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EDUCATION

Ph.D., Chemical Engineering University of Texas at Austin	2002
M.S., Chemical Engineering University of Texas at Austin	1998
Diploma, Chemical Engineering RWTH Aachen, Germany graduated Summa Cum Laude	1997

EXPERIENCE

Associate Professor Artie McFerrin Department of Chemical Engineering Texas A&M University, College Station, Texas	2009-present
Assistant Professor Artie McFerrin Department of Chemical Engineering Texas A&M University, College Station, Texas	2003-2009
Post-Doctoral Researcher Process Systems Engineering (Advisor: Wolfgang Marquardt) RWTH Aachen, Aachen, Germany	2002-2003
Graduate Research Assistant Department of Chemical Engineering (Advisor: Thomas F. Edgar) University of Texas at Austin, Austin, Texas	1997–2001

HONORS AND AWARDS

Keller Faculty Fellowship	2008-2009
Brockett Professorship	2008-2009
Outstanding Reviewer, Automatica	2007
Outstanding Reviewer, Automatica	2006
Best Paper Award, Chemical Process Control 7	2006
Outstanding Reviewer, Automatica	2005
Best Referee Award, Journal of Process Control	2004
William S. Livingston Graduate Fellowship	2001-2002
Finalist, Outstanding Graduate Teaching Assistant, Dept. of Chem. Eng.	2001
David Bruton, Jr. Graduate Fellowship	2000-2001
Springorum Medal	1998
Fulbright Scholarship	1995-1996

JOURNAL PUBLICATIONS

- Y. Chu and J. Hahn. Quantitative optimal experimental design using global sensitivity analysis via quasi linearization. In press *Industrial & Engineering Chemistry Research* (2009).
- Z. Huang, Y. Chu, B. Cunha, and J. Hahn. Generalization of a Procedure for Computing Transcription Factor Profiles. In press *IET Systems Biology* (2009).
- Y. Chu, Z. Huang, and J. Hahn. Improving Prediction Capabilities of Complex Dynamic Models via Parameter Selection and Estimation. *Chemical Engineering Science* **64**, No. 19, pp. 4178-4185 (2009).
- A. McArdle, U. Kruger, and J. Hahn. Multivariate Statistical Analysis Applied to an IL6 Signal Transduction Model in Hepatocytes. *Statistics in Medicine* **28**, No. 10, pp. 2401-2434 (2009).
- Y. Chu and J. Hahn. Parameter Set Selection via Clustering of Parameters into Pair-wise Indistinguishable Groups of Parameters. *Industrial & Engineering Chemistry Research* **48**, No.13, 6000-6009 (2009).
- C. Qu and J. Hahn. Process Monitoring and Parameter Estimation via Unscented Kalman Filtering. In press *Journal of Loss Prevention in the Process Industries* (2009).
- Z. Huang and J. Hahn. Fuzzy Modeling of Signal Transduction Networks. *Chemical Engineering Science* **64**, No. 9, 2044-2056 (2009).
- C. Qu and J. Hahn. Computation of Arrival Cost for Moving Horizon Estimation via Unscented Kalman Filtering. *Journal of Process Control* **19**, No.2, 358-363 (2009).
- Z. Huang, F. Senocak, A. Jayaraman, and J. Hahn. Integrated Modeling and Experimental Approach for Determining Transcription Factor Profiles from Fluorescent Reporter Data. *BMC Systems Biology* **2**:64 (2008). **Highly Accessed**.
- Y. Chu and J. Hahn. Integrating Parameter Selection with Experimental Design under Uncertainty for Nonlinear Dynamic Systems. *AIChE Journal* **54**, No. 9, pp. 2310-2320 (2008).
- J. Hahn, M. Mönnigmann, and W. Marquardt. On the Use of Bifurcation Analysis for Robust Controller Tuning for Nonlinear Systems. *Journal of Process Control* **18**, No. 3-4, pp. 408-420 (2008).
- J. Brewer, Z. Huang, A.K. Singh, M. Misra, and J. Hahn. Sensor Network Design via Observability Analysis and Principal Component Analysis. *Industrial & Engineering Chemistry Research* **46**, No. 24, pp. 8026-8032 (2007).
- Y. Chu and J. Hahn. Parameter Set Selection for Estimation for Nonlinear Dynamic Systems. *AIChE Journal* **53**, No. 11, pp. 2858-2870 (2007).
- Y. Chu, A.K. Singh, A. Jayaraman, and J. Hahn. Parameter Sensitivity Analysis of IL-6 Signaling Pathways. *IET Systems Biology* **1**, No. 6, pp. 342-352 (2007).
- Y. Chu, and J. Hahn. Development of Parameter Sensitivity Analysis Techniques for Studying Interactions among Parameters and Application to Systems Biology. *Dynamics of Continuous, Discrete and Impulsive Systems* **14**, No. S2, pp. 220-226, (2007).
- J. Hahn. Review: Introduction to Process Control. *Journal of Process Control* **17**, No. 2, pp. 187-188 (2007).
- A.K. Singh, A. Jayaraman, and J. Hahn. A Case Study of Representing Signal Transduction in Liver Cells as a Feedback Control Problem. *Chemical Engineering Education* **41**, No. 3, pp. 177-182 (2007).
- A.K. Singh, A. Jayaraman, and J. Hahn. Modeling Regulatory Mechanisms in IL-6 signal transduction in Hepatocytes. *Biotechnology & Bioengineering* **95**, No. 5, pp. 850-862 (2006).
- C. Sun and J. Hahn. Parameter Reduction for Stable Dynamical Systems based on Hankel Singular Values and Sensitivity Analysis. *Chemical Engineering Science* **61**, No. 16, pp. 5393-5403 (2006).
- A.K. Singh and J. Hahn. Determining Optimal Sensor Locations for Stable Nonlinear Dynamic Systems: the Multiple Sensor Case. *Industrial & Engineering Chemistry Research* **45**, No. 10, pp. 3615-3623 (2006).
- J. Hahn. Review: Handbook of PI and PID Controller Tuning Rules. *IEEE Control Systems Magazine* **26**, No. 1, pp. 92-93 (2006).
- S. Rajaraman, J. Hahn, and M.S. Mannan. Sensor Fault Diagnosis for Nonlinear Processes with Parametric Uncertainties. *Journal of Hazardous Materials* **130**, No. 1-2, pp. 1-8 (2006).

- W.H. Jang, J. Hahn, and K.R. Hall. The Design Benefit Method: A Framework for Allocating Joint Costs among Joint Products. *Hydrocarbon Processing* **85**, No. 1, (2006).
- Y. Zhou, J. Hahn, and M.S. Mannan. Process Monitoring Based on Classification Tree and Discriminant Analysis. *Reliability Engineering & System Safety* **91**, No. 5, pp. 546-555 (2006).
- C. Sun and J. Hahn. Model Reduction in the Presence of Uncertainty in Model Parameters, *Journal of Process Control* **16**, No. 6, pp. 645-649 (2006).
- W.H. Jang, J. Hahn, and K.R. Hall. Genetic/Quadratic Search Algorithm for Plant Economic Optimizations using a Process Simulator. *Computers and Chemical Engineering* **30**, No. 2, pp. 285-294 (2005).
- U. Krüger, D. Antory, J. Hahn, G.W. Irwin, and G. McCullough. Introduction of a Nonlinearity Measure for Principal Component Models. *Computers and Chemical Engineering* **29**, No. 11-12, pp. 2355-2362 (2005).
- A.K. Singh and J. Hahn. State Estimation for High-Dimensional Chemical Processes. *Computers and Chemical Engineering* **29**, No. 11-12, pp. 2326-2334 (2005).
- A.K. Singh and J. Hahn. Determining Optimal Sensor Locations for State and Parameter Estimation for Stable Nonlinear Systems. *Industrial & Engineering Chemistry Research* **44**, No. 15, pp. 5645-5659 (2005).
- C. Sun and J. Hahn. Reduction of Differential-Algebraic Equation Systems via Projections and System Identification. *Journal of Process Control* **15**, No. 6, pp. 639-650 (2005).
- G. Froment, M. El-Halwagi, J. Hahn, and S. Mannan. Foreword for the Special Issue on Modeling of Complex Processes. *Computers and Chemical Engineering* **29**, No. 11-12, pp. 2265 (2005).
- M. Guay, R. Dier, J. Hahn, and P.J. McLellan. Effect of Process Nonlinearity on Linear Quadratic Regulator Performance. *Journal of Process Control* **15**, No. 1, pp. 113-123, (2005).
- S. Rajaraman, J. Hahn, and M.S. Mannan. A Methodology for Fault Detection, Isolation, and Identification for Nonlinear Processes with Parametric Uncertainties. *Industrial & Engineering Chemistry Research* **43**, No. 21, pp. 6774 -6786, (2004).
- J. Hahn. Review: Handbook of PI and PID Controller Tuning Rules. *Journal of Process Control* **14**, No. 5, pp. 591 (2004).
- J. Hahn, M. Mönnigmann, and W. Marquardt. A Method for Robustness Analysis of Controlled Nonlinear Systems. *Chemical Engineering Science* **59**, No. 20, pp. 4325-4338 (2004).
- Y. Zhou, J. Hahn, and M.S. Mannan. Fault Detection and Classification in Chemical Processes Based on Neural Networks with Feature Extraction. *ISA Transactions* **42**, No. 3, pp. 651-664 (2003).
- J. Hahn, T.F. Edgar, and W. Marquardt. Controllability and Observability Covariance Matrices for the Analysis and Order Reduction of Nonlinear Systems. *Journal of Process Control* **13**, No. 2, pp. 115-127 (2003).
- J. Hahn and T.F. Edgar. An Improved Method for Nonlinear Model Reduction Using Balancing of Empirical Gramians. *Computers and Chemical Engineering* **26**, No. 10, pp. 1379-1397 (2002).
- J. Hahn, S. Lextrait, and T.F. Edgar. Nonlinear Balanced Model Residualization via Neural Networks. *AIChE Journal* **48**, No. 6, pp. 1353-1357 (2002).
- J. Hahn and T.F. Edgar. Balancing Approach to Minimal Realization and Model Reduction of Stable Nonlinear Systems. *Industrial & Engineering Chemistry Research* **41**, No. 9, pp. 2204-2212 (2002).
- J. Hahn, T. Edison, and T.F. Edgar. Adaptive IMC Control for Drug Infusion for Biological Systems. *Control Engineering Practice* **10**, No. 1, pp. 45-56 (2002).
- J. Hahn and T.F. Edgar. A Gramian Based Approach to Nonlinearity Quantification and Model Classification. *Industrial & Engineering Chemistry Research* **40**, No. 24, pp. 5724-5731 (2001).
- J. Hahn, T. Edison, and T.F. Edgar. A Note on Stability Analysis using Bode Plots. *Chemical Engineering Education* **35**, No. 3, pp. 208-211 (2001).
- T.F. Edgar, S.W. Butler, J. Campbell, C. Pfeiffer, C. Bode, S.B. Hwang, K.S. Balakrishnan, and J. Hahn. Automatic Control in Microelectronics Manufacturing: Practices, Challenges, and Possibilities. *Automatica* **36**, No. 11, pp. 1567-1603 (2000).

BOOKS AND BOOK CHAPTERS

- A. Jayaraman and J. Hahn (editors). *Methods in Bioengineering: Systems Analysis of Biological Networks*. ISBN-13: 978-1-59693-406-1, Artech House, Boston, Massachusetts (2009).
- Z. Huang and J. Hahn. Comparison of Algorithms for Analyzing Fluorescent Microscopy Images and Computation of Transcription Factor Profiles. *Methods in Bioengineering: Systems Analysis of Biological Networks*, Artech House, Boston, Massachusetts, pp. 33-56 (2009).
- T.F. Edgar and J. Hahn. Process Automation. *Handbook of Automation*, Springer-Verlag, New York, pp. 529-543 (2009).
- J. Hahn and T.F. Edgar. Process Control. *Kirk-Othmer Concise Encyclopedia of Chemical Technology*, 5th edition, John Wiley & Sons, New York (2007).
- S. Rajaraman, U. Kruger, M.S. Mannan, and J. Hahn, A New Sensor Fault Diagnosis Technique Based Upon Subspace Identification and Residual Filtering., *Computational Intelligence*, LNAI, Vol. 4114, Springer, Heidelberg, Germany, pp. 990-998 (2006).
- T.F. Edgar and J. Hahn. Process Dynamics and Control. *The Electronics Handbook*, 3rd edition, CRC Press, Boca Raton, Florida, pp. 1974-1995 (2004).
- M. Mönnigmann, J. Hahn, and W. Marquardt. Towards Constructive Nonlinear Dynamics in Chemical Engineering. *Nonlinear Dynamics of Production Systems*, Wiley-VCH, Weinheim, Germany, pp. 503-526 (2004).
- J. Hahn and T.F. Edgar. Process Control. *Kirk-Othmer Encyclopedia of Chemical Technology*, 5th edition, John Wiley & Sons, New York (2003).
- J. Hahn and T.F. Edgar. Process Control Systems. *Encyclopedia of Physical Science and Technology*, 3rd edition, 3rd edition, Vol. 13, Academic Press, San Diego, California, pp. 111-126 (2001).

CONFERENCE PRESENTATIONS AND PAPERS (Conferences with Proceedings)

- Z. Huang, Y. Chu, and J. Hahn. Derivation of a Reduced IL-6 Signal Transduction Model. *Proc. FOSBE 2009*, Denver, Colorado, pp. 32-35 (2009).
- Z. Huang, C. Moya, C. Peng, A. Jayaraman, and J. Hahn. In Silico Investigation of IL-6 and IL-10 Signaling in Steatosis. *Proc. FOSBE 2009*, Denver, Colorado, pp. 28-31 (2009).
- Z. Huang, F. Senocak, A. Jayaraman, and J. Hahn. Solution of Inverse Problems for Obtaining Protein Concentrations from Fluorescent Microscopy Images. *Proc. ACC 2009*, St. Louis, Missouri, pp. 1688-1693 (2009).
- Y. Chu and J. Hahn. Selection of Parameter Sets and Design of Experiments for Estimation of Nonlinear Dynamic Systems. *Proc. 2008 IFAC World Congress*, Seoul, Korea, pp. 5545-5550 (2008).
- Z. Huang and J. Hahn. Fuzzy Modeling of Signal Transduction Networks. *Proc. 2008 IFAC World Congress*, Seoul, Korea, pp. 15867-15872 (2008). **Invited Paper**.
- Z. Huang, Y. Chu, F. Senocak, A. Jayaraman, and J. Hahn. Model Update of Signal Transduction Pathways in Hepatocytes based upon Sensitivity Analysis. *Proc. FOSBE 2007*, Stuttgart, Germany, pp. 45-50 (2007). **Plenary Presentation**.
- A. McArdle, U. Kruger, T. Littler, and J. Hahn. Analysis of IL6 Signal Transduction Model using Reduced Rank Regression. *Proc. 2007 IEEE Conf. on Systems and Control*, Singapore (2007).
- A.K. Singh and J. Hahn. Effect of Finite-Dimensional Approximations on Observability Analysis of Distributed Parameter Models. *Proc. DYCOPS 2007*, Cancun, Mexico, Vol. 3, pp. 199-204 (2007).
- A.K. Singh, A Jayaraman, and J. Hahn. Effect of SHP-2, SOCS3, and PP2 on IL-6 Signal Transduction in Hepatocytes. *Proc. Amer. Cont. Conf.*, Minneapolis, Minnesota, pp. 3771–3776 (2006).
- A.K. Singh and J. Hahn. Sensor Location for Stable Nonlinear Systems: Placing Multiple Sensors. *Proc. Chemical Process Control 7*, Lake Louise, Canada (2006). **Best Contributed Paper Award**.
- A.K. Singh, A Jayaraman, and J. Hahn. Mathematical Model of IL-6 Signal Transduction in Hepatocytes. *Proc.FOSBE 2005*, Santa Barbara, California, pp. 188-192 (2005).
- S. Rajaraman, M.S. Mannan, and J. Hahn. A Parametric Approach to Robust State and Parameter Estimation for a Certain Class of Nonlinear Systems. *Proc. Amer. Cont. Conf.*, Portland, Oregon, pp. 3610 - 3615, (2005). **Best Paper in Session Award**.

- A.K. Singh and J. Hahn. On the Use of Empirical Gramians for Controllability and Observability Analysis. *Proc. Amer. Cont. Conf.*, Portland, Oregon, pp. 140–146 (2005). **Best Paper in Session Award**.
- C. Sun and J. Hahn. On the Use of Partial Least Squares (PLS) and Balancing for Nonlinear Model Reduction. *Proc. Amer. Cont. Conf.*, Portland, Oregon, pp. 2572–2577 (2005). **Best Paper in Session Award**.
- A.K. Singh and J. Hahn. Optimal Sensor Location for Nonlinear Dynamic Systems via Empirical Gramians. *Proc. DYCOPS 2004*, Boston (2004).
- J. Hahn, M. Mönnigmann, and W. Marquardt. Robust Tuning of Feedback Linearizing Controllers via Bifurcation Analysis. *Proc. ADCHEM 2003*, Hong-Kong, China, pp. 525-530 (2003).
- M. Mönnigmann, J. Hahn, and W. Marquardt. Towards Constructive Nonlinear Dynamics - Case Studies from Chemical Engineering. *4th Intl. Symp. on the "Investigation of Nonlinear Dynamic Effects in Production Systems"*, Chemnitz, Germany (2003).
- J. Hahn, U. Krüger, and T.F. Edgar. Application of Model Reduction for Model Predictive Control. *Proc. 2002 IFAC World Congress*, Vol. H, Barcelona, Spain (2002).
- R. Good, J. Hahn, T. Edison, and S.J. Qin. Drug Dosage Adjustment via Run-to-Run Control. *Proc. Amer. Cont. Conf.*, Anchorage, Alaska, pp. 4044-4049 (2002).
- J. Hahn and T.F. Edgar. Reduction of Nonlinear Models using Balancing of Empirical Gramians and Galerkin Projections. *Proc. Amer. Cont. Conf.*, Chicago, Illinois, pp. 2864-2868 (2000).

CONFERENCE PRESENTATIONS (Conferences without Proceedings)

- Z. Huang, C. Moya, P. Cheng, A. Jayaraman, and J. Hahn. Mathematical Modeling of IL-6 and IL-10 Signal Transduction in Steatosis. AIChE 2009 Annual Meeting, Nashville, Tennessee (2009).
- Y. Chu and J. Hahn. A New Global Sensitivity Analysis Procedure Involving Quasi Linearization for Optimal Experimental Design. AIChE 2009 Annual Meeting, Nashville, Tennessee (2009).
- Z. Huang, Y. Chu, and J. Hahn. Derivation of Reduced Models for Signal Transduction Pathways via Sensitivity and Observability Analysis. AIChE 2009 Annual Meeting, Nashville, Tennessee (2009).
- R. Kaunas, Z. Huang, and J. Hahn. A Kinematic Model Coupling Stress Fiber Dynamics with JNK Activation in Response to Matrix Stretching. 2009 Summer Bioengineering Conference, Lake Tahoe, California (2009).
- Z. Huang, F. Senocak, A. Jayaraman, and J. Hahn. Quantitative Measurement Technique for Transcription Factor Profiles. AIChE 2008 Annual Meeting, Philadelphia, Pennsylvania (2008).
- Y. Chu, Z. Huang, and J. Hahn. Analysis Procedure for Signal Transduction Pathways by Clustering Parameters According to their Sensitivity Profiles. AIChE 2008 Annual Meeting, Philadelphia, Pennsylvania (2008).
- C. Qu and J. Hahn. Computation of Arrival Cost for Moving Horizon Estimation via Unscented Kalman Filtering. AIChE 2008 Annual Meeting, Philadelphia, Pennsylvania (2008).
- Y. Chu and J. Hahn. Parameter Set Selection Via Clustering of Parameters into Pair-Wise Indistinguishable Groups of Parameters. AIChE 2008 Annual Meeting, Philadelphia, Pennsylvania (2008).
- Y. Chu, Z. Huang, and J. Hahn. Sensitivity Analysis used for Parameter Estimation of Signal Transduction Networks. SIAM Conference on the Life Sciences, Montreal, Canada (2008).
- E.P. Gatzke and J. Hahn. Cache Virtual Process Control Book: Online Resources for Graduate Process Control Instruction. AIChE 2007 Annual Meeting, Salt Lake City, Utah (2007).
- Y. Chu, R. Cox, M. Misra and J. Hahn. Parameter Set Selection for Estimation of Nonlinear Dynamic Systems. AIChE 2007 Annual Meeting, Salt Lake City, Utah (2007).
- Y. Chu and J. Hahn. Analysis of Interactions among the Components in the Il-6 Signaling Pathways. AIChE 2007 Annual Meeting, Salt Lake City, Utah (2007).
- Z. Huang and J. Hahn. Development and Comparison of Algorithms for Analysis of Fluorescent Images for Studying the Dynamics of Signal Transduction Pathways. AIChE 2007 Annual Meeting, Salt Lake City, Utah (2007).

- P. Balbuena, J. Hahn, and V. Ugaz. Integrating Current Research Trends in Undergraduate Education. 2007 Engineering Education NSF Awardees Conference, Arlington, Virginia (2007).
- C. Qu and J. Hahn. Process Monitoring and Parameter Estimation via Unscented Kalman Filtering. AIChE 2007 Spring National Meeting, Houston, Texas (2007).
- Y. Chu and J. Hahn. Development of Parameter Sensitivity Analysis Technique for Studying Interactions among Parameters and Application to Systems Biology. *5th International Conference On Differential Equations and Dynamical Systems*, Edinburg, Texas (2006)
- Y. Chu, A.K. Singh, A. Jayaraman, and J. Hahn. Sensitivity Analysis-Based Approach for Identifying Key Steps in Cell Signaling for Hepatocytes Stimulated by Il-6. *AIChE 2006 Annual Meeting*, San Francisco, California (2006).
- A.K. Singh and J. Hahn. Computing Sensor Locations for Nonlinear Systems under the Influence of Disturbances. *AIChE 2006 Annual Meeting*, San Francisco, California (2006).
- J. Brewer, A.K. Singh, M. Misra, and J. Hahn. Sensor Network Design Via Observability Analysis and Principal Component Analysis. *AIChE 2006 Annual Meeting*, San Francisco, California (2006).
- C. Sun and J. Hahn. Parameter Reduction for Nonlinear Models Based on Hankel Singular Values and Sensitivity Analysis. *AIChE 2005 Annual Meeting*, Cincinnati, Ohio (2005).
- A.K. Singh and J. Hahn. Determining Sensor Locations for Stable Nonlinear Systems: the Multiple Sensor Case. *AIChE 2005 Annual Meeting*, Cincinnati, Ohio (2005).
- A.K. Singh, A. Jayaraman, and J. Hahn. Mathematical Model of Il-6 Signal Transduction in Hepatocytes. *AIChE 2005 Annual Meeting*, Cincinnati, Ohio (2005).
- U. Krüger, D. Antory, J. Hahn, G.W. Irwin, and G. McCullough. Introduction of a Nonlinearity Measure for Principal Component Models. *Symposium on Modeling of Complex Processes*, College Station, Texas (2005).
- A.K. Singh and J. Hahn. Reduced-Order Observers for High-Dimensional Chemical Processes. *Symposium on Modeling of Complex Processes*, College Station, Texas (2005).
- A.K. Singh and J. Hahn. Reduced-Order Observers for High-Dimensional Chemical Processes. *AIChE 2004 Annual Meeting*, Austin, Texas (2004).
- S. Rajaraman, M.S. Mannan, and J. Hahn. Robust Fault Detection, Isolation, and Reconstruction for Nonlinear Processes with Parametric Uncertainties. *AIChE 2004 Annual Meeting*, Austin, Texas (2004).
- C. Sun and J. Hahn. Nonlinear Model Reduction of DAE Systems. *AIChE 2004 Annual Meeting*, Austin, Texas (2004).
- A.K. Singh and J. Hahn. Determining Optimal Sensor Locations for Parameter Estimation via Covariance Matrices. *AIChE 2004 Annual Meeting*, Austin, Texas (2004).
- J. Hahn, M. Mönnigmann, and W. Marquardt. Determining the Effect of Model Uncertainty on Controller and Observer Design via Bifurcation Analysis. *AIChE 2003 Annual Meeting*, San Francisco, California (2003).
- J. Hahn, M. Mönnigmann, and W. Marquardt. Determining the Effect of Model Uncertainty on Controller and Observer Design via Bifurcation Analysis. *AIChE 2003 Annual Meeting*, San Francisco, California (2003).
- J. Hahn and T.F. Edgar. Nonlinearity Quantification and Model Classification using Gramians and other Variance Matrices. *AIChE 2001 Annual Meeting*, Reno, Nevada (2001).
- J. Hahn, S. Lextrait, and T.F. Edgar. Nonlinear Balanced Model Residualization via Neural Networks. *AIChE 2000 Annual Meeting*, Los Angeles, California (2000).

INVITED TALKS

- Connecting Academia to Industry - Trends in Engineering Programs, Curriculums, and Workforce Development. ISA Expo, October 6, 2009, Houston, Texas.
- Developing Improved Models of Signal Transduction Pathways via Systems Biology. Department of Electrical and Computer Engineering, Texas A&M University, September 29, 2009, College Station, Texas.

- Developing Improved Models of Signal Transduction Pathways via Systems Biology. School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, January 14, 2009, Atlanta, Georgia.
- Sensitivity Analysis used for Parameter Estimation of Signal Transduction Networks. SIAM Conference on the Life Sciences, August 4, 2008, Montreal, Canada.
- Computing Transcription Factor Concentrations from Green Fluorescent Protein Reporter System Data. National Taiwan University, July 14, 2008, Taipei, Taiwan.
- Fuzzy Modeling of Signal Transduction Networks. International Federation of Automatic Control World Congress, July 11, 2008, Seoul, Korea.
- Modeling Regulatory Mechanisms in IL-6 Signal Transduction in Heptocytes, Department of Chemical and Petroleum Engineering, University of Pittsburgh, March 23, 2007, Pittsburgh, Pennsylvania.
- Development of Parameter Sensitivity Analysis Technique for Studying Interactions among Parameters and Application to Systems Biology. 5th International Conference On Differential Equations and Dynamical Systems, University of Texas-Pan American, December 16, 2006, Edinburg, Texas.
- Modeling Regulatory Mechanisms in IL-6 Signal Transduction in Heptocytes, Department of Chemical Engineering, Auburn University, November 29, 2006, Auburn, Alabama.
- Nonlinear Model Reduction and its Application to Model Predictive Control. Conference on Adaptive Model Reduction Methods for PDE Constrained Optimization, Rice University, May 18, 2006, Houston, Texas.
- Nonlinear Model Reduction and its Application to Model Predictive Control. Department of Computational & Applied Mathematics, Rice University, April 17, 2006, Houston, Texas.
- Determining Optimal Sensor Locations for State and Parameter Estimation. ExxonMobil, April 12, 2006, Baytown, Texas.
- Determining Optimal Sensor Locations for State and Parameter Estimation. Texas-Wisconsin Modeling and Control Consortium, University of Texas at Austin, February 7, 2005, Austin, Texas.
- Analysis and Order Reduction of Nonlinear Systems and Application to Model Predictive Control. Department of Chemical Engineering, Worcester Polytechnic Institute, March 19, 2004, Worcester, Massachusetts.
- Modeling, Analysis, Optimization and Control of Complex Dynamic Systems. Catalytic Distillation Technologies, October 9, 2003, Pasadena, Texas.
- Modeling, Analysis, Optimization and Control of Complex Dynamic Systems. Shell, August, 2003, Houston, Texas.
- Analysis and Order Reduction of Nonlinear Systems and Application to Model Predictive Control. School of Electrical & Electronic Engineering, Queen's University Belfast, March 13, 2003, Belfast, United Kingdom.
- Nonlinear Model Reduction and its Application to Model Predictive Control. Center for Chemical Process Design and Control, Lund Institute of Technology, November 18, 2002, Lund, Sweden.
- Analysis of Nonlinear Systems via Controllability and Observability Covariance Matrices. Department of Chemical Engineering, Purdue University, April 2, 2002, West Lafayette, Indiana.
- Analysis of Nonlinear Systems via Controllability and Observability Covariance Matrices. Department of Chemical Engineering, University of Massachusetts at Amherst, March 14, 2002, Amherst, Massachusetts.
- Analysis of Nonlinear Systems via Controllability and Observability Covariance Matrices. Department of Chemical Engineering, Texas A&M University, January 10, 2002, College Station, Texas.
- Analysis of Nonlinear Systems via Controllability and Observability Covariance Matrices. Department of Chemical Engineering, Georgia Institute of Technology, January 7, 2002, Atlanta, Georgia.
- Analysis of Nonlinear Systems via Controllability and Observability Covariance Matrices. Institut für Systemtheorie Technischer Prozesse, Universität Stuttgart, May 14, 2001, Stuttgart, Germany.
- Analysis of Nonlinear Systems via Controllability and Observability Covariance Matrices. Max Planck Institut für Dynamik komplexer technischer Systeme, May 9, 2001, Magdeburg, Germany.
- Analysis of Nonlinear Systems via Controllability and Observability Covariance Matrices. Lehrstuhl für Prozesstechnik, RWTH Aachen, May 7, 2001, Aachen, Germany.