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Dept. Of Mechanical Engineering
The University of Michigan
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EDUCATION: **Massachusetts Institute of Technology, Cambridge, MA**

Ph.D. Mechanical Engineering, 1983

S.M. Mechanical Engineering, 1976

S.B. Mechanical Engineering, 1976

University of Massachusetts, Amherst, MA

B.S. Premedical Studies with a minor in Psychology, 1973

RESEARCH AND PROFESSIONAL EXPERIENCE:

University of Michigan, Ann Arbor, MI

2012- Professor, Design Science Program
Participating faculty member in the new Ph.D. program in Design Science.

1996- Professor, Dept. of Mechanical Engineering (name changed 7/00).
Specializing in areas of algorithms for deducing or reducing proper dynamic system models to design and control resilient and sustainable systems. Model parameter and estimation as well as Optimal Design of Experiments. Applications across many domains some in which include; hybrid and electric vehicles, vehicle to grid integration, design for health conscious battery performance, internet-distributed hardware in-the-loop simulation and resilient and sustainable infrastructures.

1994-2009 Thrust Area Leader of the Automotive Research Center (ARC)

1994- Leader of the ARC's Dynamics and Controls of Vehicle and Mobile Robotics Thrust Area

Research and teaching in system dynamics and control, advanced battery modeling and control, hybrid electric vehicle design, automated modeling, vehicle modeling and simulation for design, machine design and control, machine monitoring, and high speed precision spindles,

1988-1996 **University of Michigan, Ann Arbor, MI**

Associate Professor, Dept. of Mech. Engr. and Applied Mech.

Research and teaching in system dynamics, control, machine diagnostics, machine design and control, computer-assisted modeling and design and control of artificial limbs.

1983-88 **University of Michigan, Ann Arbor, MI**

Assistant Professor, Dept. of Mech. Engr. and Applied Mech.

- 1991-
& 1983-1987** **Independent Consultant, Ann Arbor, MI**
Design analysis of mechanical systems and manufacturing machines.
- 1988-1991** **Failure Analysis Associates, San Francisco, CA**
Consultant
Design analysis of mechanical systems and manufacturing machines.

SPECIALIZED PROFESSIONAL COMPETENCE:

Automated Modeling of Dynamic Systems; Proper modeling. Modeling, analysis, design and control of mechanical systems. Modeling and design of automatic control systems; electromechanical, hydraulic and pneumatic servosystems. Vehicle Electrification. Design and Control of Hybrid, Plug-In Hybrid and Electric Vehicle. Batter health conscious charging. Internet-Distributed Hardware in-the-Loop Simulation. Vehicle (automobiles and trucks) handling, ride, mobility. Vehicle suspension and drivetrain design, modeling, control and simulation. Hybrid vehicles. Design and control of machine tool systems; machine tool drive systems and machine tool diagnostics; sensors, signal processing, model based diagnostics techniques; gear backlash dynamics, slide friction characteristics, high speed spindle bearing design, machine guarding. Biomechanics and modeling of human locomotion. Design and control of prosthetic devices.

AWARDS, HONORS and MEMBERSHIP:

ASME DSCC 2013 Best Student Paper, Finalist (Ph.D. student Xin Zhou) "Battery Health Diagnostics Using Retrospective-Cost System Identification: Sensitivity to Noise and Initialization Errors"

ASME DSCD Michael J. Rabins Leadership Award, 2012. "For distinguished and steadfast leadership within the Dynamics Systems and Control Division, for promoting efficiency and integrity in division governance, and for advancing the reputation of the division nationally and internationally."

ASME DSCC 2012 Semi-Plenary Talk based on paper "The evolution and future of Internet-distributed hardware-in-the-loop simulation from a dynamic systems and control perspective" selected as one of six from a total of 350 conference papers.

Invited Speaker, Congressional Briefing, "The Road to the New Energy Economy: Electric Cars", March 23, 2011, Rayburn Office Bldg., Washington, DC.

ASME Dedicated Service Award, 2010. For “unusual dedicated voluntary service to the ASME marked by outstanding performance, demonstrated effective leadership, prolonged and committed service, devotion, enthusiasm and faithfulness”.

Invited Plenary Speaker, 2010 International Conference on Bond Graph Modeling, Orlando, FL.

Invited Panelist and Speaker for “Toward Green Mobility: Integrating Electric Drive Vehicles and Smart Grid Technology” sponsored by the American Association for the Advancement of Science, 2010.

The most downloaded article of the month, *Journal of Dynamic Systems Measurement and Control*, for the manuscript “A Review of Proper Modeling Techniques” (Oct 2008)

Guest Editor of a Special Issue, ASME Transactions: *Journal of Dynamic Systems Measurement and Control* on Physical System Modeling, 2010

ASME DSCC 2009 Best Student Paper, Finalist (Ph.D. student Scott Moura), “Control of Film Growth in Lithium Ion Battery Packs via Switches”

Associate Editor Modeling *Simulation Modeling Practice and Theory*, International Journal of the Federation of European Simulation Societies, 2009-2011

Area Editor of *Simulation: Transactions of The Society for Modeling and Simulation International*, (2007-9).

ASME – Fellow, named by the Board of Governors of ASME, September, 2005

Outstanding Teacher, Department of Mechanical Engineering Teacher Incentive Program, 1999-2000.

Invited manuscript in the Special 50th Anniversary Issue of the *Journal of Dynamic Systems Measurement and Control*, 1993

Named one of the “125 Alumni to Watch” by the University of Massachusetts, Amherst, 1988.

Presidential Young Investigator Award, National Science Foundation, 1987

Research Incentive Award, Exxon Foundation Faculty Assistance Program, 1984

Chair, Executive Committee, Dynamics Systems and Control Division of American Society of Mechanical Engineers (ASME), 2001- 2002

Past Associate Editor of the ASME *Journal of Dynamic Systems Measurement and Control* (1991- 1996)

Member of the National Society of Professional Engineers, ASME, Past Chairman of the Modeling and Identification; Biomechanical Systems; and Manufacturing Systems Technical Panels of the Dynamic Systems and Control

Division of ASME, Society of Manufacturing Engineers,
Society of Automotive Engineers, American Society of
Engineering Educators, The Society for Computer Simulation
and honorary societies; Phi Beta Kappa, Pi Tau Sigma, Phi
Kappa Phi and Sigma Xi.

PROFESSIONAL:

1990 - Registered Professional Engineer, #36154, State of Michigan

REFERENCES:

Available upon request

PUBLICATIONS:

Books/Chapters

- 1) Loucas, L.S., Rideout, D.G., Ersal T., Stein, J.L. (2011) "Energy-Based Bond Graph Model Reduction" Chapter 2 in Book *Bond Graph Modelling of Engineering Systems*, Springer Science+Business Media, LLC 2011, Ed. Wolfgang Borutzky.

Archival Journals¹

- 1) Stein, J. L. and Hedrick, J. K., 1980 "Influence of Fifth Wheel Location on Truck Ride Quality", *Transportation Research Record* 774, pp. 31-39, National Academy of Sciences.
- 2) Stein, J. L. and Flowers, W. C., 1987 "Stance Phase Control of Above-Knee Prostheses: Knee Control Versus SACH Foot Design," *Journal of Biomechanics*, Vol. 20, No. 1, pp. 19-28. (Also appeared in the Proceedings of the 1987 ASME Biomechanics Symposium).
- 3) Stein, J. L., Colvin, D. ., Clever, G. and Wang, C.-H., 1986 "Evaluation of DC Servo Machine Tool Feed Drives As Force Sensors" *Journal of Dynamic Systems Measurement and Control*, Vol. 108, No. 4., pp. 279-288, Dec. (Also appeared in the 1984 *Proceeding of the Symposium on Sensors and Controls for Automated Manufacturing and Robotics*, ASME Winter Annual Meeting).
- 4) Stein, J. L., and Shin K.-C., 1986 "Current Monitoring on Field Controlled DC Spindle Drives", *Journal of Dynamic Systems Measurement and Control*, Vol. 108, No. 4, pp. 289-295, Dec. (Also appeared in the *Proceeding of the 1985 Symposium on Sensors and Controls for Manufacturing*, ASME Winter Annual Meeting).

¹ It is common practice in the field of Mechanical Engineering to present and publish research results at professional meetings (conferences). Often these results are also published in archival journals as either similar or revised papers. The relationship between papers published in different venues is indicated in some but not all places in this publication list.

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- 5) Stein, J.L. and Park, Y., 1988 "Measurement Signal Selection and a Simultaneous State and Input Observer", *Journal of Dynamic Systems Measurement and Control*. Vol. 110, No. 2, June. (Also appeared in the *Proceedings of the 1987 American Control Conference*).
- 6) Stein, J. L., Flowers, W. C. and Yigit, A., 1987 "Modeling Prosthetic Gait", *Journal of Biomechanics*, (accepted for publication). (Also appeared in the *Proceedings of the 1987 ASME Biomechanics Symposium*).
- 7) Stein, J.L., and Park, Y., 1988 "Closed Loop Simultaneous Input and State Observer", *International Journal of Control*, Vol. 48, No. 3, pp. 1121-36. (Also appeared in the Symposium on *Sensors For Manufacturing*, 1987 ASME Winter Annual Meeting.)
- 8) Stein, J.L. and Park, Y. "Modeling and Sensing Issues for Machine Diagnostics", *IEEE Control Systems* (accepted for publication but not published). (also appeared in the 1988 *Proceedings of the American Control Conference*).
- 9) Stein, J.L. and Park, Y., 1989 "Steady-State, Optimal State and Input Observer for Discrete Stochastic Systems", *Journal of Dynamic Systems Measurement and Control* Vol. 111, pp. 121-127, June. (Also appeared as "Steady-State, Optimal State and Input Observer" in the Symposium on *Expert Systems and Intelligent Control*, 1987 ASME Winter Annual Meeting).
- 10) Stein, J. L., Wang, C.-H., 1990 "Analysis of Power Monitoring on AC Induction Drive Systems", *Journal of Dynamic Systems, Measurement and Control*, Vol. 112, No. 2, pp. 239--248, June. (Also appeared in the 1986 Symposium on *Sensors and Controls for Manufacturing*, Proceedings of the 1986 ASME Winter Annual Meeting).
- 11) Stein, J.L. 1993 "Modeling And State Estimator Design Issues for Model-Based Monitoring Systems" Special 50th Anniversary Issue of the *Journal of Dynamic Systems Measurement and Control*, Vol. 115, No. 2(B) June. (This paper was solicited by the editorial board of the 50th Anniversary Issue and reviewed anonymously.)
- 12) Stein, J.L. and Tu, J.F. 1994 "A State Space Model for Monitoring Thermally-Induced Preload in Anti-Friction Spindle Bearings of High Speed Machine Tools" *Journal of Dynamic Systems Measurement and Control*, Vol. 11, No. 3, September, pp. 372-386. (Also appeared in the Symposium on *Control of Manufacturing Processes*, Proceedings of the 1991 ASME Winter Annual Meeting.)
- 13) Huh, K. and Stein J.L. 1994 "A Quantitative Performance Index for Observer-Based Monitoring Systems" *Journal of Dynamic Systems Measurement and Control*, Vol. 11, No. 3, September, pp. 487-497. (Also appeared in the *Proceedings of the 1993 American Control Conference on Automatic Control*.)
- 14) Tu, J.F. and Stein, J.L. 1995 "On-line Preload Monitoring for Anti-Friction Spindle Bearings of High-Speed Machine Tools" *Journal of Dynamic Systems Measurement and Control* Vol. 117, No. 1, March, pp. 43-53. (Also appeared in the *Proceedings of the 1992 American Control Conference*. Awarded Best Paper of the Technical Session)

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- 15) Huh, K. and Stein J.L. 1995 “Well-Conditioned Observer Design for Observer-Based Monitoring Systems” *Journal of Dynamic Systems Measurement and Control* Vol. 117, No. 4, December, pp. 592-599. (Also appeared in the *Proceedings of the 1993 American Control Conference on Automatic Control*, Nominated for O. Hugo Schuck, Best Paper of Conference.)
- 16) Stein J.L and Wilson, B.H. 1995 “An Algorithm for Obtaining Proper Models of Distributed and Discrete Systems” *Journal of Dynamic Systems Measurement and Control* Vol 117, No. 4, December, pp. 534-540. (An earlier version also appeared in 1992 Symposium on *Automated Modeling, Proceedings of the 1992 ASME Winter Annual Meeting*.)
- 17) Tu, J.F. and Stein, J.L. 1996 “Active Thermal Preload Regulation for Machine Tool Spindles with Rolling Element Bearings” ASME Transactions: *Journal of Manufacturing Science and Engineering*. Vol. 118, No. 4, pp. 499-505, November. (An earlier version appeared in the Symposium on *Mechatronics in Manufacturing, Proceedings of the 1994 ASME Winter Annual Meeting*, Chicago, IL.)
- 18) Stein, J.L. and Wang, C.W. 1996 "Automatic Detection of Clearance in Mechanical Systems: Experimental Validation", *Journal of Mechanical Systems and Signal Processing*. Vol. 10, No. 4, pp. 395-412, July. (Also appeared as Stein, J.L. and Wang, C.W., 1990 "Automatic Detection of Clearance in Mechanical Systems: Experimental Validation" *Proceedings of the USA/Japan Symposium on Flexible Automation*, July, Kyoto, Japan.)
- 19) Tu, J.F. and Stein, J.L. 1996 “Model Error Compensation for Bearing Temperature and Preload Estimation” ASME Transactions: *Journal of Dynamic Systems Measurement and Control* , Vol. 118, No. 3, pp. 580-585, Sept.
- 20) Ohl, G., Stein, J.L. and Smith E. 1996 “Fundamental Factors in the Design of a Fast Responding Methanol to Hydrogen Steam Reformer for Transportation Applications” *Transactions of the ASME: Journal of Energy Resources Technology*, Vol. 118, No. 2, June.
- 21) Stein, J.L. and L.S. Louca, 1996. “A Template-Based Modeling Approach for System Design: Theory and Implementation”. *Transactions of the Society for Computer Simulation International*, Vol. 13, No. 2, pp.87–101. Published by the Society for Computer Simulation, ISSN 0740-6797, San Diego, CA. (Also appeared as Stein, J.L. and Louca, L.S. 1995 “A Component-Based Modeling Approach for System Design: Theory and Implementation” *Proceedings of the 1995 International Conference on Bond Graph Modeling*, pp. 109-115, Las Vegas, NV.)
- 22) Huh, K. and Stein J.L. 1997 “A Non-Normality Measure of The Condition Number For Monitoring And Control” *Journal of Dynamic Systems Measurement and Control*, Vol. 119, No. 2, pp 217-222, June,

- 23) Stein, J.L., and Wang C.W. 1998 "Estimation of Gear Backlash: Theory And Simulation", *Journal of Dynamic Systems Measurement and Control*, Vol. 120, No. 1, pp. 74-82. (Revised version of Stein, J.L., and Wang C.W., "Automatic Detection Of Clearance In Mechanical Systems: Theory And Simulation", *Proceedings of the 1995 American Control Conference on Automatic Control* , Seattle, WA.)
- 24) Tu, J.F. and Stein, J.L., 1998, "Model Error Compensation for Observer Design" *International Journal of Control*, Vol. 69, No. 2, pp. 329 - 345.
- 25) Ferris, J., Stein, J.L. and Bernitsas, M. 1998 "Development Of Proper Models of Hybrid Systems" *Journal of Dynamic Systems Measurement and Control*, Vol. 120, No. 3, pp. 328 – 333. (Also appeared as Ferris, J., Stein, J.L. and Bernitsas, M. 1994 "Development Of Proper Models of Hybrid Systems" 1994 ASME WAM Symposium on Automated Modeling, Chicago, IL.)
- 26) Park, Y.P. and Stein, J.L., 1999 "Recursive Optimal State and Input Observer for Discrete Time-Variant Systems" *Transaction on Control, Automation and Systems Engineering* Vol. 1, No. 2, December, published by the Institute of Control, Automation and Systems Engineering, Korea. (This is a revision of what appeared in the proceedings of the 1989 ASME Winter Annual Meeting).
- 27) Ferris, J. B., M. M. Bernitsas and J. L. Stein, 2000, "Redesigning the Dynamics of Complex Structural Systems," *AIAA Journal*, Vol. 38, No. 1, pp. 147-154.
- 28) Walker, D.G., Stein, J.L. and Ulsoy A.G. 2000 "An input-Output Criterion for Linear Model Deduction" *Journal of Dynamic Systems Measurement and Control*, Vol. 122, No. 3, pp. 507-513. (Also appeared as Walker, D.G., Stein, J.L. and Ulsoy A.G. 1996 "An input-Output Criterion for Linear Model Deduction" *Proceedings of the Dynamic Systems and Control Division*, 1996 ASME IMECE, Atlanta, GA.).
- 29) Assanis, D.N., Z.S. Filipi, S. Gravante, D. Grohnke, X. Gui, L.S. Louca, G.D. Rideout, J.L. Stein, Y. Wang, 2000. "Validation and Use of SIMULINK Integrated, High Fidelity, Engine-In-Vehicle Simulation of the International Class VI Truck". 2000 *SAE Transactions – Journal of Engines*. Published by the Society of Automotive Engineers, ISBN 0-7680-0842-5, Warrendale, PA. Also presented at the *SAE 2000 World Congress*, Paper 2000-01-0288.
- 30) Michelena, N.F., L.S. Louca, M. Kokkolaras, Chan-Chiao Lin, Dohoy Jung, Z.S. Filipi, D.N. Assanis, P.Y. Papalambros, H. Peng and J.L. Stein, 2001. "Design of an Advanced Heavy Tactical Truck: A Target Cascading Case Study". 2001 *SAE Transactions – Journal of Commercial Vehicles*. Published by the Society of Automotive Engineers, Warrendale, PA. Also presented at the 2001 *SAE International Truck and Bus Meeting and Exposition*, Paper 2001-01-2793.
- 31) Huh, K., Jung, J. and Stein J.L., 2001 "Discrete-time Well-conditioned State Observer Design and Evaluation" ASME Transactions: *Journal of Dynamic Systems Measurement and Control* Special Issue on the Identification of Mechanical Systems, Vol. 123, Dec., pp. 615-622.

- 32) Stein, J.L. and Huh, K. 2002 "Monitoring Cutting Forces In Turning: A Model-Based Approach" *ASME Transactions: Journal of Manufacturing Science and Engineering*, Vol. 124, Feb., pp. 26-31. (Revised version of Stein, J.L. and Huh, K., 1991 "A Design Procedure for Model-Based Monitoring Systems: Cutting Force Estimation as a Case Study" 1991 ASME WAM, Symposium on Control of Manufacturing processes, Dec., Atlanta, GA.)
- 33) Louca, L.S. and J.L. Stein, 2002. "Ideal Physical Element Representation from Reduced Bond Graphs". *Journal of Systems and Control Engineering: Special Issue on Bond Graphs*, Vol. 216, No. 1, pp. 73-83. Published by the Professional Engineering Publishing, ISSN 0959-6518, Suffolk, United Kingdom.
- 34) Kim, H.M. Kokkolaras, M., Louca, L.S., Delagrammatikas, G.J. Michelena, N.F., Filipi, Z.S., Papalambros, P.Y., Stein, J.L. and Assanis, D.N. 2002 "Target Cascading in Vehicle redesign: a Class VI Truck Study" *International Journal of Vehicle Design*, Vol. 29, No. 3. Published by Interscience Enterprises Ltd., ISSN 0143-3369, St. Helier, United Kingdom
- 35) Kim, H.M., Rideout, D.G., Papalambros, P.Y., Stein, J.L. (2003) "Analytical Target Cascading in Automotive Vehicle Design." *Journal of Mechanical Design*, Vol. 125 / 1, September, American Society of Mechanical Engineers, New York, NY. (Also presented as "Analytical Target Cascading in Automotive Vehicle Design." Proceeding of the DETC 2001, 27th Design Automation Conference, September 9-12, 2001, Pittsburgh, Pennsylvania.)
- 36) Filipi, Z.S., L.S. Louca, B. Daran, Chan-Chiao Lin, U. Yildir, B. Wu, M. Kokkolaras, D.N. Assanis, H. Peng, P.Y. Papalambros, and J.L. Stein, 2003. "Combined Optimization of Design and Power Management of the Hydraulic Hybrid Propulsion System for the 6x6 Medium Truck". *Special Issue on Advanced Vehicle Design and Simulation of the International Journal of Heavy Vehicle Systems*, Vol. 11, No.3/4 pp. 372 - 402. Published by Inderscience Enterprises Ltd., ISSN 1744232X, St. Helier, United Kingdom.
- 37) Louca, L.S., D.G. Rideout, J.L. Stein, and G.M. Hulbert, 2003. "Generating Proper Dynamic Models for Truck Mobility and Handling". *Special Issue on Advanced Vehicle Design and Simulation of the International Journal of Heavy Vehicle Systems*, Vol. 11, No.3/4 pp. 209 - 236. Published by Inderscience Enterprises Ltd., ISSN 1744232X, St. Helier, United Kingdom.
- 38) Lin, Chan-Chiao, Z. Filipi, L.S. Louca, H. Peng, D.N. Assanis and J.L. Stein, 2003. "Modeling and Control for a Medium-Duty Hybrid Electric Truck". *Special Issue on Advanced Vehicle Design and Simulation of the International Journal of Heavy Vehicle Systems*, Vol. 11, No.3/4 pp. 349 - 371. Published by Inderscience Enterprises Ltd., ISSN 1744232X, St. Helier, United Kingdom.

- 39) Kokkolaras, M., L.S. Louca, G.J. Delagrammatikas, N.F. Michelena, Z.S. Filipi, P.Y. Papalambros, J.L. Stein, and D.N. Assanis, 2003. "Simulation-Based Optimal Design of Heavy Trucks by Model-Based Decomposition: An Extensive Analytical Target Cascading Case Study". *Special Issue on Advanced Vehicle Design and Simulation of the International Journal of Heavy Vehicle Systems*, Vol. 11, No.3/4 pp. 403 - 433. Published by Inderscience Enterprises Ltd., ISSN 1744232X, St. Helier, United Kingdom.
- 40) Ohl, G., Stein, J.L. and Smith, E. (2004) "A Dynamic Model for the Design of Methanol to Hydrogen Steam Reformers for Transportation Applications" ASME Transaction: Journal of Energy Resources Technology, Vol. 126 No. 2, June.
- 41) Huh, K., Hong, D., Stein, J.L. (2005) "Development of a Lane Departure Monitoring and Control System" *Journal of Mechanical Science and Technology*, KSME Int. J., Vol. 19, No. 11, pp. 1998-2006.
- 42) Rideout, D.G., Stein, J.L. and Louca, L.S. (2007) "Systematic Identification of Decoupling in Dynamic System Models", ASME Transaction: *Journal of Dynamic Systems, Measurement and Control* Vol. 129, Issue 4, pp. 503-13, July, American Society of Mechanical Engineers, New York, NY.
- 43) Filipi, Z., Fathy, H., Hagen, J., Knafl, A., Ahlawat, R., Liu, J., Jung, D., Assanis, D.N., Peng, H., and J. Stein, (2007) "Engine-in-the-Loop Testing for Evaluating Hybrid Propulsion Concepts and Transient Emissions: A HMMWV Case Study" SAE Transactions, *Journal of Commercial Vehicles*. Paper No. 2006-01-0443, March. (Also published as SAE Paper 2006-01-0443, SP-2008, 2006 SAE Congress, Detroit, MI, April 3-6, 2006.)
- 44) Rideout, D.G., Stein, J.L. and Louca, L. (2007) "Extension and Application of an Algorithm for Systematic Identification of Weak Coupling and Partitions in Dynamic System Models" *International Journal of the Federation of European Simulation Societies: Simulation Modelling Practice and Theory*, doi:10.1016/j.simpact.2007.10.004, Published by Elsevier (in press (available on-line)).
- 45) Rideout, D.G., Stein, J.L., and Louca, L.S. (2008) "Systematic Assessment of Rigid Internal Combustion Engine Dynamic Coupling" ASME Transactions: *J. Eng. for Gas Turbines and Power*, Volume 130, Issue 2 (March), 022804 (12 pages), ASME, New York, NY.
- 46) Hoffman, R.C., Stein, J.L., Loucas L.S., and Kunsoo, H. (2008) "Using the Milliken Moment Method and Dynamic Simulation to Evaluate Vehicle Stability and Controllability" *International Journal of Vehicle Design*, Vol. 48, Nos. 1/2, pp. 132-148, Inderscience Enterprises Ltd.
- 47) Tulga Ersal, Hosam K. Fathy, Loucas S. Louca, D. Geoff Rideout, and Jeffrey L. Stein (2008) "A Review Of Proper Modeling Techniques ", ASME Transactions: *Journal of Dynamic Systems Measurement and Control* **130**(6), doi:10.1115/1.2977484. Also: Proceedings of the 2007 ASME International Mechanical Engineering Congress and Exposition, Seattle, WA, USA, Nov. 10-16.

- 48) Ersal, T., Fathy, H. K., and Stein (2009), J. L., "Orienting Body Coordinate Frames Using Karhunen-Loève Expansion for More Effective Structural Simplification", *Simulation Modelling Practice and Theory* **17**(1), pp. 197–210, doi: 10.1016/j.simpat.2007.08.002. (See also T. Ersal, H. K. Fathy, and J. L. Stein, "Orienting Body Reference Frames Using Proper Orthogonal Decomposition for More Effective Structural Simplification," ASME Paper IMECE2006-14572, Proc. IMECE 2006, Dynamic Systems and Controls Division, Chicago, IL, 2006
- 49) Ersal, T., Fathy, H. and Stein, J. L. (2009) "Structural simplification of modular bond-graph models based on junction inactivity" *International Journal of the Federation of European Simulation Societies: Simulation Modelling Practice and Theory*, **17**(1), pp.175-196, Published by Elsevier (online: doi: 10.1016/j.simpat.2008.02.010). (also appeared as Ersal, T., Fathy, H. K., Stein, J. L., 2006, "Structural simplification of modular bond-graph models based on junction inactivity", *Proceedings of the 2006 ASME International Mechanical Engineering Congress and Exposition* (ASME Paper IMECE2006-14567), Chicago, IL USA.
- 50) Ersal, T., Fathy, H. K., and Stein, J. L., 2009, "Realization-Preserving Structure and Order Reduction of Nonlinear Energetic System Models Using Energy Trajectory Correlations", *Journal of Dynamic Systems Measurement and Control*, **131**(3), pp. 031004 (8p), doi: 10.1115/1.3072128. (also Ersal, T., Fathy, H. K., and Stein, J. L., 2007, "Realization-preserving structure and order reduction of nonlinear energetic system models using energy trajectory correlations", *Proceedings of the 2007 ASME International Mechanical Engineering Congress and Exposition*, Seattle, WA USA, IMECE2007-42041).
- 51) Ersal, T., Kittirungsri, B., Fathy, H. K., and Stein, J. L. (2009) "Model Reduction in Vehicle Dynamics Using Importance Analysis", *Journal of Vehicle System Dynamics*, **47**(7), pp. 851–865, doi: 10.1080/00423110802444071, Taylor & Francis ISSN 0042-3114 print/ISSN 1744-5159. Also appeared as "Model Reduction in Vehicle Dynamics Using Importance Analysis", *Proceedings of 2008 ASME Dynamic Systems and Control Conference*.
- 52) S. J. Moura, D. S. Callaway, H. K. Fathy, and J. L. Stein (2010) "Impact of Battery Sizing on Stochastic Optimal Power Management in Plug-in Hybrid Electric Vehicles," *Journal of Power Sources*, Vol. **195**, No. **9**, pp. 2979-2988. (DOI: 10.1016/j.jpowsour.2009.11.026). (Previously published as Moura, S. J., Callaway, D. S., Fathy, H. K., Stein, J. L., 2008, "Impact of Battery Sizing on Stochastic Optimal Power Management in Plug-in Hybrid Electric Vehicles," *Proceedings of the 2008 IEEE International Conference on Vehicular Electronics and Safety (ICVES)*, pp. 96-102.)

- 53) Loucas, L., Stein J.L., Hulbert, G. (2010) "Energy-Based Model Reduction Methodology for Automated Modeling" ASME Transactions: *Journal of Dynamic Systems Measurement and Control*: Special Issue on Physical System Modeling, Vol. 132, No. 6, November. An extended version of Loucas, L., Stein J.L., Hulbert, G. and Sprague, J. 1997 "Proper Model Generation: An Energy-Based Methodology" Proceedings of the 1997 International Conference on Bond Graph Modeling and Simulation, Phoenix, Arizona, January 12 -15, 1997, published by the Society for Computer Simulation International, Simulation Series Vol. 29, No. 1, ISBN 1-56555-103-6, San Diego, CA.
- 54) R. Ahlawat, H. Fathy, B. Lee, J. Stein & D. Jung (2010) "Modeling and Simulation of a Dual Clutch Transmission Vehicle to Analyze the Effect of Pump Selection on Fuel Economy", *International Journal of Vehicle System Dynamics* Volume 48, Issue 7 July 2010, pages 851 - 868. (Extended version of Rahul Ahlawat, Hosam K. Fathy, Chengyun Guo, Byungchan Lee, Dohoy Jung, Jeffrey L. Stein, 2009, "Effect of Pump Selection on Fuel Economy in a Dual Clutch Transmission Vehicle", *Proceedings of the 2009 American Control Conference*, St. Louis, MO.)
- 55) Ersal, T., Fuller, H., Tsimhoni, O., Stein, J. L., and Fathy, H. K., 2010, "Model-Based Analysis and Classification of Driver Distraction under Secondary Tasks", *IEEE Transactions of Intelligent Transportation Systems*, Vol. 11, No. 3, pp. 692-701, 2010. DOI: 10.1109/TITS.2010.2049741.
- 56) Moura, S. J., Fathy, H. K., Callaway, D. S., Stein, J. L., (2011) "A Stochastic Optimal Control Approach for Power Management in Plug-in Hybrid Electric Vehicles," *IEEE Transactions on Control Systems Technology*, Vol. 19, No. 3, pp. 545-555, (previously published as Proceedings of ASME 2008 Dynamic Systems and Control Conference).
- 57) S. J. Moura, Joel C. Forman, Saeid Bashash, J. L. Stein, and H. K. Fathy (2011) "Optimal Control of Film Growth in Lithium-Ion Battery Packs via Relay Switches," *IEEE Transactions on Industrial Electronics*., Vol. 58, No. 8, pp. 3555-3566. (Revised version of Scott Moura, Joel Forman, Jeffrey L. Stein, Hosam K. Fathy (2009), "Control of Film Growth in Lithium Ion Battery Packs via Switches" *Proceedings of the 2009 ASME Dynamic Systems and Control Conference*.)
- 58) Ersal, T., Brudnak, M., Salvi, A., Stein, J. L., Filipi, Z., & Fathy, H. K. (2011) "Development and model-based transparency analysis of an Internet-distributed hardware-in-the-loop simulation platform", *Mechatronics*, Vol. 21, No. 1, pp. 22-29, Publ. Elsevier. (A revised version of Tulga Ersal, Mark Brudnak, Ashwin Salvi, Jeffrey L. Stein, Zoran Filipi, Hosam K. Fathy (2009) "Development of an internet-distributed hardware-in-the-loop simulation platform for an automotive application" *Proceedings of the 2009 ASME Dynamic Systems and Control Conference*).
- 59) B.L. Pence, H.K. Fathy, J.L. Stein, (2011) "Recursive Maximum Likelihood Parameter Estimation for State Space Systems using Polynomial Chaos Theory", *Automatica*, Vol. 47, No. 11. (November 2011), pp. 2420-2424. ("Brief" 5 page paper) (Revised version of the paper previously published in the *Proceedings of the 2009 American Control Conference*, Baltimore, MD).

- 60) Rahul Ahlawat, Jonathan R. Hagena, Zoran S. Filipi, Jeffrey L. Stein and Hosam K. Fathy (2011) "Estimating Diesel Engine Transient Soot Emissions Using Volterra Series", Control Engineering Practice (in revision, 2/2012). (Revised version of Ahlawat, R., Hagena, J.R., Filipi, Z.S., Stein, J.L. and Fathy, H.K., "Volterra series estimation of transient soot emissions from a diesel engine", Proceedings of the 2010 IEEE Vehicle Power and Propulsion Conference (VPPC), September 2010, Lille, France)
- 61) B.L. Pence, J. Hays, H.K. Fathy, C. Sandy, J.L. Stein (2011) "Vehicle Sprung Mass Estimation For Rough Terrain", *International Journal of Vehicle Design*
- 62) Forman, J., Bashash, S., Stein J.L., Fathy, H (2011) J Stein, H Fathy "Reduction of an Electrochemistry-Based Li-Ion Battery Model via Quasi-Linearization and Padé Approximation" *Journal of the Electrochemical Society*, Vol. 158, No. 2, pp. A93-A101.
- 63) J. Forman, S. Moura, J. Stein, and H. Fathy 2012 "Genetic Identification and Fisher Identifiability Analysis of the Doyle-Fuller-Newman Model from Experimental Cycling of a LiFePO₄ Cell" *Journal of Power Sources* (<http://dx.doi.org/10.1016/j.jpowsour.2012.03.009>).
- 64) Ersal, T., Brudnak, M., Stein, J. L., & Fathy, H. K. (2012) "Statistical transparency analysis in Internet-distributed hardware-in-the-loop simulation". *IEEE/ASME Transactions on Mechatronics*, **17**(2), pp. 228-238 doi: 10.1109/TMECH.2010.2095024.. (Revised version of Tulga Ersal, Mark Brudnak, Jeffrey L. Stein, Hosam K. Fathy (2009) "Variation-based transparency analysis of an internet-distributed hardware-in-the-loop simulation platform for vehicle powertrain systems" *Proceedings of the 2009 ASME Dynamic Systems and Control Conference*.)
- 65) Moura, S., Fathy, H.K., Stein J.L. (2012) "Battery Health Conscious Power Management in Plug-in Hybrid Electric Vehicles via Electrochemical Modeling and Stochastic Control" *IEEE Trans. on Control Systems Technology* PP Issue:99 1. (Revised version of Scott Moura, Jeffrey L. Stein, Hosam K. Fathy (2010) "Battery-Health Conscious Power Management for Plug-in Hybrid Electric Vehicles via Stochastic Control" *Proceedings of the 2010 ASME Dynamic Systems and Control Conference*, Cambridge, MA.)
- 66) Ersal, T., Gillespie, B., Brudnak M., Stein J.L., Fathy, H.K. (2013) "Effect of Coupling Point Selection on Distortion in Internet-distributed Hardware-in-the-Loop Simulation" *International Journal of Vehicle Design*, Special Issue on Modeling and Simulation of Ground Vehicle Systems , Volume 61, Numbers 1-4, pp. 67-85(19). (Revised version of Tulga Ersal, Brent Gillespie, Mark Brudnak, Jeffrey L. Stein, Hosam K. Fathy (2011) "Effect of Coupling Point Selection on Distortion in Internet-distributed Hardware-in-the-Loop Simulation", *Proceedings of the 2011 American Control Conference* [Best Paper in Session Award]).
- 67) B.L. Pence, H.K. Fathy, J.L. Stein (2013) "Recursive Estimation for Reduced-Order State-Space Models using Polynomial Chaos Theory Applied to Vehicle Mass Estimation", *IEEE Trans. on Control System Technology*, Vol. 22, No. 1, pp. 224-229

- 68) Ersal, T., Ahn, C., Peters, D. L., Whitefoot, J., Mechtenberg, A. R., Hiskens, I. A., Peng, H., Stefanopoulou, A., Papalambros, P. Y., and Stein, J. L. (2013) "Coupling between Component Sizing and Regulation Capability in Microgrids," *IEEE Transactions on Smart Grid*, Vol. 4, No. 3, pp. 1576-1585.
- 69) Kelly, J., Ersal, T., Li, C.-T., Marshall, B.M., Kundu, S., Peng, H., Hiskens, I.A., Keoleian, G., Stein, J.L. "Sustainability, Resiliency And Grid Stability Of The Coupled Electricity/Transportation Infrastructures: The Case For An Integrated Analysis" *Journal of Infrastructure Systems* (In review).

Reviewed Proceedings:

Some papers published at ASME conferences and ACC conferences that subsequently appeared as archival papers are not listed below.

Contributed Refereed Papers

- 1) Stein, J. L., Veranth, J. M., Senapati, N., and Lele, P. P., 1975 "The Roles of Heat Generation, Cavitation, and other Mechanical Forces in Ultrasonic Tissue Destruction," *Proceedings of the Third Annual New England Bioengineering Conference*, Tufts, Univ., Medford, MA, May.
- 2) Stein, J. L. and Flowers, W. C., 1980 "Above-Knee Prosthetics: A Case Study of the Interdependency of Effector and Controller Design", 1980 *Advances in Bioengineering*, Winter Annual Meeting of the ASME, Chicago, pp. 275-278.
- 3) Stein, J. L., Colvin, D. ., Clever, G. and Wang, C.-H., 1984 "Evaluation of DC Servo Machine Tool Feed Drives As Force Sensors" *Proceeding of the Symposium on Sensors and Controls for Automated Manufacturing and Robotics*, ASME Winter Annual Meeting. (Also appears as *Journal of Dynamic Systems Measurement and Control*, Vol. 108, No. 4., pp. 279-288, Dec.)
- 4) Stein, J. L., and Shin K.-C., 1985 "Current Monitoring on Field Controlled DC Spindle Drives", *Proceeding of the 1985 Symposium on Sensors and Controls for Manufacturing*, ASME Winter Annual Meeting. (Also appears as *Journal of Dynamic Systems Measurement and Control*, Vol. 108, No. 4, pp. 289-295, Dec.)
- 5) Stein, J. L., Wang, C.-H., 1986 "Analysis of Power Monitoring on AC Induction Drive Systems", 1986 *Symposium on Sensors and Controls for Manufacturing*, *Proceedings of the 1986 ASME Winter Annual Meeting*. (Appeared later as Stein, J. L., Wang, C.-H., 1990 "Analysis of Power Monitoring on AC Induction Drive Systems", *Journal of Dynamic Systems, Measurement and Control*, Vol. 112, No. 2, pp. 239--248, June.)
- 6) Stein, J. L. and Flowers, W. C., 1987 "Stance Phase Control of Above-Knee Prostheses: Knee Control Versus SACH Foot Design," *Proceedings of the 1987 ASME Biomechanics Symposium*. (Also appears as Stein, J. L. and Flowers, W. C., 1987 "Stance Phase Control of Above-Knee Prostheses: Knee Control Versus SACH Foot Design," *Journal of Biomechanics*, Vol. 20, No. 1, pp. 19-28.)

- 7) Stein, J.L. and Park, Y., 1987 "Measurement Signal Selection and a Simultaneous State and Input Observer", *Proceedings of the 1987 American Control Conference*. (Also appears as *Journal of Dynamic Systems Measurement and Control*. Vol. 110, No. 2, June, 1988.)
- 8) Stein, J. L., Flowers, W. C. and Yigit, A., 1987 "Modeling Prosthetic Gait", *Proceedings of the 1987 ASME Biomechanics Symposium*. (Also appears as *Journal of Biomechanics*, (accepted for publication).
- 9) Stein, J.L., and Hu, S. 1987 "Design of Prosthetic Feet: A Finite Element Approach", *Proceeding of the Symposium on Biomechanics of Normal and Prosthetic Gait*, 1987 ASME Winter Annual Meeting.
- 10) Stein, J.L., and Park, Y., 1987 "Closed Loop Simultaneous Input and State Observer", *Symposium on Sensors For Manufacturing*, as part of the *Proceeding of the 1987 ASME Winter Annual Meeting*. (Also appears as *International Journal of Control*, 1988 Vol. 48, No. 3, pp. 1121-36.)
- 11) Stein, J.L. and Park, Y., 1987 "Steady-State, Optimal State and Input Observer", *Symposium on Expert Systems and Intelligent Control*, *Proceedings of the 1987 ASME Winter Annual Meeting*. (Also appears as Stein, J.L. and Park, Y., 1989 "Steady-State, Optimal State and Input Observer for Discrete Stochastic Systems", *Journal of Dynamic Systems Measurement and Control* Vol. 111, pp. 121-127, June.)
- 12) Stein, J.L. and Park, Y. "Modeling and Sensing Issues for Machine Diagnostics", *Proceedings of the 1988 American Control Conference*. (Also appears as *IEEE Control Systems* (accepted for publication).
- 13) Park, Y.P., Wen, X. and Stein, J.L. 1989 "Optimal, State and Input Observer for discrete Time-Variant Systems", *Proceedings of the 1989 ASME Winter Annual Meeting*, San Francisco, CA, 89-WA/DSC-24, 1989). (Revised version appears as Park, Y.P. and Stein, J.L., 1999 "Recursive Optimal State and Input Observer for Discrete Time-Variant Systems" *Transaction on Control, Automation and Systems Engineering* Vol. 1, No. 2, December, published by the Institute of Control, Automation and Systems Engineering, Korea.)
- 14) Stein, J.L., and Wang C.W. 1988 "Automated Detection of Backlash in Servo-systems", *Symposium on Sensors and Control for Manufacturing*, 1988 ASME Winter Annual Meeting.
- 15) Stein, J.L., 1989 "The Art of Physical System Modeling: How Can it be Taught?", *Proceedings of the Symposium on Approaches to Teaching Physical System Modeling*, ASME Winter Annual Meeting, San Francisco.
- 16) Stein, J.L., Olson, L., Mooradian, M. and Weber, M., 1989 "The Measurement and Role of Prosthetic Foot Damping", *Proc., of the XIIth International Congress of Biomechanics*, June.
- 17) Stein, J.L. and Wu, W., 1990 "Monitoring Stick-Slip Motion of Machine Tool Slides Using Feed Motor Current", *Proceeding of the IEEE International Workshop on Intelligent Motion Control*, August, 20-22, Istanbul Turkey.

- 18) Stein, J.L. and Wang, C.W., 1990 "Automatic Detection of Clearance in Mechanical Systems: Experimental Validation" Proceedings of the USA/Japan Symposium on Flexible Automation, July, Kyoto, Japan.
- 19) Park, Y.P. and Stein, J.L., 1990 "Performance Evaluation of a State and Input Observer for Machine Diagnostics" Proceedings of the 1990 American Control Conference, May 22-25, , San Diego, CA.
- 20) Stein, J.L. and Tu, J.F. 1991 "A State Space Model for Monitoring Thermally-Induced Preload in Anti-Friction Spindle Bearings of High Speed Machine Tools" Symposium on *Control of Manufacturing Processes*, 1991 Proceedings of the ASME Winter Annual Meeting. (Appeared later in *Journal of Dynamic Systems Measurement and Control*, Vol. 11, No. 3, September, 1994, pp. 372-386.
- 21) Stein J.L. and Tseng Y-T., 1991 "Strategies for Automating the Modeling Process" 1991 ASME WAM Symposium on Automated Modeling, Dec. , Atlanta, GA.
- 22) Stein, J.L. and Huh, K., 1991 "A Design Procedure for Model-Based Monitoring Systems: Cutting Force Estimation as a Case Study" 1991 ASME WAM, Symposium on Control of Manufacturing processes, Dec. , Atlanta, GA.
- 23) Tu, J.F. and Stein, J.L. 1992 "On-line Preload Monitoring for Anti-Friction Spindle Bearings of High-Speed Machine Tools" *Proceedings of the 1992 American Control Conference* (Awarded Best Paper of the Technical Session). (Later appeared in the *Journal of Dynamic Systems Measurement and Control* Vol. 117, No. 1, March, 1995, pp. 43-53.)
- 24) Stein J.L and Wilson, B.H. 1992 "An Algorithm for Obtaining Proper Models of Distributed and Discrete Systems" Symposium on *Automated Modeling Proceedings of the ASME Winter Annual Meeting*. (Later version appeared in the *Journal of Dynamic Systems Measurement and Control* Vol. 117, No. 4, December, 1995, pp. 534-540.)
- 25) Huh, K. and Stein J.L. 1993 "Well-Conditioned Observer Design for Observer-Based Monitoring Systems" *Proceedings of the 1993 American Control Conference on Automatic Control*, Nominated for O. Hugo Schuck, Best Paper of Conference. (Later version appeared in *Journal of Dynamic Systems Measurement and Control* Vol. 117, No. 4, December, 1995, pp. 592-599.)
- 26) Huh, K. and Stein J.L. 1993 "A Quantitative Performance Index for Observer-Based Monitoring Systems" *Proceedings of the 1993 American Control Conference on Automatic Control*. (Later version appeared in *Journal of Dynamic Systems Measurement and Control*, Vol. 11, No. 3, September, 1994, pp. 487-497.)
- 27) Tu, J.F. and Stein, J.L. 1993 "Strain Wave Estimation and Sensing for Monitoring Machine Tool Spindle Dynamics" 1993 ASME WAM Symposium on Modeling and Control of Manufacturing Processes, December, New Orleans, LA.
- 28) Wilson, B.H. and Stein J.L. 1993 "Model Building Assistant: An Automated Modeling Tool for Machine Tool Drive Systems" 1993 Proceedings of the International Conference on Bond Graph Modeling and Simulation, San Diego, CA.

- 29) Ohl, G. Smith, and J.L. Stein 1994 "Dynamic Models of a Methanol to Hydrogen Steam Reformer for Transportation Applications." From 1994 Fuel Cell Seminar; San Diego, CA (United States); 28 Nov - 1 Dec 1994. In Fuel Cell Seminar, 1994: Program and Abstracts.
- 30) Ferris, J., Stein, J.L. and Bernitsas, M. 1994 "Development Of Proper Models of Hybrid Systems" Proceedings of the ASME Winter Annual Meeting, Symposium on Automated Modeling, Chicago, IL.
- 31) Huh, K. and Stein J.L. 1994 "Minimization Of The Condition Number For Monitoring And Control", 1994 ASME WAM Symposium on Mechatronics in Manufacturing, Chicago, IL.
- 32) Tu, J.F. and Stein, J.L. 1994 "Model Error Compensation and Robust Observer Design Part I: Theoretical Formulation and Analysis" *Proceedings of the 1994 American Control Conference on Automatic Control* , Baltimore, MD.
- 33) Tu, J.F. and Stein, J.L. 1994 "Model Error Compensation and Robust Observer Design Part II: Bearing Temperature and Preload Estimation" *Proceedings of the 1994 American Control Conference on Automatic Control* , Baltimore, MD.
- 34) Ferris, J.B. and Stein J.L. 1994 "Development Of Proper System Models For Hybrid Systems: A Bond Graph Approach" *Proceedings of the 1994 IMACS World Congress*, Atlanta, GA (extended Abstract).
- 35) Tu, J.F. and Stein, J.L. 1994 "Active Thermal Preload Regulation for Machine Tool Spindles with Rolling Element Bearings" Symposium on *Mechatronics in Manufacturing, Proceeding of the ASME Winter Annual Meeting*, Chicago, IL. (Later version appeared in the ASME Transactions: *Journal of Manufacturing Science and Engineering*. Vol. 118, No. 4, pp. 499-505, November, 1996.)
- 36) Stein, J.L. and Louca, L.S. 1995 "A Component-Based Modeling Approach for System Design: Theory and Implementation" *Proceedings of the 1995 International Conference on Bond Graph Modeling*, pp. 109-115, Las Vegas, NV, Published by SCS, ISBN 1-56555-037-4, San Diego, CA.
- 37) Ferris J.B., and Stein, J.L. 1995 "Development Of Proper Models Of Hybrid Systems: A Bond Graph Formulation" *Proceedings of the 1995 International Conference on Bond Graph Modeling*, pp. 43-48, Las Vegas, NV.
- 38) Stein, J.L., and Wang C.W., 1995 "Automatic Detection Of Clearance In Mechanical Systems: Theory And Simulation", *Proceedings of the 1995 American Control Conference on Automatic Control* , Seattle, WA.
- 39) Walker, D.G., Stein, J.L. and Ulsoy A.G. 1996 "An input-Output Criterion for Linear Model Deduction" *Proceedings of the Dynamic Systems and Control Division*, 1996 ASME International Mechanical Engineering Congress and Exhibition, Atlanta, GA.
- 40) Ervin, R.D., Stein, J.L., Zachariou, N., Bogard, S.E. and Kleinsorge K. "Predicting Probability of Encroachment Conflicts Posed by Adaptive Cruise Control" *Proceedings of the Dynamic Systems and Control Division*, 1996 ASME IMECE, Atlanta, GA

- 41) Gibson, A.O. and Stein, J.L. 1996 "Spindle Preload Monitoring" *Proceedings of the Dynamic Systems and Control Division*, 1996 ASME IMECE, Atlanta, GA
- 42) Huh, K., Kwak, B. and Stein J.L., 1996 "Discrete-time Well-conditioned State Observer Design and Evaluation" *Proceedings of the Dynamic Systems and Control Division*, 1996 ASME IMECE, Atlanta, GA
- 43) Loucas, L., Stein J.L., Hulbert, G. and Sprague, J. 1997 "Proper Model Generation: An Energy-Based Methodology" *Proceedings of the 1997 International Conference on Bond Graph Modeling and Simulation*, Phoenix, Arizona, January 12 -15, 1997, published by the Society for Computer Simulation International, Simulation Series Vol. 29, No. 1, ISBN 1-56555-103-6, San Diego, CA.
- 44) Gibson, A. O., Stein, J. L., Tu, J. F., 1997, " A Thermomechanical Model of Machine Tool Spindles for use in the Design of Reconfigurable Angular Contact Spindle Bearing Load Control Systems," *ASME Proc., Man. Sci. and Eng. Div.*, MED-Vol. 6-1, pp. 23-30, 1997 ASME IMECE, Atlanta, GA.
- 45) Louca, L.S. and J.L. Stein, 1998. "Physical Interpretation of Reduced Bond Graphs". *Proceedings of the 2nd IMACS International Multiconference: Computational Engineering in Systems Applications (CESA'98)*. Hammamet, Tunisia.
- 46) Louca, L.S., J.L. Stein and G.M. Hulbert, 1998. "A Physical-Based Model Reduction Metric with an Application to Vehicle Dynamics". *The 4th IFAC Nonlinear Control Systems Design Symposium (NOLCOS 98)*. Enschede, The Netherlands.
- 47) Gibson, A. O., Stein, J. L., 1998, " A Finite Element Model of Thermally Induced Angular Contact Spindle Bearing Loads," *ASME Proc., Man. Sci. and Eng. Div.*, 1998 ASME IMECE, Anaheim, CA.
- 48) Louca, L.S. and Stein, J.L., 1999. "Energy-Based Model Reduction of Linear Systems". *Proceedings of the 1999 International Conference on Bond Graph Modeling*. January, San Francisco CA. Published by SCS, San Diego, CA.
- 49) Assanis, D., Bryzik, W., Chalhoub, N. Filipi, Z., Henein, N., Jung, D. Xiaoliu, L. Louca, L., Moskaw, J., Munns, S., Overholt, J., Papalambros., P., Riley, S. Zachary, R., Sendur, P., Stein, J.L., Zhang, G. 1999 "Integration and Use of Diesel Engine Driveline and Vehicle Dynamics Models for Heavy Duty Truck Simulation" SAE Paper 199-01-0970, 1999 SAE Congress, Detroit, MI.
- 50) Gibson, A. O., Stein, J. L., 1999, "Reduced Order Finite Element Modeling of Thermally Induced Bearing Loads in Machine Tool Spindles," *Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division*, Nashville, TN.
- 51) Assanis, D.N., Z.S. Filipi, S. Gravante, D. Grohnke, X. Gui, L.S. Louca, G.D. Rideout, J.L. Stein, Y. Wang, 2000. Validation and Use of SIMULINK Integrated, High Fidelity, Engine-In-Vehicle Simulation of the International Class VI Truck. SAE Paper 2000-01-0288, SAE 2000 World Congress.
- 52) Christensen, B. G., Ferris, J.B., Stein J.L., 2000 "An Energy-Enhanced Design Of Experiments Method Applied To Multi-Body Models" *Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division*, Chicago, IL.

Updated: January 24, 2014

- 53) Christensen, B. G., Ferris, J.B., Stein J.L., 2000 “An Energy-Enhanced Design of Experiments Method” Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division, Chicago, IL.
- 54) Stein, J.L. and Harder J. 2001 “Modeling and Analysis for Thermal Control of Spindles for Reconfigurable Machines” Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division, New York, NY.
- 55) Hyung, M. K., Rideout, D.G., Papalambros, P. and Stein, J.L. 2001 “Analytical Target Cascading In Automotive Vehicle Design”, Proceeding of the DETC 2001, 27th Design Automation Conference, September 9-12, 2001, Pittsburgh, Pennsylvania.
- 56) Rideout, D.G., Stein, J.L., Ferris, J.B., Hogland D.K. 2001 “Target Cascading: A Design Process For Achieving Vehicle Ride And Handling Targets” Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division, New York, NY.
- 57) Louca, L.S., J.L. Stein, and D.G. Rideout, 2001. “Integrated Proper Vehicle Modeling and Simulation Using a Bond Graph Formulation”. Proceedings of the 2001 *International Conference on Bond Graph Modeling*, Vol. 33, No. 1, pp. 339–345, Phoenix, AZ. Published by the Society for Computer Simulation, ISBN 1–56555–221–0, San Diego, CA.
- 58) Harder, J.E. and Stein, J.L. 2002 “A thermal-Based spindle bearing load controller: Preliminary Experimental Evaluation”, Proceedings of the ASME 2002 IMECE Conference, Dynamic Systems and Control Division, Published by ASME, New York, NY.
- 59) Sendur, P., J.L. Stein, L.S. Louca and H. Peng, 2002. “A Model Accuracy and Validation Algorithm”. Proceedings of the 2002 *ASME International Mechanical Engineering Congress and Exposition*, New Orleans, Louisiana. Published by American Society of Mechanical Engineers, ISBN 0-7918-1692-3, New York, NY.
- 60) Sendur, P., J.L. Stein, L.S. Louca and H. Peng, 2003. “An Algorithm for the assessment of reduced dynamic system models for design”. Proceedings of the *International Conference on Simulation and Multimedia in Engineering Education*, pp. 92-101, Orlando, FL. Published by the Society for Modeling and Simulation International Simulation, ISBN 1–56555–261–1, San Diego, CA.
- 61) Sendur, P. Stein J.L., Louca, L. and Peng H. 2003 “An Algorithm for the Selection of Physical System Model Order Based on Desired State Accuracy and Computational Efficiency” Proceedings of the 2003 ASME IMECE Conference, Dynamic Systems and Control Division, NY, NY.
- 62) Rideout, D.G., Stein, J.L., and Louca, L.S. 2004 “System Partitioning and Physical-Domain Model Reduction Through Assessment of Bond Graph Junction Structure” Proceedings of the 1st International Conference on Integrated Modeling and Analysis in Applied Control and Automation (Part of the 1st International Mediterranean Modeling Multiconference), Genoa, Italy

- 63) Ersal, T., Stein, J. L., Louca, L. S., 2004, "A Bond Graph Based Modular Modeling Approach towards an Automated Modeling Environment for Reconfigurable Machine Tools", *Proceedings of the 1st International Conference on Integrated Modeling and Analysis in Applied Control and Automation* (Part of the 1st International Mediterranean Modeling Multiconference), Genoa, Italy.
- 64) Ersal, T., Stein, J. L., Louca, L. S., 2004, "A Modular Modeling Approach for the Design of Reconfigurable Machine Tools", *Proceedings of the ASME IMECE 2004 Conference*, Manufacturing Engineering Division, Anaheim, CA.
- 65) Rideout, D.G., Stein, J.L., and Louca, L.S. (2004) "Systematic Model Decoupling Through Assessment of Power-Conserving Constraints - An Engine Dynamics Case Study." ASME Paper IMECE2004-59600, *Proc. ASME IMECE 2004, Dynamic Systems and Controls Division*, Anaheim, CA.
- 66) Sohns, B., Stein, J.L., and Louca, L. 2004 "Determining Model Accuracy As A Function Of Inputs And System Parameters" *Proc. ASME IMECE 2004, Dynamic Systems and Controls Division*, Paper No. IMECE 2004-59733, Anaheim, CA.
- 67) Hoffman, R.C., Stein, J.L., Louca, L.S., Huh, K. 2004 "Using the Milliken Moment Method and Dynamic Simulation to Evaluate Vehicle Stability and Controllability" *Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division*, New York, NY.
- 68) Harder III, J.E. and Stein, J.L. 2004 "Controlling Both Thermally Induced Loads in Back-to-Back Angular Contact Spindle Bearings." *Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division*, Anaheim, CA.
- 69) Harder III, J.E. and Stein, J.L. 2004 "Measurement of Thermally Induced Loads in Back-to-Back Angular Contact Spindle Bearings Using Strain Gauges." *Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division*, Anaheim, CA.
- 70) Jungchul J. Lee T.H., Stein, J.L. and Huh, K. 2004 "Robust Observer Design with Deterministic and Stochastic Uncertainties" *Proceedings of the ASME IMECE Conference, Dynamic Systems and Control Division*, Anaheim, CA.
- 71) Rideout, D.G., Stein, J.L. and Louca, L. 2005 "System Partitioning and Improved Bond Graph Model Reduction Using Junction Structure Power Flow" *Proceedings of the 2005 International Conference on Bond Graph Modeling as part of the Western Simulation Multiconference*, New Orleans, LA, Jan. 23-7, pp. 43-50. Published by the Society for Computer Simulation, ISBN 1-56555-287-3, San Diego, CA.
- 72) Sohns, B., Stein, J.L. and Louca, L. 2005 "Vehicle Model Robustness: A Case Study of the FMTV Military Truck Model" SAE Paper No. SAE2005_05MV-18, *Proceedings of the SAE 2005 World Congress*, April 11-14, Detroit, MI. Published by the SAE International. (in press).
- 73) Kang, D., Hoffman, R.C., Stein, J.L., Louca, L.S. and Huh K. 2005 "Implementing the Milliken Moment Method using Controlled Dynamic Simulation" SAE Paper No. SAE2005-01-0417, *Proceedings of the SAE 2005 World Congress*, April 11-14, Detroit, MI. Published by the SAE International. (in press).

Updated: January 24, 2014

- 74) Fathy, H. K., and Stein, J. L., 2005, "Fundamental Concordances between Balanced Truncation and Activity-Based Model Reduction", *Proceedings of the International Conference on Integrated Modeling and Analysis in Applied Control and Automation*, pp. 109-116, Marseilles, France, October 20-22, 2005
- 75) Hosam K Fathy, Rahul Ahlawat, and Jeffrey L. Stein, 2005, "Proper Powertrain Modeling for Engine-in-the-Loop Simulation", *Proceedings of the 2005 ASME International Mechanical Engineering Congress and Exposition*, Orlando, Florida, November 5-11, 2005.
- 76) Filipi, Z., Fathy, H. K., Hagena, J., Knafl, A., Ahlawat, R., Liu, J., Jung, D., Assanis, D., Peng, H., and Stein, J. L., 2006, "Engine-in-the-Loop Testing for Evaluating Hybrid Propulsion Concepts and Transient Emissions – HMMWV Case Study", *Proceedings of the 2006 SAE World Congress*, SAE Paper 2006-01-0443, SP-2008, Detroit, MI, April 3-6, 2006.)
- 77) Zoran Filipi, Hosam K Fathy, and Jeffrey L. Stein, 2006, "Integrating High-Fidelity Simulations and Real Hardware for Design and Development of Advanced Powertrains", *Proceedings of the SPIE Conference on Modeling and Simulation for Military Applications*, Kissimmee, Florida, April 17-22.
- 78) Jongchul Jung, Kunsoo Huh, Hosam K Fathy, and Jeffrey L. Stein, 2006, "Optimal Robust Adaptive Observer Design for a Class of Nonlinear Systems via an H-infinity Approach", *Proceedings of the 2006 American Control Conference*, Minneapolis, Minnesota, June 14-16.
- 79) T. Ersal, H. K. Fathy, and J. L. Stein, "Structural Simplification of Modular Bond-Graph Models Based on Junction Inactivity," *ASME Paper IMECE2006-14567*, *Proc. IMECE 2006, Dynamic Systems and Controls Division*, Chicago, IL, 2006.
- 80) T. Ersal, H. K. Fathy, and J. L. Stein, "Orienting Body Reference Frames Using Proper Orthogonal Decomposition for More Effective Structural Simplification," *ASME Paper IMECE2006-14572*, *Proc. IMECE 2006, Dynamic Systems and Controls Division*, Chicago, IL, 2006.
- 81) Kittirungsi, B., Fathy, H.K., and Stein, J.L. (2006) "An Efficient Scaling Methodology for Dynamic Models Using Dimensional and Activity Analyses." *ASME Paper IMECE2006-14587*, *Proc. ASME IMECE 2006, Dynamic Systems and Controls Division*, Chicago, IL
- 82) Sohns, B.J., Allison, J., Fathy, H., and Stein, J.L., (2006) "Efficient Parameterization of Large-Scale Dynamic Models Through the use of Activity Analysis." *ASME Paper IMECE2006-14599*, *Proc. ASME IMECE 2006, Dynamic Systems and Controls Division*, Chicago, IL.
- 83) Yuqing Liu, H.K. Fathy, J.L. Stein (2007) "Optimal Modular Robot Configuration Design Using Genetic Algorithms And Genetic Programming" *Proceedings of the 2007 American Control Conference*, 2007, New York, NY, July 11 – 13. (presentation only)

- 84) Burit Kittirungsi, Hosam K. Fathy, and Jeffrey L. Stein, 2007, "An Approximate Similitude Design Methodology for Dynamic Systems", 2007 ASME International Mechanical Engineering Congress and Exposition, Seattle, WA, USA, Nov. 10-16.
- 85) Ersal, T., Fathy, H. K., and Stein, J. L., 2007, "Realization-preserving structure and order reduction of nonlinear energetic system models using energy trajectory correlations", *Proceedings of the 2007 ASME International Mechanical Engineering Congress and Exposition*, Seattle, WA USA, IMECE2007-42041).
- 86) Tulga Ersal, Hosam K. Fathy, Loucas S. Louca, D. Geoff Rideout, and Jeffrey L. Stein, 2007, "A Review Of Proper Modeling Techniques ", 2007 ASME International Mechanical Engineering Congress and Exposition, Seattle, WA, USA, Nov. 10-16, IMECE2007-42031.
- 87) Hosam K. Fathy, Dongsoo Kang, and Jeffrey L. Stein, 2008, "Online Vehicle Mass Estimation Using Recursive Least Squares and Supervisory Data Extraction", *Proceedings of the 2008 American Control Conference*, Seattle, WA.
- 88) Ersal, T., Kittirungsi, B., Fathy, H. K., and Stein, J. L., 2008, "Model Reduction in Vehicle Dynamics Using Importance Analysis", *Proceedings of 2008 ASME Dynamic Systems and Control Conference*, Ann Arbor, MI.
- 89) S. J. Moura, H. K. Fathy, D. S. Callaway, J. L. Stein, 2008, "A Stochastic Optimal Control Approach for Power Management in Plug-in Hybrid Electric Vehicles," *Proceedings of ASME 2008 Dynamic Systems and Control Conference*, Ann Arbor, MI.
- 90) Moura, S. J., Callaway, D. S., Fathy, H. K., Stein, J. L., 2008, "Impact of Battery Sizing on Stochastic Optimal Power Management in Plug-in Hybrid Electric Vehicles," *Proceedings of the 2008 IEEE International Conference on Vehicular Electronics and Safety (ICVES)*, pp. 96-102.
- 91) Rahul Ahlawat, Hosam K. Fathy, Chengyun Guo, Byungchan Lee, Dohoy Jung, Jeffrey L. Stein, 2009, "Effect of Pump Selection on Fuel Economy in a Dual Clutch Transmission Vehicle", *Proceedings of the 2009 American Control Conference*, St. Louis, MO.
- 92) Benjamin Pence, Hosam K. Fathy, Jeffrey L. Stein, 2009 "Sprung Mass Estimation For Off-Road Vehicles Via Base-Excitation Suspension Dynamics And Recursive Least Squares", *Proceedings of the 2009 American Control Conference*, St. Louis, MO, pp. 5043-5048, 2009 Piscataway, NJ, USA. IEEE, 5043-8, 10-12 June.
- 93) Louca, L.S. and J.L. Stein, 2009. "Energy-Based Model Reduction of Linear Systems". *Proceedings of the 6th International Symposium on Mathematical Modeling*, Vienna, Austria. Published in the series ARGESIM-Reports no. 35, ISBN 978-3-901608-35-3, Vienna, Austria.
- 94) B.L. Pence, H.K. Fathy, J.L. Stein, 2009 "A Base-Excitation Approach to Polynomial Chaos Based Estimation of Sprung Mass for Off-Road Vehicles", *Proceedings of the 2009 ASME Dynamic Systems and Control Conference*, pp. 857-864, October 12, 2009 - October 14, 2009, Hollywood, CA, USA.

- 95) Scott Moura, Joel Forman, Jeffrey L. Stein, Hosam K. Fathy, 2009 "Control of Film Growth in Lithium Ion Battery Packs via Switches" *Proceedings of the 2009 ASME Dynamic Systems and Control Conference*, Hollywood, CA (Best Student paper Finalist).
- 96) Tulga Ersal, Mark Brudnak, Jeffrey L. Stein, Hosam K. Fathy, 2009 "Variation-based transparency analysis of an internet-distributed hardware-in-the-loop simulation platform for vehicle powertrain systems" *Proceedings of the 2009 ASME Dynamic Systems and Control Conference*
- 97) Tulga Ersal, Mark Brudnak, Ashwin Salvi, Jeffrey L. Stein, Zoran Filipi, Hosam K. Fathy, 2009 "Development of an internet-distributed hardware-in-the-loop simulation platform for an automotive application" *Proceedings of the 2009 ASME Dynamic Systems and Control Conference*.
- 98) B.L. Pence, J.L. Stein, H.K. Fathy, 2010 "A Maximum Likelihood Approach to Recursive Polynomial Chaos Parameter Estimation", *Proceedings of the 2010 American Control Conference*, June 30- July 2, Baltimore, MD, USA. IEEE, 2144-2151.
- 99) Rahul Ahlawat, Jonathan R. Hagena, Zoran S. Filipi, Jeffrey L. Stein and Hosam K. Fathy, 2010 "Volterra Series Estimation of Transient Soot Emissions from a Diesel Engine", IEEE Vehicle Power and Propulsion Conference, September 1-3, Lille, France.
- 100) Joel Forman, Saeid Bashash, Jeffrey L. Stein, Hosam K. Fathy, 2010 "Reduction Of An Electrochemistry-Based Li-Ion Battery Health Degradation Model Via Constraint Linearization And Padé Approximation." *Proceedings of the 2010 ASME Dynamic Systems and Control Conference*, Cambridge, MA.
- 101) Scott Moura, Jeffrey L. Stein, Hosam K. Fathy (2010) "Battery-Health Conscious Power Management for Plug-in Hybrid Electric Vehicles via Stochastic Control" *Proceedings of the 2010 ASME Dynamic Systems and Control Conference*, Cambridge, MA.
- 102) Tulga Ersal, Brent Gillespie, Mark Brudnak, Jeffrey L. Stein, Hosam K. Fathy (2011) "Effect of Coupling Point Selection on Distortion in Internet-distributed Hardware-in-the-Loop Simulation", *Proceedings of the 2011 American Control Conference* [Best Paper in Session Award].
- 103) Joel Forman, Scott Moura, Jeffrey L. Stein, Hosam K. Fathy, "Genetic Parameter Identification of the Doyle-Fuller-Newman Model from Experimental Cycling of a LiFePO₄ Battery", *Proceedings of the 2011 American Control Conference*.
- 104) T. Ersal, C. Ahn, I. A. Hiskens, H. Peng, and J. L. Stein, (2011) "Impact of controlled plug-in EVs on microgrids: A military microgrid example," IEEE Power & Energy Society General Meeting, Detroit, MI USA, 2011.
- 105) Rahul Ahlawat, Hosam K. Fathy and Jeffrey L. Stein, (2011) "Iterative Learning Based Driver Input Synthesis For Evaluating Transient Diesel Soot Emissions", 2011 Dynamic Systems and Controls Conference, Arlington, VA.

- 106) D'Amato, A. M., Forman, J., Ersal, T., Ali, A. A., Stein, J. L., Peng, H., and Bernstein, D. S., 2012, "Noninvasive Battery-Health Diagnostics Using Retrospective-Cost Identification of Inaccessible Subsystems", *Proceedings of IFAC Symposium on System Identification*, Brussels, Belgium (accepted, but withdrawn due to travel expenses).
- 107) Ersal, T., Ahn, C., Hiskens, I. A., Peng, H., Stefanopoulou, A. G., and Stein, J. L., 2012, "On the Effect of DC Source Voltage on Inverter-Based Frequency and Voltage Regulation in a Military Microgrid", *Proceedings of American Control Conference*, Montréal, Québec, Canada.
- 108) D'Amato, A. M., Forman, J., Ersal, T., Ali, A. A., Stein, J. L., Peng, H., and Bernstein, D. S., 2012, "Noninvasive Battery-Health Diagnostics Using Retrospective-Cost Identification of Inaccessible Subsystems", *Proceedings of DSCC 2012*, Ft. Lauderdale, FL, published by ASME.
- 109) Ersal, T., Brudank, M. and Stein, J.L. 2012 "An iterative learning control approach to improving fidelity in Internet-distributed hardware-in-the-loop simulation", *Proceedings of DSCC 2012*, Ft. Lauderdale, FL, published by ASME.
- 110) Forman, J., Stein, J.L. and Fathy, H. 2012 "Optimal Experimental Design for Modeling Battery Degradation" *Proceedings of DSCC 2012*, Ft. Lauderdale, FL, published by ASME.
- 111) Ersal, T., Brudnak, M., Kim, Y., Salvi, A., Siegel, J. B., Stefanopoulou, A., Stein, J. L., and Filipi, Z., (2012) "A Method to Achieve High Fidelity in Internet-Distributed Hardware-in-the-Loop Simulation", *Proceedings of NDIA Ground Vehicle Systems Engineering and Technology Symposium*, Troy, MI.
- 112) Forman, J., Stein, J.L. and Fathy, H. 2013 "Optimization of Dynamic Battery Parameter Characterization Experiments via Differential Evolution" *Proceedings of the American Control Conference*, Washington, DC, June 17-19, 2013.
- 113) Tandon, A., Brudank, M., Stein, J.L. and Ersal, T., 2013 "An Observer Based Framework for Internet-Distributed Hardware-In-The-Loop Simulations" *Proceedings of 2013 Dynamic Systems and Control Conference*, Palo Alto, CA.
- 114) Zhou, X., Ersal, T., Stein, J. L., and Bernstein, D. S. (2013) "Battery Health Diagnostics Using Retrospective-Cost System Identification: Sensitivity to Noise and Initialization Errors", *Proceedings of 2013 Dynamic Systems and Control Conference*, Palo Alto, CA. (Best Student (Xin Zhou) Paper Finalist)
- 115) Liu, J., Jayakumar, P., Overholt, J. L., Stein, J. L., and Ersal, T. (2013) "The Role of Model Fidelity in Model Predictive Control Based Hazard Avoidance in Unmanned Ground Vehicles Using Lidar Sensors", *Proceedings of Dynamic Systems and Control Conference*, Palo Alto, CA.
- 116) Ge, X., Brudnak, M.J., Stein, J.L., and Ersal, T., "A Norm Optimal Iterative Learning Control Framework towards Internet-Distributed Hardware-in-the-Loop Simulation," *Proceedings of the 2014 American Control Conference* (in review).

Other:

- 1) Stein, J. L., Hsu, W. L., and Lele, P. P., 1976 "Ultrasonic Intensity-Insonation Duration Thresholds for Morphological Damage to Mammalian C.N.S. in Vivo," Abstract in the *Proceedings of the 91st Annual Meeting of the Acoustical Society of America*, Washington, D.C., April.
- 2) Hedrick, J. K., Wormley, D. N., Coverstone, R., Stein, J. L., and Hurt, T. B. 1977 "The Influence of Fifth Wheel Location and Braking Characteristics on Articulated Vehicle Motion." Final Report prepared for the US. Department of Transportation, National Highway Safety Administration, Contract DOT-HS-6-01343, Washington D.C., November.
- 3) Stein, J. L. and Flowers, W. C., 1981 "Quantitative Design of Stance Phase Controllers for Above-Knee Prostheses", abstract accepted for presentation at the VIIth International Symposium on External Control of Human Extremities, Dubrovnik, Yugoslavia, September.
- 4) Stein, J. L. and Colvin, D., 1983 "Adaptive And Sensor Based Control Of Machine Tools", Technical Report No. UM-MEAM-83-19, Dept. of Mechanical Engineering and Applied Mechanics, Univ. of Michigan, Ann Arbor, Michigan Sept.
- 5) Stein, J. L., 1983 "Design Issues In The Stance Phase Control of Above-Knee Prostheses", Ph.D. Thesis, Dept. of Mechanical Engineering, M.I.T., Cambridge, MA., February.
- 6) Park, Y. and Stein, J.L. 1986 "Order Reduction Procedure of the Linear Differential Algebraic Equation," UM-MEAM-86-40.
- 7) Stein, J.L., and Park Y., 1987 "Modeling and Sensing Issues for Machine Diagnostics", Proceedings of the 14th Conference on Production Research and Technology, *Manufacturing Processes, Systems and Machines*, sponsored by NSF, and published by SME, October.
- 8) Stein, J.L., 1989 "Model-Based Machine Diagnostics Using Remote Sensing" Proceedings of the 15th Conference on Production Research and Technology *Advances in Manufacturing Systems Integration and Processes*, Publ. by SME, Dearborn, MI, January.
- 9) Stein, J.L., 1990 "Model-Based Machine Diagnostics Using Remote Sensing and Design and Control of Servo Systems" Proceedings of the 16th Conference on Production Research and Technology *Advances in Manufacturing Systems Integration and Processes*, Publ. by SME, Dearborn, MI, January.
- 10) Huh, K. and Stein J.L. 1994 "Upper Bounds of the Condition Numbers for Non-normal Matrices" Technical Brief *MEAM Technical Report NO.-94-10*, Department of Mechanical Engineering and Applied Mechanics, The University of Michigan, Ann Arbor, MI.

- 11) Stein, J.L. and Huh K. 1994 “Well-Conditioned Observers for High-Performance Low-Cost Monitoring Systems” *Proceedings of the 1994 NSF Design and Manufacturing Grantees Conference*, pp. 473-4, SME Publication, Dearborn, MI. ISBN:0-87263-441-8.
- 12) Stein, J.L. and Tu, J. 1994 “Model-Based Preload Monitoring for Machine Tool Spindle Bearings” *Proceedings of the 1994 NSF Design and Manufacturing Grantees Conference*, pp. 475-6, SME Publication, Dearborn, MI. ISBN:0-87263-441-8.
- 13) Wilson, B.H. and Stein, J.L. 1994 “Model-Building Assistant: An Automated Modeling Tool for Machine-Tool Drive-Trains” *Proceedings of the 1994 NSF Design and Manufacturing Grantees Conference*, p 493, SME Publication, Dearborn, MI. ISBN:0-87263-441-8.
- 14) Gibson, A.O., Stein J.L. and Tu J.F. 1997 “A Thermomechanical Model of High Speed Spindle Bearing Dynamics”, Abstract accepted for presentation at the STLE 52 Annual Meeting, May 18-22, 1997, Kansas City, Missouri.

Patents and Disclosures

- 1) Invention Disclosure: Description – Robust Online Vehicle Mass Estimation Using Recursive Least Squares with Multilevel Supervisory Data Extraction (2007)

Testimony History: Past 5 years and other relevant cases:
Prof. Jeffrey L. Stein

Borg Warner v New Venture Gear, Defendant, Four Wheel Drive Transfer Cass, Patent Infringement, Michael O'Shea, Clifford, Chance, Rogers and Wells, August-02, Report and Deposition, US District Court, Northern District of Illinois; Eastern Division, 00 C 7470, Patent Infringement

Field Hybrids, LLC v Toyota Motor Corp., et al., Plaintiff, Hybrid Electric Vehicles, Patent Infringement, Sean Gallagher, Bartlit, Beck, Herman, Plenchar & Scott, LLP, July-04, Sept-04, Oct-04, Jan-05, Report and Deposition, US District Court for the District of Minnesota, 03-CV-4121 ADM/JSM, Patent Infringement

Eaton Corp. v ZF Friedrichshafen AG, ArvinMeritor Inc. and ZF Meritor LLC, Plaintiff, Automated Mechanical Transmissions, Patent Infringement, Steve Gruskin, Sughrue Mion, PLC, Aug-04, Aug-04, Sep-05, Sep-05, Report, Deposition and Trial, International Trade Commission, No. 337-TA-503, Patent Infringement

Meritor Transmission Corp. v. Eaton Corp., Defendant, Automated Mechanical Transmissions, Patent Infringement, John Burlingham, Squire, Sanders and Dempsey, LLC, November-05, Report and Deposition, United States District Court for the Western District of North Carolina, Shelby Division, 1:04CV178, Patent Infringement

Scott v MTA: Yolanda Scott v Metropolitan Suburban Bus Authority, a/k/a MTA Long Island Bus and MTA v Cummins, Inc., Cummins Engine Company, Inc., and Orion Bus Industries, Inc, Defendant, Bus Engine Controls, Engine runaway, Marilyn Venterina, ESQ, Sciretta & Venterina, Esqs, Nov.-06, Affidavit, Supreme Court of the State of New York, County of Nassau, 013189 of '03 and 003829 of '04, Product Liability

Sram Corp. v FORMULA S.R.L. and PERIGEUM DEVELOPMENT, INC. D/B/A FORMULA BRAKE USA, Defendant, Hydraulic Bicycle Brakes, Patent Infringement, John Ruskusky, Ungaretti & Harris, July-08, Aug-08, Report and Deposition, IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS EASTERN DIVISION , No. 07-CV-1565, No. 06-CV-1025 (consolidated), Patent Infringement

Dura Global Technologies v Magna Donnelly Corp., Plaintiff, Rear Slider Truck Windows, Trade Secrets, Peter McDermott, Banner & Witcoff, LTD, May-08, July-08, Nov-09, Nov-10, Reports and Deposition, US District Court for the Eastern District of Michigan, Southern Division, 07-10945-SFC, Trade Secrets

Dura Global Technologies v DENZIL ABNEY, GARY DEGROFF
and TIMOTHY CLEVELAND, Plaintiff, Rear Slider Truck Windows, Trade Secrets,
Mike Lavoie, Butzel Long, Nov. 10, Deposition, STATE OF MICHIGAN
IN THE CIRCUIT COURT FOR THE COUNTY OF OAKLAND, Case No. 08-096013-CK,
Trade Secrets

RE-Reexamination of: Eric W. Norris; Walter C. DeSouza Reexamination Control No.:
95/000,533 Patent No.: 7,113,919, Plaintiff, Vehicle Configuration System, Patent
Re-Examination, Benno Guggenheimer, Morrison & Foerster LLP, July 15, 2010,
Declaration, IN THE UNITED STATES PATENT AND TRADEMARK OFFICE,
"Reexamination Control No.: 95/000,533 Patent No.: 7,113,919, Docket No.
068972800100 (PATENT)", Patent Re-Examination

CNH American LLC et al. v J. Kinzenbaw and Kinze Manufacturing, Inc., Defendant,
Agricultural Seed Meter, Patent Infringement, Mark Durbin, Wildman, Harrold,
Dixon and Wells, LLP, May-09, July-10, Sept.10 (2), Feb-11., Declaration, Deposition
and Trial, "IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE", C.A. No. 08-945-GMS, Patent Infringement

Packaging Specialties, Inc. v. Anchor Bay Packaging Corp Manufacturing, Inc.,
Defendant, Shipping Container, Patent Infringement, Barry Kane, Kane & Co., PLC,
March 30, 2011, May 18, 2011, Report & Deposition, "US District Court for the
Eastern District of Michigan, Southern Division", 2:09-cv-10232-MOB-MJH, Patent
Infringement

Martin Rawls-Meehan, and Lung Enterprise Corp v Ascion, LLC, Tempur-Pedic,
International, Defendant, Adjustable Beds, Patent Infringement, John Strand, Wolf,
Greenfield & Sacks, P.C., December 10, 2010, January 27, 2011, March 7, 2011, April
11, 2011, Declaration, Report, "IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS", Civil Action No. 09-CV-11550-GAO,
Patent Infringement

Estate of Kevin James v DTE, Plaintiff, Power Line Mechanics, Wrongful Death, David
Christensen, "Michigan Auto Law, Gursten, Koltonow, Gursten,
Christensen & Raitt. P.C.", June, 2012, Deposition, State of Michigan Circuit Court,
3rd Circuit, Case No. 10-012759-NO, Wrongful Death

In the matter of Certain Wiper Blades, Defendant, Wiper Blades, Patent
Infringement, John Rondini, Brooks, Kushman, PC, 11/14/12, Report, Deposition,
United States International Trade Commission, Investigation No. 337-TA-816,
Patent Infringement

Malek v Precision Products, Plaintiff, Powder Metal Press Table, Product Liability,
Mike Pross, Wallace and Gramham, PC, 4/11/2013 & 6/12/13, Report, Deposition,
US District Court for the Western District of N. Carolina Statesville Div., Civil Action
No. 5:12-cv-29, Product Liability

Continental Automotive Systems, US v Huf North America Automotive Parts Manufacturing, Plaintiff, Wireless Automotive Ignition Modules, Product Defect and Indemnity Claim, Peter Moore, Barnes & Thornburg LLP, 8/13, 9/6,9/13, Reports (2), Deposition, US District Court for the Northern District of Illinois, Eastern Div., Case No. 10 CV 4125, Product Defect and Indemnity Claim