-PI.

Smith, A.E. and J. S. Smith, “Academy of Aerospace Quality – Phases VII-VIII,” NASA, October 2014 – September 2016, \$270,000, Role – Co-PI for the project.

Smith, J. S., “Video-based E-Learning Modules for Discrete Event Simulation with Simio,” Simio, LLC., January 2015 – March 2016, \$26,892, Role – P.I.

Smith, J. S. “Development of a Data Model and Associated Software Tools for Modeling Picking Operations,” MHI Inc., Dec. 2014 – September 2016, \$50,000, Role – P.I.

Smith, A.E., J.S. Smith, and L. Yilmaz, “RT126 Agile Systems Engineering – Kanban Scheduling,” Office of the Secretary of Defense / National Security Agency (subcontracted from the Systems Engineering Research Center / Stevens Institute of Technology, Richard Turner, Stevens PI, with the participation of University of Southern California), September 2014-December 2015, \$172,874, Role – Co-PI for the project

Smith, A.E. and J. S. Smith, “Academy of Aerospace Quality – Phases III-VI,” NASA, October 2009 – September 2014, \$565,000, Role – Co-PI for the project (funded on a year-by-year basis since 2009).

Smith, J.S., “CELDi Deputy Directory Support,” National Science Foundation (subcontract through the University of Arkansas) - September 2010 - August 2012, \$48,000, Role - PI.

Valenzuela, J. F. and J. S. Smith, “Integrating Computer Programming Technologies into the Industrial Engineering Curriculum,” National Science Foundation, \$149,976, March 2009 – February 2011, Role – Co-PI.

- Heitzman, M., J. S. Smith, and A. E. Smith, "Development of a Hot Mix Plant Production Process Control System," Department of Transportation/Federal Highway Administration (FHWA), \$372,438, 2009-1010, Role – Co-PI.
- Smith, J.S., and J. L. Evans, "Simulation Modeling and Analysis Support," Continental AG, May 2008 – December 2009, \$93,000, Role – PI.
- Smith, A.E. and J. S. Smith, "Academy of Aerospace Quality – Phase II," NASA, October 2006 – September 2009, \$470,000, Role – Co-PI for the project.
- Smith, J. S., "Simulation-based Commissioning of Factory Control Systems," Rockwell Automation, March 2006 – February, 2007, \$22,364.
- Smith, J. S. and Smith, A. E., "Simulation-based Security System Analysis for Food Processing/Water Treatment Facilities," United States Department of Agriculture (USDA), through the "RFID Bacteria Sensor Tags" center, Bryan Chin, P.I., May 2004 – July 2006, \$55,000.
- Smith, J. S., "Simulation of Electronics Assembly Lines," Siemens VDO Electronics (through the Center for Advanced Vehicle Electronics), Jeffrey Suhling, Director, March 2005 – March 2006, \$21,000.
- Smith, J. S., "Simulation Modeling of an Order Picking Facility," Wal-Mart Distribution Center, Opelika, AL, August 2004 – July 2005.
- Smith, J. S., "Development of an Umpire Assignment Computer Code for Tennis Tournaments," United States Tennis Association (USTA), April 2004 – December 2004, \$10,000.
- Smith, A.E. and J. S. Smith, "Academy of Aerospace Quality," NASA, July 2003 – June 2007, \$330,000, Role – Co-PI for the project.
- Benefield, L. D., R. W. McCord, and P.K. Raju, "Initiating and Sustaining Industrial Renaissance Through Innovative Partnerships," National Science Foundation, August 2003 – July 2006, \$600,000, Role – lead the Manufacturing Systems Research Group for the project.
- Smith, J. S., "Simulation-based Design and Control of Intruder Detection Systems," Sandia National Labs, February 2003 – September 2005, \$150,000.
- Smith, J.S., "Simulation of Modeling of Systems with Complex Entity Interactions," National Science Foundation, August 2002 – August 2004, \$93,400.
- Smith, J. S. and J. L. Evans, "Simulation Evaluation of an EMD Line," Nacom, Inc, May 2002 – December 2002, \$14,400.
- Smith, J.S., "Simulation-based Design and Control of Intruder Detection Systems," Subcontract from Sandia National Labs through Texas A&M University, October 1999 – August 2002, \$107,652. (subcontract amount).
- Smith, J. S., and J. Valenzuela, "Modeling and Control of a Surface Mount Assembly Process", Center for Advanced Vehicle Electronics, January 2001 – December 2002, \$84,200.
- Cochran, J. E., Foster, B., Ripley, B., Bulfin, B., Sox, C. R., and Smith, J. S., "Phase II of the Center for Advanced Simulation and Technology (CAST) Project at Auburn University, " Federal Highway Administration, \$86,068 (ISE portion of the total budget of \$250,000)..
- Phillips, D. T., B. A. Peters, and J. S. Smith, "PATHFINDER: Phase I Support," Air Force Research Laboratory – MANTECH Division (subcontract through Knowledge Based Systems Incorporated), May 1999 – December 10999, \$102,820.

- Smith, J. S., and Peters, B. A., "Simulation-based Design and Control of Intruder Detection Systems," Sandia National Labs, March 1997 - September 1999, \$193,162.
- Smith, J. S., and Peters, B. A., "Development of a Pick Face Assignment Methodology," JC Penney, Inc., September 1998 – December 1998, \$22,300.
- Smith, J. S., "CONWIP Wafer Release Policy," Fairchild Semiconductor, Portland, ME, June 1998 – December 1998, \$24,884.
- Smith, J. S., "Cycle Time Reduction Through WIP Control," Fairchild Semiconductor, Portland, ME, September 1997 – August 1998, \$25,266.
- Smith, J. S., "Simulation-based Control of Flexible Manufacturing Systems," ALCOA Foundation Science Support Grant, June 1997 – May 1998, \$10,000.
- Phillips, D. T., Smith, J. S., and Foster, J. W., "Statistical Process Control Expert System (SPCES)," Mantech/Illinois Institute of Technology Research Institute, September 1996 - May 1997, \$180,000.
- Smith, J. S., and B. A. Peters, "Short Term Scheduling Using Discrete Event Simulation," Southwestern Bell Technology Resources, Inc., Sept. 1996 - Dec. 1996, \$10,000.
- Smith, J. S., and B. A. Peters, "Use of Simulation-based Analysis, Prediction, and Control in Remanufacturing Facilities," DARPA-ARO, June 1996-May 1999, \$186,813.
- Leon, V. J., Peters, B. A., and Smith, J. S., "TEES Program for Strategic Research Initiatives - Center for Electronic Manufacturing Systems," Texas Engineering Experiment Station, May 1996 - June 1997, \$52,830.
- Peters, B. A., and Smith, J. S., "Simulation Modeling for Shop Floor Control of Engine Repair Facilities," Tracor, Inc., January-April 1996, \$20,000.
- Leon, V. J., Peters, B. A., Malave, C. O., Smith, J. S., and Volz, R. A., "Center for Electronics Manufacturing," US Army CECOM (Subcontract from the University of Texas-El Paso), October 1995 - September 2001, \$575,000 (awarded, but budget cuts prevented funding beyond the first year).
- Smith, J. S. and Peters, B. A., "Development of an Intelligent Material Handling Control System for Semiconductor Manufacturing Facilities," SEMATECH, 5/1994 - 5/1995, \$88,908.
- Wysk, R. A., Disney, R. L., Peters, B. A., and Smith, J. S., "MODELWORLD: An Open System For Manufacturing Systems Analysis," National Science Foundation, 6/94 - 5/95, \$40,000.
- Phillips, D. T., Curry, G. L., Deuermeyer, B. L., Peters, B. A., and Smith, J. S., "Texas SCOE - Factory Systems," SEMATECH/SRC, 11/93 - 10/95, \$480,000.
- Wysk, R. A., Joshi, S. B., Pegden, C. D., and Smith, J. S., "Rapid prototyping of shop-floor control systems for Computer Integrated Manufacturing," DARPA - ISTO, 1993-1996, \$2,000,000.

## PUBLICATIONS

### Text Books

- Kelton, D.W., J.S. Smith, and D.T. Sturrock, *Simio and Simulation: Modeling, Analysis, Applications, Third Edition*, Simio LLC/CreateSpace, December 2013.
- Kelton, D.W., J.S. Smith, and D.T. Sturrock, *Simio and Simulation: Modeling, Analysis, Applications, Second Edition*, McGraw-Hill Learning Solutions, September 2011.

Kelton, D.W., J.S. Smith, D.T. Sturrock and A. Verbraeck, *Simio and Simulation: Modeling, Analysis, Applications*, McGraw-Hill Learning Solutions, November 2010.

### Video-based Education Modules

Smith, Jeffrey S., *Simulation and Simio*, an introductory course in discrete-event simulation with Simio. Available at <http://simulationandsimio.org>. In-progress (expected completion in March, 2016).

Smith, Jeffrey S., *Learning Simio Lab Series*, a 12-part video-based laboratory series for learning discrete-event simulation with Simio. Available at <http://jsmith.co/node/40>. Completed November 2013.

Smith, Jeffrey S., *Flexible Manufacturing Cell Simulation with Simio RPS*, an 11-part video series. Available at <http://jsmith.co/node/26?q=node/19>. Completed July 2013.

### Refereed Journal Publications

Negahban, A. and J.S. Smith, "A Joint Analysis of Production and Seeding Strategies for New Products: An Agent-Based Simulation Approach," Submitted to the *Annals of Operations Research*, March 2016.

Negahban, A. and J.S. Smith. "Optimal Entry Time and Production-Sales Policies for Successive Generations of New Products," Submitted to *Production and Operations Management* (under review).

Negahban, A. and J. S. Smith, "An Agent-based Diffusion Model with Fuzzy Product Adoption Process," Submitted to *The Journal of Product Innovation Management*, January 2015 (in second review)

Negahban, A. and J.S. Smith. "The Effect of Supply and Demand Uncertainties on the Optimal Production and Sales Plans for New Products," To appear in the *International Journal of Production Research*, Accepted Feb. 2016, <http://dx.doi.org/10.1080/00207543.2016.1157274>.

Derhami, S., J.S. Smith, and K.R. Gue, "Optimizing Space Utilization in Block Stacking Warehouses", To appear in the *International Journal of Production Research*, Accepted Dec. 2015, <http://dx.doi.org/10.1080/00207543.2016.1154216>.

Ozmen, O., L. Yilmaz, and J. Smith, "The Impact of Socio-technical Communication Styles on the Diversity and Innovation Potential of Global Science Collaboratories," *Computational and Mathematical Organization Theory*, Jan. 2016, DOI: 10.1007/s10588-016-9213-5.

Negahban A, Smith J.S. Simulation for manufacturing system design and operation: Literature review and analysis. *Journal of Manufacturing Systems* (2014), <http://dx.doi.org/10.1016/j.jmsy.2013.12.007>.

Kim, B.K. and J. S. Smith, "Slotting Methodology Using Correlated Improvement for a Zone-based Carton Picking Distribution System," *Computers in IE*, Vol. 62, Issue 1, February 2012, pp. 286-295.

Farmer, A., J. S. Smith, and L. T. Miller, "Umpire Crew Scheduling for Professional Tennis Tournaments," *Interfaces*, Vol. 37, No. 2, March-April 2007, pp187-196.

Gupta, S. R. and J. S. Smith, "Algorithms for Single Machine Total Tardiness Scheduling with Sequence Dependent Setups," *European Journal of Operational Research*, Vol. 175, 2006, pp. 722-739.

Venkatesh, S. and J. S. Smith, "An Evaluation of Deadlock Handling Strategies in Semiconductor Cluster Tools," *IEEE Transactions on Semiconductor Manufacturing*, Vol. 18, No. 1, February 2005, pp. 197-201.

- Valenzuela, J. F., J. S. Smith, and J. L. Evans, "Allocating Solder-Paste Printing Inspection in High Volume Electronics Manufacturing," *IIE Transactions*, Vol. 36, No. 12, December 2004, pp. 1171-1182.
- Kakade, V., J. F. Valenzuela, and J. S. Smith, "An Optimization Model for Selective Inspection in Serial Production Systems," *International Journal of Production Research*, Vol. 42, No. 18, 2004, pp. 3891-3909.
- Venkatesh, S. and J. S. Smith, "A Graph-Theoretic, Linear-time Scheme to Detect and Resolve Deadlocks in Flexible Manufacturing Cells," *Journal of Manufacturing Systems*, Vol. 22, No. 3, 2003, pp. 220-238.
- Smith, J. S., "Simulation for Manufacturing Systems Design and Operation," *Journal of Manufacturing Systems*, Vol. 22, No. 2, 2003, pp. 157-171.
- Smith, J. S., S. B. Joshi, and R. G. Qiu, "Message-based Part State Graphs (MPSG): A Formal Model for Shop Floor Control Implementation," *International Journal of Production Research*, Vol. 41, No. 8, May 2003, pp. 1739-1764.
- Son, Y. J., S. B. Joshi, R. A. Wysk, and J. S. Smith, "Simulation Based Shop Floor Control," *Journal of Manufacturing Systems*, Vol. 21, No. 5, 2002, pp. 380-394.
- Sattiraju, S. V., B. Dang, R. W. Johnson, Y. Li, J. S. Smith, and M. J. Bozack, "Wetting Characteristics of Pb-free Solder Alloys and PWB Finishes," *IEEE Transactions on Electronics Packaging Manufacturing*, Vol. 25, No. 3, July 2002, pp. 168-184.
- Castillo, I., and J. S. Smith, "Formal Modeling Methodologies for Manufacturing Systems Control: Survey and Comparison," *Journal of Manufacturing Systems*, Vol. 21, No. 1, 2002, pp. 40-57.
- Smith, J. S., Peters, B. A., and Drake, G. R., "On-line Simulation for Manufacturing Systems Planning and Control," *Journal of Design and Manufacturing Automation – Special Issue on Simulation Modeling and Applications*, Vol. 1, No. 3, 2001, pp. 207-220.
- Smith, J. S., Peters, B. A., and Srinivasan, A., "Operations Scheduling in Flexible Manufacturing Systems," *International Journal of Production Research*, Vol. 37, No. 7, 1999, pp.1541-1560.
- Venkatesh, S., Smith, J. S., Deuermeyer, B., and Curry, G., "Deadlock Detection for Discrete Event Simulation: Multiple-Unit Seizes," *IIE Transactions*, Vol. 30, No. 3, pp. 201-216 (Won the 1998 *IIE Transactions on Operations* Best Paper and the 1998 IIE Outstanding Publication Awards).
- Cho, H., Smith, J. S., and Wysk, R. A., "A Robust Workstation Controller for Computer Integrated Manufacturing: Experimental Design and Results," *Production Planning and Control*, Vol. 8, No. 6, 1997, pp.597-607.
- Smith, J.S., Hoberecht, W.C., and Joshi, S.B., "A Shop Floor Control Architecture for Computer Integrated Manufacturing," *IIE Transactions*, Vol. 28, No. 10, October 1996, pp. 783-794.
- Peters, B. A., Smith, J. S., and Venkatesh, S., "A Control Classification of Automatic Guided Vehicle Systems," *International Journal of Industrial Engineering: Applications and Practice*, Vol. 3, No. 1, March 1996, pp. 29-39.
- Peters, B. A., Smith, J.S., and Hale T.S., "A Closed Form Solution for the Optimal AS/RS Dwell Point," *International Journal of Production Research*, Vol 34, No. 6, pp. 1757-1771, 1996.

Smith, J.S. and Joshi, S.B., "A Shop Floor Controller Class for Computer Integrated Manufacturing," *International Journal of Computer Integrated Manufacturing*, Vol. 8, No. 5, September-October 1995, pp. 327-339.

Lee, S., Wysk R. A., and Smith, J. S., "Process Planning Interface for a Shop Floor Control Architecture for Computer Integrated Manufacturing," *International Journal of Production Research*, Vol. 33, No. 9, 1995, pp. 2415-2436.

Joshi, S. B., Mettala, E. G., Smith, J. S., and Wysk, R. A., "Formal Models for Control of Flexible Manufacturing Cells: Physical and System Models," *IEEE Transactions on Robotics and Automation*, Vol. 11, No. 4, August 1995, pp. 558-570.

Wysk, R. A., Peters, B. A., and Smith, J. S., "A Formal Process Planning Schema for Shop Floor Control," *Engineering Design and Automation Journal*, Vol. 1. No. 1, Spring 1995, pp.3-19.

Wysk, R. A. and Smith, J. S., "A Formal Functional Characterization of Shop Floor Control," *Computers in Industrial Engineering*, Vol. 28, No. 3, 1995, pp. 631-644.

Smith, J. S. and Joshi, S. B., "Reusable Software Concepts for Flexible Manufacturing System Control," *International Journal of Computer Integrated Manufacturing*, Vol. 5, No. 3, 1992, pp. 182-196.

Smith, J. S., Cohen, P. H., Davis, J. W., and Irani, S. A., "Process Plan Generation for Sheet Metal Parts Using an Integrated Feature-Based Expert System Approach," *International Journal of Production Research*, Vol. 30, No. 5, 1992, pp. 1175 - 1190.

#### **Other Books/Book Chapters**

13<sup>th</sup> *International Material Handling Research Colloquium*, Editors: M. Ogle, J. Smith, R. deKoster, and K. Ellis, CICMHE/MHI, Charlotte, NC, In-press.

12<sup>th</sup> *International Material Handling Research Colloquium*, Editors: B. Montreuil, A. Carrano, K. Gue, R. de Koster, M. Ogle, and J. Smith, CICMHE/MHI, Charlotte, NC., June 2012.

Yingde, L. and J.S. Smith, "Dynamic slotting optimization based on SKUs correlations in a zone-based wave-picking system," 12<sup>th</sup> *International Material Handling Research Colloquium*, B. Montreuil, A. Carrano, K. Gue, J. Smith, M. Ogle, Eds., CICMHE/MHI, Charlotte, NC. 2012.

Smith, J.S. and S.G. Ozden, "A Web-based Tool for Modeling and Design of Abstract Unit-load Picking Systems," in *Progress in Material Handling Research: 2010*, K. Ellis, K. Gue, R. Meller, M. Ogle, Eds., The Material Handling Institute, Charlotte, NC. 2010.

Smith, J.S., E. Sahin, and L. Yilmaz, "Agent-directed Simulation for Manufacturing System Engineering," in *Agent-directed Simulation and Systems Engineering*, L. Yilmaz, Ed., John Wiley, Inc. 2009, pp.451-474.

Marechal, T.M.A., A.E. Smith, V. Ustun, J.S. Smith, and A.A.J. Lefeber, "Optimizing a Physical Security Configuration Using a Highly Detailed Simulation Model," *Handbook of Military Industrial Engineering*, A. Badiru and M. Thomas, Eds., Taylor and Francis/CRC Press, 2009, pp.2-1:2-17.

Smith, J.S. and B.S. Kim, "Dynamic Slotting for Zone-Based Distribution Center Picking Operation," in *Progress in Material Handling Research: 2008*, K. Ellis, R. Meller, M. Ogle, B. Peters, D. Taylor, J. Usher, Eds., The Material Handling Institute, Charlotte, NC. 2008, pp. 578-601

Smith, J.S. and Joshi, S.B., "Control of Cellular Flexible Manufacturing Systems," in *Cellular Manufacturing Systems: Design, Planning, and Control*, Singh, N. and Rajamani, D., Chapman and Hall Publishing, London, UK, 1996.

Joshi, S.B. and Smith, J.S. (Eds.), *Computer Control of Flexible Manufacturing Systems - Recent Research and Development*, Chapman and Hall Publishing, London, UK, 1994.

Smith, J. S. and Joshi, S. B., "Formal Models of the Execution Function in Shop Floor Control," *Computer Control of Flexible Manufacturing Systems - Recent Research and Development*, S. B. Joshi, and J. S. Smith Eds., Chapman and Hall Publishing, London, UK., 1994.

Joshi, S. B. and Smith, J. S., "Intelligent Control of Manufacturing Systems," *Intelligent Design and Manufacturing*, A. Kusiak ed., John Wiley and Sons, New York, 1992, pp. 491-520.

### Refereed Conference Papers

Turner, R., A.E. Smith, J.S. Smith, L. Yilmaz, D. Li, S. Chada, and A. Tregubov, "DATASEM: A Simulation Suite for SoSE Management Research," Submitted to the *11<sup>th</sup> Annual System of Systems Engineering Conference (SoSE)*, Kongsberg, Norway, June, 2016.

Smith, J.S. and B. Nelson, "Assessing Virtual Waiting Times in Non-stationary Simulation Models," *Proceedings of the 2015 Winter Simulation Conference*, Huntington Beach, CA, December 2015.

Turner, R., L. Yilmaz, J. Smith, D. Li, S. Chada, A. Smith, A. Tregubov, "Modeling an organizational view of the SoS towards managing its evolution," *10<sup>th</sup> Annual Systems of Systems Engineering Conference (SoSE)*, San Antonio, TX, May 2015, pp. 480-485.

Negahban, A., and J.S. Smith, "Optimal Production and Sales Plan for New Products under Supply Uncertainty", *Proceedings of the DSI Annual Meeting*, November 2014, Tampa, FL.

A. Negahban, J.S. Smith, "Production-Sales Policies for New Product Diffusion under Stochastic Supply," *Proceedings of the Sixth International Conference on Advances in System Simulation (SIMUL)*, Nice, France, October 2014.

Ansari, M., A. Negahban, F. Megahed, and J. S. Smith, "HistoRIA: A new Tool for Simulation Input Analysis," *Proceedings of the 2014 Winter Simulation Conference*, Savannah, GA, December 2014.

Ozmen, O., J. Smith, and L. Yilmaz, "An Agent-based Simulation Study of a Complex Adaptive Collaboration Network", *Proceedings of the 2013 Winter Simulation Conference*, Washington DC, December 2013.

Schriber, T.J., D. T. Brunner, and J.S. Smith, "How Discrete-Event Simulation Software Works and Why it Matters," Advanced Tutorial in *Proceedings of the 2012 Winter Simulation Conference*, Berlin, Germany, December 2012. Updated and re-published in the 2013-2016 proceedings.

Palivela, V.K. and J. S. Smith, "Estimating Throughput for Unreliable Serial Production Lines with Limited Buffer and Repair Capacity," *AlaSim International*, Huntsville, AL, May 2012.

Ozmen, O., J.S. Smith, L. Yilmaz, and A.E. Smith, "A Complex Adaptive Model of Information Foraging and Preferential Attachment Dynamics in Global Participatory Science," *IEEE Conference on Cognitive Methods in Situation Awareness and Decision Support*, New Orleans, LA, March 2012.

Gue, K., J.S. Smith, and O. Ozmen, "Predicting Results of a Match-Play Golf Tournament with Markov Chains," *Proceedings of the 3rd Conference on Mathematics in Sport*, Salford Quays, UK, June 2011.

Kabadurmus, O., O. Pathak, J.S. Smith, A.E. Smith, and H. Yapicioglu, "A Simulation Methodology for Online Process Control of Hot Mix Asphalt (HMA) Production," *Proceedings of the 2010 Winter Simulation Conference*, Baltimore, MD, December, 2010.

Cho, Y., J.S. Smith, and A.E. Smith, "Optimizing Tactical Military MANETs With a Specialized PSO," *2010 IEEE World Congress on Computational Intelligence*, Barcelona, Spain, July 2010.

- Smith, J.S., J.A. Hamilton, B.L. Nelson, L.W. Schruben, R.E. Nance, and G. F. Riley, "Panel Discussion: What Makes Good Research in Modeling and Simulation: Assessing the Quality, Success, and Utility of M&S Research," *Proceedings of the 2008 Winter Simulation Conference*, Miami, FL, December 2008.
- Smith, J.S. and Y. Cho, "Offline Commissioning of a PLC-Based Control System Using Arena," *Proceedings of the 2008 Winter Simulation Conference*, Miami, FL, December 2008.
- Ustun, V. and J.S. Smith, "Mental Simulation for Creating Realistic Behavior in Physical Security Systems Simulation," *Proceedings of the 2008 Winter Simulation Conference*, Miami, FL, December 2008.
- Ustun, V, L. Yilmaz, and J.S. Smith, "A Conceptual Model for Agent-based Simulation of Physical Security Systems: A Study on Shoplifting," *Proceedings of the ACMSE 2006: 44<sup>th</sup> ACM Southeast Conference*, Melbourne, FL., March 2006.
- Jadhav, P. and J. S. Smith, "Analyzing Printed Circuit Board Assembly Lines Using a PCB Assembly Template," *Proceedings of the 2005 Winter Simulation Conference*, Orlando, FL, December 2005.
- Ustun, V., H. Yapicioglu, S. Gupta, A. Ramesh, and J. S. Smith, "A Conceptual Architecture for Static Features in Physical Security Simulation," *Proceedings of the 2005 Winter Simulation Conference*, Orlando, FL, December 2005.
- Aksoy, B., V. Ustun, J. S. Smith, "Localization Using Discrete Event Simulation," *Proceedings of the 2004 Winter Simulation Conference*, Washington, DC, December 2004.
- Mukkamala, P. S., J. S. Smith, and J. F. Valenzuela, "Designing Reusable Simulation Modules for Electronics Manufacturing Systems," *Proceedings of the 2003 Winter Simulation Conference*, New Orleans, LA, December 2003.
- Valenzuela, J. F., J. S. Smith, and J. L. Evans, "Allocation of Inspection in Serial PCB Assembly," *APEX 2003*, Anaheim, CA, March 31-April 2, 2003.
- Smith, J. S., Y. Li, and J. Gjesvold, "Simulation-based Analysis of a Complex Printed Circuit Board Testing Process," *Proceedings of the 2002 Winter Simulation Conference*, San Diego, CA, December 2002.
- Sattirajy, S. V., B. Dang, R. W. Johnson, Y. Li. and J. S. Smith, "Wetting Characteristics of Pb-free Solder Pastes and Pb-free PWB Finishes," 51st Electronic Components and Technology Conference, Lake Buena Vista, FL, May 2001, S37p12.
- Smith, J.S., Peters, B. A., Jordan. S.E., and Snell, M.K., "Distributed Real-time Simulation for Analysis and Design of Intruder Detection Systems," *Proceedings of the 1999 Winter Simulation Conference*, Phoenix, AZ, December 1999, pp. 1167-1173.
- Jordan, S. E., Snell, M. K., Madsen, M. M., Smith, J. S., and Peters, B. A., "Discrete-event Simulation for the Design and Evaluation of Physical Protection systems," *Proceedings of the 1998 Winter Simulation Conference*, Washington, DC, December, 1998, pp. 899-905.
- Jeon J. and Smith, J. S., "An FMS Control Structure: Data Modeling and Execution Components," *Proceedings of the DETC98*, 1998 ASME Design Engineering Technical Conference, September 1998, Atlanta, GA.
- Smith, J. S., and Peters, B. A., "Simulation as a Decision Making Tool for Real-time Control of Flexible Manufacturing Systems," *Proceedings of the 1998 IEEE Conference on Robotics and Automation*, May 1998, Leuven, Belgium.

- Smith, J. S., Peters, B.A., Curry, J., and Gupta, D., "Prototype Software Model for Designing Intruder Detection Systems with Simulation," *Aerosense '98 – Modeling, Visualization, and Simulation Conference*, April 13-17, Orlando, FL.
- Drake, G. R. and Smith, J. S., "Simulation System for Real-time Planning, Scheduling, and Control," *Proceedings of the 1996 Winter Simulation Conference*, December 1996, Coronado, CA.
- Peters, B. A., Smith, J. S., Curry, J., Lajimodiere, C. and Drake, G. R., "Advanced Tutorial – Simulation-Based Scheduling and Control," *Proceedings of the 1996 Winter Simulation Conference*, December 1996, Coronado, CA.
- Smith, J. S., "Design and Implementation of FMS Control Software," *Proceedings of the 1996 FAIM Conference*, Atlanta, GA, May 1996, pp.859-867.
- Schorn-DiSalvi, E. C., Liquigan, R., Peters, B. A., and Smith, J. S., "Development of an Intelligent Scheduler for Semiconductor Manufacturing," *Advanced Semiconductor Manufacturing Conference and Workshop*, November 13-15, Cambridge, MA, 1995, pp.159-165.
- Drake, G., Smith, J.S., and Peters, B. A., "Simulation as a Planning and Scheduling Tool for FMS," *Proceedings of the 1995 Winter Simulation Conference*, December 1995, Washington D. C.
- Edlabadkar, A., Peters, B. A., and Smith, J. S., "Design of a Generic, Real Time Material Transport Control System," *Proceedings of the First World Congress on Intelligent Manufacturing Processes and Systems*, February, 1995, San Juan, Puerto Rico.
- Joshi, S. B., Smith, J. S., Wysk, R. A., Peters, B. A., and Pegden, C. D., "RapidCIM: An Approach to Rapid Development of Control Software for FMS Control," *27th CIRP International Seminar on Manufacturing Systems*, Ann Arbor, MI, May 1995.
- Smith, J. S., Wysk, R. A., Sturrock, D., Ramaswamy, S., Smith, G., and Joshi S. B., "Discrete Event Simulation for Shop Floor Control," *Proceedings of the 1994 Winter Simulation Conference*, December, 1994, Lake Buena Vista, FL, pp. 962-969.
- Peters, B.A., Smith, J.S., Wysk, R.A., and Disney, R.L., "MODELWORLD – A Manufacturing Systems Research Test Facility," *Concurrent Product Design - Proceedings of the ASME Winter Annual Meeting*, Chicago, IL, November, 1994, pp.151-158 .
- Venkatesh, S., Smith, J., Deuermeyer, B., and Curry, G., "Deadlock Properties in Discrete Simulation Systems," *Proceedings of the 1994 IEEE International Conference on Robotics and Automation*, San Diego, CA, 1994, pp. 2563-2568.
- Joshi, S.B., Smith, J.S., Wysk, R.A., and Pegden, C.D., "Software for Control of FMS - The RapidCIM Concept and Approach," *Proceedings of the International Symposium on Robotics and Manufacturing*, Maui, Hawaii, May 1994.
- Wysk, R. A., Smith, J. S., Joshi, S. B., and Pegden, C. D., "Rapid Prototyping of Shop Floor Control Systems for CIM," *Proceedings of the 3rd IIE Research Conference*, Atlanta, GA, May 1994, pp. 382-387.
- Bal Krishnan, R., Leon, V. J., and Smith, J. S., "Resource Constrained Model for FMS Scheduling," *Proceedings of the 3rd IIE Research Conference*, Atlanta, GA, May 1994, pp. 412-417.
- Wysk, R. A., Mayer, R. J., Smith, J. S., Joshi, S. B., and Pegden, C. D., "Rapid Prototyping of Shop Floor Control Systems for CIM," *Defense Manufacturing Conference '93*, San Francisco, CA, November 29-December 2, 1993.

Smith, J. S. and Joshi, S. B., "Message-Based Part State Graphs (MPSG) for Shop Floor Control," *Proceedings of the 2<sup>nd</sup> IIE Research Conference*, Los Angeles, CA, May 26-28, 1993.

Hoberecht, W. C., Joshi, S. B., and Smith, J. S., "Architectures for Factory Control," *Autofact Proceedings*, Society of Manufacturing Engineers, November 8-10, 1992, Detroit, MI.

Smith, J. S. and Joshi, S. B., "A Formal Methodology for Shop Floor Control System Development," *Proceedings of the International Conference on Manufacturing Automation*, Hong Kong, August 1992.

Smith, J. S. and Egbelu, P. J., "Off-line Robot Programming Using a Natural Language Interface," *Robots 14 Conference Proceedings*, Society of Manufacturing Engineers, Detroit MI, November 12-15, 1990.

#### **Other Papers**

Smith, J.S., Peters, B.A., Wysk, R.A., and Disney, R.L., "MODELWORLD" *OR/MS Today*, October 1994, pp. 32-37.

Wysk, R. A., Disney, R. L., Peters, B. A., Smith, J. S., Kumaran, T. K., Lee, S., Hur, S., and Edlabadkar, A., "MODELWORLD: An Open System for Manufacturing System Analysis," *Industrial Engineering*, Vol. 26, No. 9, July 1994, pp. 49-54.

#### **Invited Presentations and Short Courses (2013-present only)**

Smith, J.S., "Advanced Simio Training for Academics – A Shortcourse", October 15-16, 2015, University of Puerto Rico Mayaguez.

Smith, J.S., "Assessing Virtual Waiting Times in Non-stationary Simulation Models", March 11, 2015, Auburn University INSY Seminar Series.

Smith, J.S., "Healthcare-related Applications of Discrete Event Simulation," The University of Texas Systems Engineering in Healthcare Conference, Houston, TX, November 2013.

Smith, J.S., "Modeling and Analysis of Picking Warehouses Using Simio," Pan-American Advanced Studies Institute, Santiago, Chile, August, 2013.

Smith, J.S., "Advanced Simio Training for Academics – A Shortcourse", July 16-18, 2013 Sewickley, PA

Smith, J.S., "Advanced Simio Training for Academics – A Shortcourse", June 12-14, 2013, Sewickley, PA

Smith, J.S., "Advanced Simio Training for Academics – A Shortcourse", April 24-27, 2013, University of the Bundeswehr, Munich, Germany.

#### **NATIONAL/INTERNATIONAL CONFERENCE/COMMITTEE ORGANIZATION**

##### **Winter Simulation Conference**

Board of Directors, 2010 to present

Advanced Tutorials Track Coordinator for the 2013 Winter Simulation Conference

Business Chair for the 2010 Winter Simulation Conference

General Chair for the 2004 Winter Simulation Conference

Registration Chair for the 2009 and 2003 Winter Simulation Conferences

Invited panel session on "What Makes Good M&S Research"

Proceedings Editor for the 2001 Winter Simulation Conference

Ph.D. Colloquium Organizer for the 1999 and 2000 Winter Simulation Conferences

Advanced tutorial on "Simulation-based Scheduling and Control"

**College-Industry Council on Material Handling Education (CICMHE)**

Liaison to the Board of Governors, 2013-2015

President, 2010-2012

Vice-president, 2008-2010

Member, 2004-2008

**NSF I/UCRC for Excellence in Logistics and Distribution (CELDi)**

Deputy Director, August 2010 to present

**Industrial Engineering Research Conference**

Production Planning and Control Track Coordinator (co) (2009)

Modeling and Simulation Track Coordinator (2007)

Invited session on "Simulation-based Control" (2007)

**Agent-directed Simulation Symposium**

International Program Committee (2007-2012)

**Congress on Evolutional Computing (CEC)**

Exhibits Chair (2011)

**International Conference on Advances in System Simulation**

Program Committee (2011, 2012, 2013, 2014)

**International Conference on Simulation and Modeling Methodologies, Technologies and Applications**

Program Committee (2012, 2013, 2014)

**INFORMS Annual Meeting**

Invited session on "Simulation-based Intruder Detection Systems" (2007)

Invited session on "Simulation-based Control" (2006)

**STUDENTS ADVISED**

**Ph.D. Students**

Donhuang Li

Mohammad Ansari

Shahab Derhami (co-advised with Kevin Gue)

Jarrett Chapman (co-advised with Alice Smith)

Askhan Negahban, 8/16, Application of Simulation and Optimization Approaches in Supply-Constrained Innovation Diffusion

Ozgur Ozmen (co-advised with Levent Yilmaz), 5/13, Exploring the Impact of Socio-technical Communication Styles on the Robustness and Innovation Potential of Global Participatory Science

Lamar Adams, 8/12, Development of an Analytical Process to Measure Teacher Effectiveness Based on Student Growth to Augment an Educator Evaluation System

Youchol Cho (co-advised with Alice Smith), 12/09, MANET Optimization using Particle-swarm Optimization

Byung Soo Kim, 12/09, Dynamic Slotting for Picking Operations

Volkan Ustun, 5/09, Simulation-based Intruder Detection

Wes Scott, 5/04, Simulation-based Shop Floor Control (Texas A&M)

Delores Luna-Reyes, 8/98, Due-date Determination in Flexible Manufacturing. (Texas A&M)

Srilakshmi Venkatesh, 5/96, Deadlock Detection and Resolution in Discrete Event Simulation and Shop Floor Control (Texas A&M)

### **Masters Students**

Pratik Prasadshiva, 5/16, "Simulation Modeling in Picking Warehouses"

Renee Thiesing, 12/09, "Using the Simio Simulation Software"

Taner Bak, 8/09, Buffer Allocation and Operator Task Assignment in Capacitated Serial Production Systems

Guler Ergul, 8/09, An Application of a Simulation-based Optimization Model for Production Planning

Veysel Dalkilic, 5/07, A Supply Chain Approach to Shelf Space Allocation.

Abishek Ramesh, 12/06, Bottleneck Detection and Mitigation in Serial Production Systems

Pradip Jadhav, 12/05, Simulation-based Analysis of Electronics Manufacturing Lines

Adam Farmer, 8/04, Scheduling and Assignment of Tennis Umpires at Large Tournaments.

Phani Mukamala, 5/04, Development of a Simulation Template for Electronics Assembly Lines

Craig Bitterling, 5/04, Simulation Modeling and Analysis of a Warehouse Picking Operation

Skylab Gupta, 5/04, Solving the Single Machine Scheduling Problem with Sequence Dependent Setups using Grasp

Amit Pai, 12/03, Simulation-based Control of an Automated Workstation

Mark Bordelon, 5/03, Job Shop Scheduling with Sequence-Dependent Setups and Due Dates: An Application of Problem Space-Based Search

Brannon Payne, 5/03, Developing a Benchmark for Intermodal Yard Operations at Huntsville International Intermodal Center

Yali Li, 8/02, Simulation Modeling of a Complex PCB Testing System

Amit Karkhanis, 12/01, Warehouse Layout for the East Alabama Food Bank

Subhadra Ummeda, 8/99, Application of CONWIP Production Control in Semiconductor Manufacturing (Texas A&M)

Jagath Naraharan, 8/99, Distributed Simulation with Java (Texas A&M)

- Ashish Goel, 8/98, Capacity Planning in a Wet Hood Operation (Texas A&M)
- Ghassan Awwad, 5/98, Planning and Scheduling in Electronics Assembly Systems (Texas A&M)
- Ramachandran Ragagopalan, 5/98, An Analytical Approach to Operations Scheduling in Flexible Manufacturing Systems (Texas A&M)
- Laura Tjondrowardojo, 5/98, Production Scheduling in A Food Packaging Environment (Texas A&M)
- Todd Kasterlak, 12/96, Economic Justification in Manufacturing (Texas A&M)
- Chris Moering, 12/96, A Pedagogical Software tool for Aiding the Instruction of Basic Factory Optimization Concepts (Texas A&M)
- Anand Srinivasan, 8/96, Effect of Material Handling in Job Shop Scheduling - A Simulation Based Search Approach (Texas A&M)
- Glenn Drake, 5/96, A Framework for On-line Simulation Systems (Texas A&M)
- Milan Chiploonkar, 12/95, Implementation of an Algorithm for Generating Feasible Paths in an AND/OR Graph (Texas A&M)
- Abhay Edalabakar (co-advised with Brett Peters), 5/95, Framework for a Flexible, Real-Time Controller for Automated Material Transport Systems (Texas A&M)
- Albert Thomas, 5/95, Multi-pass Simulation for Shop Floor Control (Texas A&M)
- Juan Carlos Vera, 12/93, An NC Program Simulator for Milling Machines (Texas A&M)

## **TEACHING / COURSE DEVELOPMENT**

### ***Auburn***

- INSY 7500\* – Advanced Simulation
- INSY 7400\* – Simulation Modeling and Analysis
- INSY 6230\* / INSY 7030\* – Manufacturing System Design
- INSY 6500 – Information Technology for Operations
- INSY 4800 – Senior Design
- INSY 4700\* – Manufacturing Systems 2
- INSY 4500 – Professional Practice
- INSY 3420\* - Simulation
- INSY 3010\* - Programming and Database Applications for Industrial Engineers

### ***Texas A&M***

- INEN 659\* – Advanced Manufacturing Systems Design
- INEN 655\* – Computer Control of Manufacturing Systems
- INEN 654\* – Manufacturing Systems Design and Analysis
- INEN 480 – Senior Design
- INEN 455\* – Digital Automation

INEN 320\* – Simulation

INEN 315 – Production Planning and Control

\* Course developed or substantially modified.

### **CONSULTING AND PROJECT/TRAINING WORK**

Consulting projects have included discrete event simulation modeling and language development, facilities design, planning and scheduling, and simulation education.

- Ashbrook Corp. – Houston, TX
- Bechtel-Nevada – Las Vegas, NV
- Biohorizons – Birmingham, AL
- Boeing – Seattle, WA
- Deadline Doctor – St. Louis, MO
- The Dennis Group – Duluth, GA
- eCarbonated – Las Vegas, NV
- GDM Wholesale, Birmingham, AL
- GKN Westland Aerospace – Tallassee, AL
- Harris Corporation, Melbourne, FL
- Lockheed-Martin – Troy, AL
- Niagara Bottling – Ontario, CA
- OFS – Carrollton, GA
- Rockwell Software – Pittsburgh, PA
- Sandia National Laboratories – Albuquerque, NM
- SBC Communications – Austin, TX
- Siemens VDO Automotive – Huntsville, AL
- Simio, LLC, Sewickley, PA
- Systems Modeling Corporation – Sewickly, PA
- Techsonic, Inc. – Eufaula, AL
- United States Tennis Association – White Plains, NY
- West Point Society of New York – New York, NY
- YKK-Inc – Novi, MI