

JING SUN CURRICULUM VITAE

Education:

- Ph. D. University of Southern California, Department of EE-Systems, 1989
M.S.E. University of Science and Technology of China, Automatic Control, 1984
B. A. University of Science and Technology of China, Electrical & Electronic Engineering, 1982

Positions at U. of M.:

- 2015- Michael G. Parsons Collegiate Professor, Naval Architecture and Marine Engineering, University of Michigan.
2008- Professor, Naval Architecture and Marine Engineering, University of Michigan
2008- Professor (dry appointment), Electrical Engineering and Computer Science, University of Michigan.
2016- Professor (dry appointment), Mechanical Engineering, University of Michigan.
2003-2008 Associate Professor, Naval Architecture and Marine Engineering, University of Michigan
2004-2008 Associate Professor (dry appointment), Electrical Engineering and Computer Science, University of Michigan

Positions at Other Organizations

- 2001-2003 Staff Technical Specialist (Project leader), Powertrain Control Research & Advanced Engineering Department, Ford Research Laboratories
1996-2001 Senior Technical Specialist, Powertrain Control Systems Department, Ford Research Laboratories
1993-1996 Technical Specialist, Powertrain Control Systems Department, Ford Research Laboratories
1993 (June-August) Visiting Scientist, Electrical and Computer Engineering Department, University of California, Santa Barbara
1989-1993 Assistant Professor, Electrical and Computer Engineering Department, Wayne State University
1985-1989 Graduate Research Assistant, EE-Systems, University of Southern California
1986-1987 Summer Intern, Project Trilby, Research Center, General Motor Corporation

1982-1984 Graduate Research Fellow, Department of Automatic Control, Univ. of Science & Technology

Honors and Awards

- 2015 Michael G. Parsons' Collegiate Professor of Engineering, University of Michigan
- 2014 ACC2014 Best Paper Award by ASME Automotive and Transportation Committee
- 2014 Distinguished lecture, 2014 Chinese Conference on Decision and Control
- 2013 ACC2013 Best Paper Award by ASME Automotive and Transportation Committee
- 2013 Appointed General Chair of 2017 American Control Conference
- 2010 Visiting Changjiang Scholar, Minister of Education, P. R. China
- 2009 Distinguished Summer Fellow Award, ONR
- 2007 Outstanding Accomplishment Award, Naval Architecture and Marine Engineering, College of Engineering, University of Michigan.
- 2005 Plenary speaker of the 24th Chinese Control Conference (Title: Integrated Powerplants for Advanced Transportation Systems: Challenges for Control).
- 2004 IEEE Fellow: "For contributions to systems theory and automotive powertrain control."
Crosby/Dewitt Research Award, University of Michigan
- 2003 IEEE Control System Society Control System Technology Award: "For the development of fuel-efficient and environmentally friendly automotive powertrains through innovative application of control theory."
Ford Research Technology Innovation Award
- 2002 Ford Research Technology Innovation Award
- 2001 Ford Publication Award
Ford Research Technology Innovation Award
- 2000 Ford Research Technology Innovation Award
- 1998 Ford Research Technology Innovation Award
- 1997 Ford Technical Achievement Award
Ford Research Technology Innovation Award
- 1991 NSF Research Initiation Award

Publications

Books

- B1. Petros A. Ioannou and Jing Sun, Robust Adaptive Control, Prentice Hall, 822 pages, 1996.
- B2. Gang Tao and Jing Sun (Editors), *Advances in Control Theory and Applications*, University of Science and Technology of China Press, 2009.

Journal Publications

- J1. Zeng Qiu, Jing Sun, Mario Santello, Mrdjan Jankovic, "Nonlinear Internal Model Controller Design for Waste Gate Control of a Turbocharged Gasoline Engine," *Control Engineering Practice*, Vol. 46, pp105-114, January, 2016.
- J2. Xuning Feng, Caihao Weng, Minggao Ouyang, Jing Sun, "Online Internal Short Circuit Detection For A Large Format Lithium Ion Battery," *Applied Energy*, Vol. 161, pp. 168-180, January, 2016.
- J3. Xiaowu Zhang, Shengbo Li, Huei Peng, Jing Sun, "Efficient Exhaustive Search of Power-Split Hybrid Powertrains with Multiple Planetary Gears and Clutches," *Journal of Dynamic Systems, Measurement, and Control*, Vol. 137, December, 2015.
- J4. Zeng Qiu, Mario Santillo, Mrdjan Jankovic, Jing Sun, "Composite Adaptive Internal Model Control and Its Application to Boost Pressure Control of a Turbocharged Gasoline Engine," *the IEEE Transactions of Control System Technology*, Vol 23, No. 6, pp. 2306-2315, November 2015.
- J5. Hyeongjun Park, Jing Sun, Steve Pekarek, Philip Stone, Daniel Opila, Richard Meyer, Ilya Kolmanovsky, and Ray DeCarlo, "Real-time Model Predictive Control for Shipboard Power Management Using the IPA-SQP Approach," *IEEE Transactions on Control System Technology*, Vol. 23, No. 6, pp2129-2142, November, 2015.
- J6. Caihao Weng, Jing Sun, Huei Peng, "Model Parametrization and Adaptation Based on Invariance of Support Vectors with Application to Battery Health Monitoring," *IEEE Transactions on Vehicular Technologies*, Vol. 64, No. 9, pp.3908-3917, September 2015.
- J7. Defeng He, Lei Wang, Jing Sun, "On Stability of Multiobjective NMPC with Objective Prioritization," *Automatica*, No. 57, pp189-198, July, 2015.
- J8. Cheng Liu, Jing Sun, "Integrated Line of Sight and Model Predictive Control for Path Following and Roll Motion Control Using Rudder", *Journal of Ship Research*, Vol. 59, No. 2, pp 98-112, June, 2015.
- J9. Chiao-ting Li, Huei Peng, Jing Sun, "MPC for Reducing Energy Storage Capacity to Mitigate Wind Power Intermittency," *Wind Energy*, March, 2015.
- J10. Xiaowu Zhang, Huei Peng, Jing Sun, "A Near-Optimal Power Management Strategy for Rapid Component Sizing of Multimode Power Split Hybrid Vehicles," *IEEE Transactions on Control System Technology*, Vol. 23, No. 2, pp609-618, March, 2015.
- J11. Zhiwei Wu, Yongjian Wu, Tianyou Chai, Jing Sun, "Data-Driven Abnormal Condition Identification and Self-Healing Control System for Fused Magnesium Furnace," *IEEE Transactions on Industrial Electronics*, Vol. 62, No. 3, pp. 1703-1715, March, 2015.
- J12. Zhenzhong Jia, Jing Sun, Herb Dobbs, and Joel King, "Feasibility Study of SOFC Engines Integrated with Sprinter Gas Turbines: Modeling, Design, and Control," *Journal of Power Sources*, Vol. 275, pp. 111-125, February, 2015.

- J13. Xuning Feng, Jing Sun, Mingguo Ouyang, Fang Wang, Xiangming He, Languang Lu, Huei Peng, "Characterization of Penetration Induced Thermal Propagation Process with a Large Format Lithium Ion Battery Module," *Journal of Power Sources*, Vol 275, pp. 261-273, February, 2015.
- J14. Jing Sun, "Optimization-based Control for Electrified Vehicles: Challenges and Opportunities," *Journal of Control and Decisions*, Vol. 2, Issue 1, 2015.
- J15. Xuning Feng, Jing Sun, Mingguo Ouyang, Xiangming He, Languang Lu, Xuebing Han, Mou Fang, Huei Peng, "Characterization of Large Format Lithium Ion Battery Exposed to Extreme High Temperature," *Journal of Power Sources*, Vol. 272, pp457-467, December, 2014.
- J16. Yajun Zhang, Tianyou Chai, Jing Sun, Xinkai Chen, Hong Wang, Juntian Qu, "A Novel Estimation Algorithm Based on Data and Low Order Models for Virtual Un-modeled Dynamics," *IEEE Transactions on Neural Networks and Learning Systems*, Vol. 25, No. 12, pp2156-2166, December, 2014.
- J17. Chiao-Ting Li, Huei Peng, and Jing Sun, "Life cycle cost analysis of wind power considering stochastic uncertainties," *Energy*, vol. 75, pp. 411-418, October, 2014.
- J18. Caihao Weng, Jing Sun, Huei Peng, "A Unified Open-Circuit Model of Lithium-ion Battery for State-of-Charge Estimation and State-of-Health Monitoring," *Journal of Power Sources*, pp.228-237, Vol. 258, July, 2014.
- J19. Soryeok Oh, Jing Sun, Herb Dobbs, Joel King, "Model Predictive Control for Power and Thermal Management of An Integrated Solid Oxide Fuel Cell and Turbocharger System," *IEEE Transactions on Control System Technology*, Vol. 22, No. 3, pp911-920, May, 2014.
- J20. Zhao Lu, Jing Sun, and Ken Butts, "Multi-scale Asymmetric Orthogonal Wavelet Kernel for Linear Programming Support Vector Learning and Nonlinear Dynamic System Identification," *IEEE Transactions on Cybernetics*, Vol. 44, No. 5, pp712-724, May, 2014.
- J21. Chris Vermillion, Jing Sun, Ken Butts, "Robust Modular Control System Design Using An Inner Loop Reference Model and μ Synthesis Technology," *International Journal of Robust and Nonlinear Control*, Vol. 23, pp1338-1359, 2013.
- J22. Chiao-Ting Li, Huei Peng, Jing Sun, "Reducing CO2 Emissions on the Electric Grid Through a Carbon Disincentive Policy," *Energy Policy*, Vol. 60, pp.793-802, 2013.
- J23. Oh, S. R., Jing Sun, Herb Dobbs, Joel King, "Dynamic Characteristics and Fast Load-Following Approach of 5kW-Class Tubular Solid Oxide Fuel Cell/Gas Turbine Hybrid Systems", *International Journal of Energy Research*, Vol. 37, pp1242-1255, May, 2013.
- J24. Chiao-Ting Li, Changsun Ahn, Huei Peng, Jing Sun, "Synergic Control of Plug-In Vehicle Charging and Wind Power Scheduling," *IEEE Transaction on Power Systems*, Vol. 28, No.2, 2013.
- J25. Yigang Wang, Tianyou Chai, Jun Fu, Jing Sun, and Hong Wang, "Adaptive Decoupling Switching Control of the Forced-Circulation Evaporation System Using Neural Networks," *IEEE Transactions on Control System Technology*, Vol. 21, No. 3, pp964-974, May 2013.

- J26. Zhenzhong Jia, Jing Sun, Soryeok Oh, Herb Dobbs, Joel King, "Control of the Dual Mode Operation of Generator/Motor in SOFC-GT-based APU for Extended Dynamic Capabilities," *Journal of Power Sources*, Volume 235, pp172-180, 2013.
- J27. Caihao Weng, Yujia Cui, Jing Sun, and Huei Peng, "On-board State of Health Monitoring of Lithium-ion Batteries Using Incremental Capacity Analysis with Support Vector Regression," *Journal of Power Sources*, Vol. 235, pp36-44, 2013.
- J28. Chunyu Yang, Jing Sun, Xiaoping Ma, "Stabilization Bound of Singularly Perturbed Systems Subject to Actuator Saturation," *Automatica*, Vol. 49, No. 2, pp457-462, February, 2013.
- J29. Ping Zhou, Tiaoyou Chai, Jing Sun, "Intelligence-Based Supervisory Control for Optimizing the Operation of a DCS-Controlled Grinding System," *IEEE Transactions on Control Systems Technology*, Vol. 21, No. 1, pp162-175, January, 2013.
- J30. Chunyu Yang, Jing Sun, Qingling Zhang, Xiaoping Ma, "Lyapunov Stability and Strong Passivity Analysis for Nonlinear Descriptor Systems," *IEEE Transactions on Circuits and Systems I*, Vol. 60, No. 4, pp1003-1012, April 2013.
- J31. Reza Ghaemi, Jing Sun, Ilya Kolmanovsky, "Robust Control of Constrained Linear Systems with Bounded Disturbances," *IEEE Transactions on Automatic Control*, Vol. 57, No. 10, pp2683-2688, October, 2012.
- J32. Li Chen, Gang Xi, and Jing Sun, "Torque Coordination Control During Mode Transition for a Series-Parallel Hybrid Electric Vehicle," *IEEE Transactions on Vehicular Technology*, Vol 61, No.7, pp. 2936-2949, September, 2012.
- J33. Yanhui Xie, Reza Ghaemi, Jing Sun, and James Freudenberg, "Model Predictive Control for a Full Bridge DC/DC Converter," *IEEE Transactions on Control System Technology*, Volume 20, No. 1, pp 164-172, January 2012.
- J34. Gayathri Seenumani, Jing Sun, and Huei Peng, "Real-time Power Management of Integrated Power Systems in All Electric Ships Using Time-Scale Separation," *IEEE Transactions on Control System Technology*, Volume 20, No. 1, pp 232-240, January 2012.
- J35. Zhen Li and Jing Sun, "Disturbance Compensating Model Predictive Control with an Application to Ship Heading Control," *IEEE Transactions on Control System Technology*, Volume 20, No. 1, pp 257-265, January 2012.
- J36. Tianyou Chai, Yajun Zhang, Hong Wang, Chunyi Su, and Jing Sun, "Data Based Virtual Un-modeled Dynamics Driven Multivariable Nonlinear Adaptive Switching Control," *IEEE Transactions on Neural Networks*, Volume 22, No. 12, pp2154-2172, December, 2011.
- J37. Chunyu Yang, Qingling Zhang, Jing Sun, and Tianyou Chai, "Lur'e Lyapunov Function and Absolute Stability Criterion for Lur'e Singularly Perturbed Systems," *IEEE Transaction on Automatic Control*, Vol. 56, No. 11, pp 2666-2671, October. 2011.
- J38. Reza Ghaemi, Ilya Kolamnovsky, Jing Sun, "Robust Control of Linear Systems with Disturbances Bounded in State Dependent Set," *IEEE Transactions on Automatic Control*, Vol. 56, No. 7, pp1740-1745, July, 2011.
- J39. So-Ryeok Oh, Jing Sun, Herb Dobbs, Joel King, "Performance Evaluation of Solid Oxide Fuel Cell Engines Integrated with Single/Dual-Spool Turbochargers,"

- Journal of Fuel Cell Science and Technology, Transactions of the ASME*, Vol. 8, No. 6, (061020), December, 2011.
- J40. Zhao Lu, Jing Sun, and Ken Butts, “Linear Programming SVR-ARMA2k with Application in Engine System Identification,” *IEEE Transactions on Automation Science and Engineering*, Vol.8, No.4, pp846-853, October, 2011.
- J41. Chris Vermillion, Jing Sun, and Ken Butts, “Predictive Control Allocation for a Thermal Management System Based on an Inner Loop Reference Model—Design, Analysis and Experimental Results,” *IEEE Transactions on Control System Technology*, Vol. 19, No. 4, pp772-781, July, 2011.
- J42. Gayathri Seenumani, Huei Peng, Jing Sun, “A Reference Governor-based Hierarchical Control for Failure Mode Power Management of Hybrid Power Systems for All-Electric Ships,” *Journal of Power Sources*, 196 (3), pp. 1599-1607, 2011.
- J43. Jing Sun, John Stebe, Colen Kennell, “Feasibility and Design Implications of Fuel Cell Power for Sealift Ships,” *Naval Engineering Journal*, Vol. 122, No. 3, pp87-102, 2010.
- J44. Jian Chen, Jing Sun, “A Coordinating Control Strategy for Autothermal Reforming System,” *IEEE Transactions on Control System Technology*, Vol. 18, No. 4, pp779-788, July, 2010.
- J45. Zhen Li, Jing Sun, Robert Beck, “Evaluation and Modification of a Robust Path Following Controller for Marine Surface Vessels in Wave Fields,” *Journal of Ship Research*, Volume 54, Number 2, pp. 141-147(7), June 2010.
- J46. Soryeok Oh, Jing Sun, Zhen Li, Ed A. Celkis and D. Parsons, “System Identification of a Model Ship Using a Mechatronic System,” *IEEE Transactions on Mechatronics*, Vol. 15, No. 2, pp316-320, April 2010.
- J47. Soryeok Oh and Jing Sun, “Path Following of Underactuated Marine Surface Vessels Using Line-of-Sight Based Model Predictive Control,” *Ocean Engineering*, Vo. 37, (2-3), pp 289-295, 2010
- J48. Yanhui Xie, Jing Sun, James Freudenberg, “Power Flow Characterization of a Bidirectional Galvanically Isolated High Power DC/DC Converter Over a Wide Operating Range,” *IEEE Transactions on Power Electronics*, Vol. 25, No. 1, pp54-66, January, 2010.
- J49. Yanhui Xie, Reza Ghaemi, Jing Sun, James Freudenberg, “Implicit Model Predictive Control of a Full Bridge DC/DC Converter,” *IEEE Transactions on Power Electronics*, Vol. 24, No. 12, pp2704-2713, December, 2009.
- J50. Reza Ghaemi, Jing Sun, Ilya Kolmanovsky, “Neighboring Extremal Solution for Nonlinear Discrete-Time Optimal Control Problems with State Inequality Constraints,” *IEEE Transactions on Automatic Control*, Volume 54, No. 11, pp2674-2679, Nov. 2009.
- J51. Zhen Li, Jing Sun, Soryeok Oh, “Design, Analysis and Experimental Validation of a Robust Nonlinear Path Following Controller for Marine Surface Vessels,” *Automatica*, Volume 45, Issue 7, pp1649-1658, July 2009.

- J52. Reza Ghaemi, Jing Sun, Pablo A. Iglesias and Domitilla Del Vecchio, "A Method for Determining the Robustness of Bio-molecular Oscillator Models," *BMC Systems Biology*, 3:95, September, 2009.
- J53. Reza Ghaemi, Jing Sun, Ilya Kolamanovsky, "An Integrated Perturbation Analysis and Sequential Quadratic Programming Approach for Model Predictive Control," *Automatica*, Vol. 45, No. 6, pp2412-2418, 2009.
- J54. Vasilis Tsourapas, Jing Sun, Anna Stefanopoulou, "Incremental Step Reference Governor for Load Conditioning of Hybrid Fuel Cell and Gas Turbine Power Plants," *IEEE Transactions on Control Systems Technology*, Vol. 17, No. 4, pp 756-767, July, 2009.
- J55. Vasilis Tsourapas, Jing Sun, and Anna Stefanopoulou, "Control Oriented Analysis of a Hybrid Solid Oxide Fuel Cell and Gas Turbine System," *Journal of Fuel Cell Science and Technology*, Vol. 6, November, 2009.
- J56. Zhao Lu and Jing Sun, "Non-Mercer Hybrid Kernel for Linear Programming Support Vector Regression in Nonlinear System Identification," *Applied Soft Computing*, Volume 9, Issue 1, pp 94-99, 2009.
- J57. Handa Xi and Jing Sun, "Dynamic Analysis of Planar SOFC Models with Different Assumptions of Temperature Layers," *ASME Journal of Fuel Cell Science and Technology*, Volume 6, Issue 1, February, 2009.
- J58. Chris Vermillion, Jing Sun, Ken Butts, "Modeling, Control Design, and Experimental Validation of an Over-actuated Thermal Management System for Engine Dynamometer Applications," *IEEE Transactions on Control System Technology*, Vol.17, No.3, pp540-551, May, 2009.
- J59. Amey Karnik, Jing Sun, Anna Stefanopoulou, Julia Buckland, "Humidity and Pressure Regulation in a PEM Fuel Cell Using Gain-Scheduled Static Output Feedback Controller," *IEEE Transactions of Control System Technology*, Vol. 17, No. 2, pp283-297, March, 2009.
- J60. Zhao Lu, Jing Sun, and Ken Butts, "Linear Programming Support Vector Regression with Wavelet Kernel: A New Approach to Nonlinear Dynamical System Identification," *Mathematics and Computers for Simulation*, Vol. 79, pp2051-2063, 2009.
- J61. Handa Xi and Jing Sun, "A Low Rrder Dynamic Model for Planar Solid Oxide Fuel Cells Using On-line Iterative Computation," *ASME Journal of Fuel Cell Science and Technology*, November, Vol. 5, No. 4, 2008.
- J62. Vasilis Tsourapas, Jing Sun, and Anthony Nickens, "Modeling and Dynamics of an Autothermal JP5 Fuel Reformer for Marine Fuel Cell Applications," *International Journal of Energy*, Vol. 33, pp300-310, 2008.
- J63. Jing Sun, Ilya Kolmanovsky, Reza Ghaemi, and Shuhao Chen, "A Stable Block Model Predictive Control with Variable Implementation Horizon," *Automatica*, Vol.43, No. 11, pp1945-1953, 2007.

- J64. Handa Xi, Jing Sun, and Vasilis Tsourapas, "A Control Oriented Low Order Dynamic Model for Planar SOFC Using Minimum Gibbs Free Energy Method," *Journal of Power Sources*, Volume 165, No. 1, pp253-266, February, 2007.
- J65. Amey Y. Karnik, Anna Stefanopoulou, and Jing Sun, "Water Equilibria And Management Using A Two-Volume Model Of A Polymer Electrolyte Fuel Cell," *Journal of Power Source*, Volume 164, Issue 2, pp590-605, 10 February 2007.
- J66. Vasilis Tsourapas, Anna Stefanopoulou, and Jing Sun, "Model-Based Control of an Integrated Fuel Cell and Fuel Processor with Exhaust Heat Recirculation," *IEEE Transactions on Control System Technology*, Vol. 15, No. 2, pp. 233-245, March, 2007.
- J67. Ilya Kolmanovsky, Irina Sivergina, and Jing Sun, "Simultaneous Input And Parameter Estimation With Input Observers And Set Membership Parameter Bounding: Theory And An Automotive Application," *Int. Journal of Adaptive Control and Signal Processing*, Vol. 20, No. 2, pp225-246, March, 2006.
- J68. Ilya Kolmanovsky, Jing Sun, and N. Sivashankar, "An Integrated Software Environment for Powertrain Feasibility Assessment Using Optimization and Optimal Control," *Asian Journal of Control*, Vol. 8, No. 3, pp. 199-209, September 2006.
- J69. Handa Xi and Jing Sun: "Feedback Stabilization of High Speed Planing Vessels by a Controllable Transom Flap," *IEEE Transactions on Ocean Engineering*, Vol. 31, No.2, pp421-431, April, 2006.
- J70. Jeffrey Cook, Jing Sun, Julia H. Buckland, Ilya Kolmanovsky, Huei Peng, and Jessy Grizzle, "Automotive Powertrain Control, A Survey," *Asian Journal of Control (invited)*, Vol. 8, No. 3, pp. 237-260, September 2006.
- J71. Ilya Kolmanovsky and Jing Sun, "Parameter Governors for Discrete-Time Nonlinear Systems with Pointwise-in-Time State and Control Constraints," *Automatica*, Vol. 42, No. 5, pp 841-848, 2006.
- J72. Jing Sun and Ilya Kolmanovsky, "Robust Reference Governor for Fuel Cell Starvation Protection," *IEEE Transactions on Control Systems Technology*, Vol. 13, No.6, pp911-920, November 2005.
- J73. Yong Wha Kim, Jing Sun, I. Kolmanovsky, and Jeff Koncsol, "A Phenomenological Control Oriented Lean NOx Trap Model," *Journal of Fuels and Lubricants*, September, 2004.
- J74. Vasilis Tsourapas, Jing Sun, and Anna Stefanopoulou, "Modeling and Dynamics of An Integrated Fuel Cell Stack and Fuel Process System with Catalytic Burner for Marine Applications," *IASME Transactions* Vol. 2, No. 1, pp. 287-293, 2004.
- J75. Jing Sun, Yong Wha Kim, and Leyi Wang, "Aftertreatment Control and Adaptation for Automotive Lean Burn Engines with HEGO Sensors," *International Journal of Adaptive Control and Signal Processing*, Vol. 18, No. 2, pp. 145-166, March 2004.

- J76. Kolmanovsky, M. Druzhinina, and J. Sun, "Speed-Gradient Approach to Torque and Air-to-Fuel Ratio Control in DISC Engines," *IEEE Transactions on Control Systems Technology*, Vol. 10, No. 5, pp. 671-678, September 2002.
- J77. Jessy Grizzle, Julia Buckland, and Jing Sun, "Idle Speed Control for a Direct Injection Spark Ignition Stratified Charge Engine," *International Journal of Robust and Nonlinear Control*, Vol. 11, No. 11, pp. 1043-1072, September 2001.
- J78. Bader Badreddine, Alex Zaremba, Jing Sun and Feng Lin, "Active Damping of Engine Idle Speed Oscillation by Applying Adaptive PID Control," *SAE Transactions* 2001-01-0261, March 2001.
- J79. Julia Buckland, Jeff Cook, Ilya Kolmanovsky and Jing Sun, "Technology Assessment of Boosted Direct Injection Stratified Charge Gasoline Engines," *Journal of Engines*, Vol. 110, (also appears as SAE Paper No. 2000-01-0249), February 2000.
- J80. N. Sivashankar and Jing Sun, "Development of Model-Based Computer-Aided Engine Control Systems," *International Journal of Vehicle Design*, Special Issue on Computer-Aided Engineering in Today's Vehicle Design, Vol. 21, No 4/5, pp. 325-343, 1999.
- J81. Ken Butts, N. Sivashankar, and Jing Sun, "Application of l_1 Optimal Control to Engine Idle Speed Control Problem," *IEEE Transactions on Control Systems Technology*, Vol. 7, No. 2, pp. 258-270, March 1999.
- J82. Davor Hrovat and Jing Sun, "Models and Control Methodologies for IC Engine Idle Speed Control Design," *IEE Control Engineer Practice*, Issue 5, pp. 1093-1100, August, 1997.
- J83. Jing Sun, "A Hybrid Adaptive Control Scheme Using Sampled Data and Intersampling Compensation," *Automatica*, Vol. 33 No. 2, pp. 203-207, 1997.
- J84. M. Krstic, J. Sun and P. V. Kokotovic, "Robust Control of Nonlinear Systems with Input Unmodeled Dynamics," *IEEE Transactions on Automatic Control*, Vol. 41, No. 6, pp. 913-920, June 1996.
- J85. J. Sun, A.W. Olbrot, and M.P. Polis, "Robust Stabilization and Robust Performance Using Model Reference Control and Modeling Error Compensation," *IEEE Transactions on Automatic Control*, Vol. 39, No. 3, pp. 630-635, March, 1994
- J86. J. Sun, "A Modified Model Reference Adaptive Control for Improved Transient Performance," *IEEE Transactions on Automatic Control*, Vol. 38, No. 8, pp. 1255-1259, August, 1993.
- J87. J. Sun and P.A. Ioannou, "Robust Adaptive LQ Control," *IEEE Transactions on Automatic Control*, Vol. 37, No. 1, pp. 100-106, Jan. 1992.
- J88. Feng Lin, Robert Brandt and J. Sun, "Robust Control of Nonlinear Systems: Compensating for Uncertainty," *Int. J. Control*, Vol. 56, No. 6, 1992.
- J89. P.A. Ioannou and J. Sun, "Theory and Design of Robust Direct and Indirect Adaptive Control Schemes," *Int. J. Control*, Vol. 47, No. 3, pp. 775-813, 1988.

- J90. J. Sun, "A New FFT Method for a Real Time Series," (in Chinese), Journal of USTC, PRC, No.4, 1982.
- J91. J. Sun, "A Tight Bound of Eigenvalues of a Perturbed Matrix," (in Chinese), Journal of USTC, PRC, No.3, 1984.
- J92. Submitted:
- J93. Peiyuan Feng, Jing Sun, and Ning Ma, "Coordinated Control of Bow and Aft Rudders of Marine Surface Vessel for Path Following," submitted to Control System Technologies, December, 2013.
- J94. Caihao Weng, Jing Sun, Huei Peng, "State-of-Health Monitoring of Lithium-Ion Battery Packs Using Incremental Capacity Analysis," submitted to Power Sources, July, 2015.
- J95. David Reed, Jing Sun, Heath Hofmann, "Simultaneous Identification and Robust Adaptive Torque Control of Permanent Magnet Synchronous Machines," submitted to IEEE Transactions on Control System Technology, July 2015.
- J96. David Reed, Heath Hofmann, Jing Sun, "Offline Identification of Induction Machine Parameters with Core Loss Estimation using the Stator Current Locus," submitted to IEEE Transactions on Energy Conversion, October 2015.
- J97. Jun Hou, Jing Sun, Heath Hofmann, "Mitigating Power Fluctuations in Electric Ship Propulsion with Hybrid Energy Storage System: Design and Analysis," submitted to IEEE Transactions of Ocean Engineering, December 2015.
- J98. Richard B. Choroszuca, Jing Sun, Ken Butts, "Closed-loop Model Order Reduction and MPC for Diesel Airpath Control: Analysis and Experimental Results," submitted to IEEE Transactions of Control System Technology, January, 2016.
- J99. Defeng He, Jing Sun, Li Yu, "Economic MPC with a Contractive Constraint for Nonlinear Systems," submitted to International Journal of Robust and Nonlinear Control, March, 2016.
- J100. Zhenzhong Jia and Jing Sun, "Feasible Regime and Steady State Performance of Sprinter SOFC/GT Hybrid System for Improved Load Following," submitted to Applied Energy, April, 2016.
- J101. Zhenzhong Jia and Jing Sun, "Control Analysis and Transient Performance of Sprinter SOFC/GT Hybrid System for Improved Load Following," submitted to Journal of Power Sources, April, 2016.

Refereed Conference Proceedings

- C1. Jun Hou, David M. Reed, Heath Hofmann, Jing Sun, "A Low-Voltage Test-bed for Electric Ship Propulsion Systems with Hybrid Energy Storage," ASNE Advance Machinery Technology Symposium, Philadelphia, 2016.
- C2. Linjun Zhang, Chaozhe He, Jing Sun, Gabor Orosz, "Hierarchical design for connected cruise control," Proceedings of ASME 2015 Dynamic Systems and Control Conference (DSCC), Columbus, Ohio, October, 2015.
- C3. Xiaowu Zhang, Huei Peng, Jing Sun, "A Systematic Design and Exhaustive Search for Hybrid Multi-mode Light Trucks," in Proceedings of the 2015 IFAC

- Workshop on Engine and Powertrain Control, Simulation and Modeling, Columbus, Ohio, August, 2015.
- C4. Caihao Weng, Xuning Feng, Jing Sun, Minggao Ouyang, Huei Peng, “Battery SOH Management Research in the US-China Clean Energy Research Center-Clean Vehicles Consortium,” in Proceedings of the 2015 IFAC Workshop on Engine and Powertrain Control, Simulation and Modeling, Columbus, Ohio, August, 2015.
- C5. Hao Wang, Ilya Kolmanovsky, Jing Sun, Yoshi Ozaki, “Feedback Control during Mode Transition for Dual Fuel Engines,” Proceedings of the 2015 IFAC Symposium on Maneuvering and Control of Marine Crafts (MCMC), Denmark, August, 2015.
- C6. Richard Choroszucha, Jing Sun, and Ken Butts, “Closed-Loop Model Order Reduction and MPC for Diesel Engine Airpath Control,” in *the Proceedings of 2015 American Control Conference*, Chicago, July, 2015.
- C7. Jun Hou, Jing Sun, Heath Hofmann, “Interaction Analysis and Integrated Control of Hybrid Energy Storage and Generator Control System for Electric Ship Propulsion,” in *the Proceedings of 2015 American Control Conference*, Chicago, July, 2015.
- C8. David M. Reed, Jing Sun, Heath Hofmann, “Simultaneous Identification and Torque Regulation of Permanent Magnet Synchronous Machines via Adaptive Excitation Decoupling,” in *the Proceedings of 2015 American Control Conference*, Chicago, July, 2015.
- C9. Esteban Castro-Feliciano, Jing Sun, Armin Troesch, “First Step Towards Co-design of Planing Craft and Active Control Systems,” in the Proceedings of ASME 2015 International Conference on Ocean, Offshore, and Arctic Engineering, Newfoundland, Canada, May, 2015.
- C10. Richard T. Meyer, Raymond A. DeCarlo, Steve, D. Pekarek, Jing Sun, Hyeongjun Park, “Hybrid Optimal Power Management of Naval Ships,” Proceedings of the ASME 2014 International Mechanical Engineering Congress & Exposition, Montreal, Quebec, Canada, 2014.
- C11. Xiaowu Zhang, Huei Peng, Jing Sun, Shengbo Li, “Automated Modeling and Mode Screening for Exhaustive Search of Double-Planetary-Gear Power Split Hybrid Powertrains,” in the *Proceedings of ASME 2014 Dynamic Systems and Control Conference*, San Antonio, TX, October, 2014.
- C12. Dave Reed, Kan Zhou, Heath Hofmann, and Jing Sun, “A Stator Current Locus Approach to Induction Machine Parameter Identification,” in *the Proceedings of the IEEE iTEC Asia-Pacific Conference*, Beijing, September, 2014.
- C13. Zhiwei Wu, Tianyou Chai, Jing Sun, “Intelligent Operational Feedback Control for Fused Magnesium Furnace,” in *the Proceedings of the 19th IFAC World Congress*, Cape Town, South Africa, August 2014.
- C14. Hyeongjun Park, Ilya Kolmanovsky, Jing Sun, “Parametric Integrated Perturbation Analysis and Sequential Quadratic Programming Approach for Minimum-Time Model Predictive Control,” in *the Proceedings of the 19th IFAC World Congress*, Cape Town, South Africa, August 2014.

- C15. David Reed, Jing Sun, and Heath Hofmann, "A Robust Adaptive Control for Surface-Mount Permanent Magnet Synchronous Machines," in *the Proceedings of the 2014 American Control Conference*, Portland, Oregon, June, 2014.
- C16. Zeng Qiu, Jing Sun, Mrdjan Jankovic, and Mario Santillo, "Nonlinear Internal Model Controller Design for Wastgate Control of a Turbocharged Gasoline Engine," in *the Proceedings of the 2014 American Control Conference*, Portland, Oregon, June, 2014.
- C17. Jun Hou, Jing Sun, Heath Hofmann, "Mitigating Power Fluctuations in Electrical Ship Propulsion Using Model Predictive Control with Hybrid Energy Storage System," in *the Proceedings of the 2014 American Control Conference*, Portland, Oregon, June, 2014.
- C18. Jun Hou, David Reed, Heath Hofmann, and Jing Sun, "Modeling and Test-bed Development of an Electric Drive System with Hybrid Energy Storage," in *the Proceedings of IEEE Electric Machine Technology Symposium*, Philadelphia, PA, May, 2014.
- C19. Esteban Castro-Feliciano, Jing Sun, and Armin Troesch, "Support Vector Regression Based Models of High Speed Craft Motions with Application to an Active Shock Mitigation Seat," *Proceedings of the 12th International Conference on Fast Sea Transportation, FAST 2013*, Amsterdam, Netherland, December, 2013.
- C20. Jing Sun, Hyeongjun Park, Ilya Kolmanovsky, and Richard Choroszuca, "Adaptive Model Predictive Control in the IPA-SQP Framework," *Proceedings of the 52th IEEE Conference on Decision and Control*, Florence, Italy, December, 2013.
- C21. Caihao Weng, Jing Sun, and Huei Peng, "An Open-Circuit-Voltage Model of Lithium-Ion Batteries for Effective Incremental Capacity Analysis," *Proceedings of the 2013 ASME Dynamic Systems Control Conference (DSCC)*, Stanford, 2013.
- C22. Hyeongjun Park, Ilya Kolmanovsky, and Jing Sun, "Model Predictive Control of Space Craft Relative Motion Maneuvers Using the IPA-SQP Approach," *Proceedings of the 2013 ASME Dynamic Systems Control Conference (DSCC)*, Stanford, 2013.
- C23. Peiyuan Feng, Jing Sun, Ning Ma, "Path Following of Marine Surface Vessels Using Bow and Aft Rudders in Wave Fields," *Proceedings of the 9th IFAC Conference on Control Application of Marine Systems (CAMS)*, Osaka, Japan, September, 2013.
- C24. Caihao Weng, Xiaowu Zhang, and Jing Sun, "Adaptive Model Predictive Control for Hybrid Electric Vehicle Power Management," *Proceedings of the 32nd Chinese Control Conference*, Xian, China, July, 2013.
- C25. Xiaowu Zhang, Chiao-Ting Li, Dongsuk Kum, Huei Peng, Jing Sun, "Rapid Sizing for Power Split Hybrid Vehicles with Multiple Operation Modes," *Proceedings of the 2013 American Control Conference*, Washington D.C., June, 2013.
- C26. Chiao-Ting Li, Huei Peng, Jing Sun "MPC for Reducing Energy Storage Requirement of Wind Power Systems", *Proceedings of the 2013 American Control Conference*, Washington D.C., June, 2013.

- C27. Javad Mohammadpour, Jing Sun, Amey Karnik, Mrdjan Jankovic, "Internal Model Control Design for Linear Parameter Varying Systems," *Proceedings of the 2013 American Control Conference*, Washington D.C., June, 2013.
- C28. Xiaowu Zhang, Chiao-Ting Li, Dongsuk Kum, Huei Peng, Jing Sun, "Configuration Analysis for Power Split Hybrid Vehicles with Multiple Operating Modes," *Proceedings of the 11-th Advanced Vehicle Control Conference (AVEC)*, South Korea, September, 2012.
- C29. Jacob Faust, Jing Sun, Ken Butts, Zhao Lu, Satoru Tanaka, "Parametrization and Adaptation of Gasoline Engine Air System Model via Linear Programming Support Vector Regression," *Proceedings of the 2012 American Control Conference, Montreal*, June, 2012.
- C30. Caihao Weng, Jing Sun, "Design of a Variable Geometry Turbine Control Strategy for Solid Oxide Fuel Cell and Gas Turbine Hybrid Systems," *Proceedings of the 2012 American Control Conference, Montreal*, June, 2012.
- C31. Soryeok Oh, Jing Sun, Herb Dobbs and Joel King, "Model-based Predictive Control Strategy for a Solid Oxide Fuel Cell System Integrated with a Turbocharger," *Proceedings of the 2012 American Control Conference, Montreal*, June, 2012.
- C32. Chiao-Ting Li, Changsun Ahn, Huei Peng, Jing Sun, "Integration of Plug-In Electric Vehicle Charging and Wind Energy Scheduling on Electricity Grid," *Proceedings of the 2012 IEEE PES Conference on Innovative Smart Grid Technologies*, Washington D.C., January, 2012.
- C33. Chiao-Ting Li, Changsun Ahn, Huei Peng, Jing Sun, "Decentralized and Near Optimal Charging of Plug-in Electrical Vehicles," *Proceedings of the 2011 ASME Dynamic System Control Conference*, Washington D.C., 2011.
- C34. Lingfeng Gao, Reza Ghaemi, Jing Sun, "Nonlinear Adaptive Model Predictive Control for Ship Path Following Using Parametric Neighboring Extremal Approach," *Proceedings of the 11th International Conference on Fast Sea Transportation, FAST 2011*, Honolulu, Hawaii, USA, September, 2011.
- C35. So-ryeok Oh, Jing Sun, Herb Dobbs, and Joel King, "Comparative Performance Assessment of 5kW-Class Solid Oxide Fuel Cell Engines Integrated with Single/Dual Spool Turbochargers," *Proceedings of 2011 American Control Conference*, San Francisco, CA, June, 2011.
- C36. Caihao Weng, Yigang Wang, Vasilios Tsourapas, Chinmaya Patil, Jing Sun, "Optimal Control of Hybrid Electric Vehicles with Power Split and Torque Split Strategies: A Comparative Case Study," *Proceedings of 2011 American Control Conference*, San Francisco, CA, June, 2011.
- C37. Yonggang Wang, Tianyou Chai, Jun Fu and Jing Sun, "Adaptive Decoupling Control of the Forced-Circulation Evaporation System Using Neural Networks and Multiple Models," *Proceedings of 2011 American Control Conference*, San Francisco, CA, June, 2011.
- C38. Gayathri Seenumani, Jing Sun, and Huei Peng, "A Hierarchical Optimal Control Strategy for Power Management of Hybrid Power Systems in All Electric Ship Applications," *Proceedings of the 48th IEEE Conference on Decision and Control*, Atlanta, GA, December, 2010.

- C39. Reza Ghaemi, Ilya Kolmanovsky, and Jing Sun, “Robust Control of Linear Systems with Bounded State Dependent Additive Disturbances,” *Proceedings of the 48th IEEE Conference on Decision and Control*, Atlanta, GA, December, 2010.
- C40. Weijian Kong, Jinliang Ding, Tianyou Chai, Jing Sun, “Large-Dimensional Multi-objective Evolutionary Algorithms Based on Improved Average Ranking,” *Proceedings of the 48th IEEE Conference on Decision and Control*, Atlanta, GA, December, 2010.
- C41. Zhiwei Wu, Tianyou Chai, Jun Fu, Jing Sun, “Hybrid Intelligent Optimal Control of Fused Magnesium Furnaces,” *Proceedings of the 48th IEEE Conference on Decision and Control*, Atlanta, GA, December, 2010.
- C42. Reza Ghaemi, Jing Sun, Ilya Kolmanovsky, “A Neighboring Extremal Approach to Nonlinear Model Predictive Control,” *Proceedings of the 8th IFAC Symposium on Nonlinear Control Systems (NOLCOS)*, Bologna, Italy, September, 2010.
- C43. Zhen Li, Jing Sun, and Soryeok Oh, “Handling Roll Constraints for Path Following of Marine Surface Vessels Using Coordinated Rudder and Propulsion Control,” *Proceedings of the 2010 American Control Conference*, Baltimore, MD, June, 2010.
- C44. Gayathri Seenumani, Jing Sun, and Huei Peng, “A Reference Governor Approach for Dynamic Reconfiguration of Hybrid Power Systems,” *Proceedings of the 2010 American Control Conference*, Baltimore, MD, June, 2010.
- C45. Zhao Lu, Jing Sun, and Ken Butts, “Application of Linear Programming SVM-ARMA2k for Dynamic Engine Modeling,” *Proceedings of the 2010 American Control Conference*, Baltimore, MD, June, 2010.
- C46. Yanhui Xie, Reza Ghaemi, Jing Sun, and James Freudenberg, “Comparative Evaluation of Linear and Nonlinear Model Predictive Control for An Isolated High Power DC/DC Converter,” *Proceedings of the 2010 American Control Conference*, Baltimore, MD, June, 2010.
- C47. Reza Ghaemi, Soryeok Oh, and Jing Sun, “Path Following of a Model Ship Using Model Predictive Control with Experimental Verification,” *Proceedings of the 2010 American Control Conference*, Baltimore, MD, June, 2010.
- C48. Soryeok Oh and Jing Sun, “Optimization and Load Following Characteristics of 5kw-class Tubular Solid Oxide Fuel Cell/Gas Turbine Hybrid Systems,” *Proceedings of the 2010 American Control Conference*, Baltimore, MD, June, 2010.
- C49. Jing Sun, John Stebe, Colen Kennell, “Feasibility and Design Implications of Fuel Cell Power for Sealift Ships,” 2010 ASNE Day, Crystal City, VA, April, 2010.
- C50. Jian Chen, Jing Sun, “Modeling and Control of SOFC APU,” *Proceedings of the joint 47th IEEE Conference on Decision and Control and 27th Chinese Control Conference*, Shanghai, China, December, 2009 (received the General Chairs’ Recognition Award for Interactive Papers).

- C51. Yanhui Xie, Jing Sun, Chunting (Chris) Mi, and James Freudenberg, "Analysis and Modeling of a DC Hybrid Power System Testbed for Power Management Strategy Development," *Proceedings of the IEEE Vehicle Power and Propulsion Conference*, Dearborn, MI, August, 2009.
- C52. Chris Vermillion, Jing Sun, Kenneth Butts, "Model Predictive Control Allocation – Design and Experimental Results on a Thermal Management System," *Proceedings of the 2009 American Control Conference*. St. Louis, MO, June, 2009.
- C53. Zhao Lu, Jing Sun, Dongkyoung Lee, Kenneth Butts, "Dynamic Engine Modeling Through Linear Programming Support Vector Regression," *Proceedings of the 2009 American Control Conference*. St. Louis, MO, June, 2009.
- C54. Zhen Li, Jing Sun, So-ryeok Oh, "Path Following for Marine Surface Vessels with Rudder and Roll Constraints: An MPC Approach," *Proceedings of the 2009 American Control Conference*. St. Louis, MO, June, 2009.
- C55. Reza Ghaemi, Jing Sun, Ilya Kolmanovsky, "Robust Control of Ship Fin Stabilizers Subject to Disturbances and Constraints," *Proceedings of the 2009 American Control Conference*. St. Louis, MO, June, 2009.
- C56. Chris Vermillion, Jing Sun, and Ken Butts, "Performance Enhancement of Modular Control Systems Using μ -Synthesis," *Proceedings of the 47th IEEE Conference on Decision and Control*, December, 2008.
- C57. Reza Ghaemi, Jing Sun, and Ilya Kolmanovsky, "Less Conservative Robust Control of Constrained Linear Systems with Bounded Disturbances," *Proceedings of the 47th IEEE Conference on Decision and Control*, December, 2008.
- C58. Gayathri Seenumani, Jing Sun, and Huei Peng, "Exploiting Time Scale Separation for Efficient Real-time Optimization of Integrated Shipboard Power Systems," *Proceedings of the ASME 1st Control Conference*, October, 2008.
- C59. Soryeok Oh, Jing Sun, and Zhen Li, "Path Following Control of Underactuated Marine Vessels via Dynamic Surface Control Technique," *Proceedings of the ASME 1st Control Conference*, October, 2008.
- C60. Reza Ghaemi, Jing Sun, Ilya Kolmanovsky, "Overcoming Singularity and Degeneracy in Neighboring Extremal Solutions of Discrete-time Optimal Control Problem with Mixed Input-State Constraints," *Proceedings of the IFAC'08 World Congress*, Seoul, July, 2008.
- C61. Reza Ghaemi, Jing Sun, and Ilya Kolmanovsky, "Neighboring Extremal Control for Discrete-Time Optimal Control with State Inequality Constraints," *Proceedings of the 2008 American Control Conference*, Seattle, WA, June 2008.
- C62. Vasilis Tsourapas, Jing Sun, Anna Stefanopoulou, "Incremental Step Reference Governor for Load Conditioning of Hybrid Fuel Cell and Gas Turbine Power Systems," *Proceedings of the 2008 American Control Conference*, Seattle, WA, June 2008.

- C63. Yanhui Xie, Jing Sun, and James Freudenburg, "Integrated Voltage Regulation and Current-sensorless Power Tracking Control of a DC Hybrid Power Systems," *Proceedings of the 2008 American Control Conference*, Seattle, WA, June 2008.
- C64. Yanhui Xie, Gayathri Seenumani, and Jing Sun, "Real-time Simulation and Optimization of Multi-scale Shipboard Power Systems," *Proceedings of International Simulation Multiconference*, Edingbough, June, 2008.
- C65. Chris Vermillion, Jing Sun, and Ken Butts, "Model Predictive Control Allocation for Overactuated Systems – Stability and Performance," *Proceedings of the 46th IEEE Conference on Decision and Control*, New Orleans, LA, December, 2007.
- C66. Reza Ghaemi, Jing Sun, and Ilya Kolmanovsky, "Model Predictive Control for Constrained Discrete Time Systems: An Integrated Perturbation Analysis and Sequential Quadratic Programming Approach," *Proceedings of the 46th IEEE Conference on Decision and Control*, New Orleans, LA, December, 2007.
- C67. Jian Chen and Jing Sun, "Nonlinear Control of an Autothermal Fuel Reforming System," *Proceedings of the 46th IEEE Conference on Decision and Control*, New Orleans, LA, December, 2007.
- C68. Handa Xi, Jing Sun, and Jian Chen, "Estimation of Spatial Temperature Distribution in Co-flow Planar Solid Oxide Fuel Cells," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, November, 2007.
- C69. Zhen Li, Jing Sun, and Soryeok Oh, "A Robust Nonlinear Control Design for Path Following of an Under-actuated Marine Surface Vessel," *Proceedings of the 2007 IFAC Control Applications to Marine Systems (CAMS'07)*, September, 2007.
- C70. Amey Karnik, Julia Buckland, and Jing Sun, "Performance of a water management system in a PEM fuel cell using static output feedback," *Proceedings of the 2007 American Control Conference*, New York, New York, July, 2007.
- C71. Reza Ghaemi, Jing Sun, and Ilya Kolmanovsky, "Model Predictive Control for Constrained Discrete-time Systems: An Optimal Perturbation Analysis Approach," *Proceedings of the 2007 American Control Conference*, New York, New York, July, 2007.
- C72. Gayathri Seenumani, Jing Sun, and Huei Peng, "A Numerically efficient iterative procedure for hybrid power system optimization using sensitivity functions," *Proceedings of the 2007 American Control Conference*, New York, New York, July, 2007.
- C73. Vasilis Tsourapas, Jing Sun, and Anna Stefanopoulou, "Control Oriented Analysis of a Hybrid Solid Oxide Fuel Cell and Gas Turbine (SOFC/GT) System," FC-07-1086, *ASME Conference on Fuel Cell Science and Technology*, June 2007.
- C74. Yanhui Xie, Gayathri Seenumani, Jing Sun, Yifei Liu, and Zhen Li, "A PC-Cluster Based Real-Time Simulator for All-Electric Ship Integrated Power Systems Analysis and Optimization," *Proceedings of IEEE Electric Ship Technologies Symposium*, Arlington, VA, May, 2007.
- C75. Chris Vermillion, Jing Sun, Ken Butts, and Frank Biens, "Control Strategies and Experimental Results of an Engine Thermal Management System for Fast and Accurate Dynamometer Engine Mapping," *Proceedings of the 4th IAV Conference*

- on Design of Experiments (DoE) in Engine Development*, Berlin, Germany, May, 2007.
- C76. Handa Xi and Jing Sun, "Analysis and Feedback Control of Planar SOFC Systems for Fast Load Following in APU Applications," *Proceedings of ASME International Mechanical Engineering Congress and Exposition*, November, 2006.
- C77. Handa Xi and Jing Sun, "Comparison of Dynamic Planar SOFC Models with Different Assumptions of Temperature Layers in Energy Balance," *Proceedings of ASME International Mechanical Engineering Congress and Exposition*, November, 2006.
- C78. Vasilis Tsourapas, Jing Sun, Anthony Nickens, "Modeling and Dynamics of an Autothermal JP5 Reformer for Marine Fuel Cell Applications," *Proceedings of ECOS 2006*, Crete, Greece, July, 2006.
- C79. Reza Ghaemi, Jing Sun, Ilya Kolmanovsky, "Computationally Effective Model Predictive Control with Explicit Disturbance Mitigation and Constraint Enforcement," *Proceedings of the 45th IEEE Conference on Decision and Control*, San Diego, CA, December, 2006.
- C80. Vasilis Tsourapas, Jing Sun, Anna Stefanopoulou, "Performance of a Thermally Integrated Fuel Cell System in the Presence of Uncertainties," *Proceedings of the 2006 ASME Fuel Cell Conference*, Irvine, California, June, 2006.
- C81. Chris Vermillion, Jing Sun, Ken Butts, and Andy Hall, "Modeling and Analysis of a Thermal Management System for Engine Calibration," *Proceedings of the 2006 IEEE Conference on Control Applications*, Munich, Germany, October, 2006.
- C82. Ilya Kolmanovsky and Jing Sun, "A Multi-mode Switching-based Command Tracking in Network Controlled Systems with Pointwise-in-time Constraints and Disturbance Inputs," *Proceedings of the 6th World Congress on Intelligent Control and Automation*, Dalian, China, June, 2006.
- C83. Amey Karnik, Jing Sun, and Julia H. Buckland, "Control Analysis of Ejector Based Fuel Cell Anode Recirculation System," *Proceedings of the 2006 American Control Conference*, June, 2006.
- C84. Handa Xi and Jing Sun, "Dynamic Model of Planar Solid Oxide Fuel Cells for Both Steady State and Transient Performance Analysis," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition (IMECE2005)*, Orlando, FL, November, 2005.
- C85. Amey Y. Karnik and Jing Sun "Modeling and Control of PEMFC System with an Anode Recirculation," *2005 Third International Conference on Fuel Cell Science, Engineering and Technology*, Ypsilanti, MI, May, 2005.
- C86. Ilya Kolmanovsky and Jing Sun, "Approaches to Computationally Efficient Implementation of Gain Governors for Nonlinear Systems with Pointwise-in-Time Constraints," *Proceedings of the 44th IEEE Conference on Decision and Control and European Control Conference*, Seville, Spain, December 2005, pp. 7564-7569.
- C87. Shuhao Chen and Jing Sun, "Reconfiguration Control with Energy and Time Constraints: A Model Predictive Control Approach," *Proceedings of the 2005*

- ASNE Symposium on Reconfiguration and Survivability*. Turtle Beach, FL, February, 2005.
- C88. Jing Sun, Ilya Kolmanovsky, Jeffrey A. Cook, and Julia H. Buckland, "Electronic Engine Control: A Tutorial," *Proceedings of the 2005 American Control Conference*, Portland, OR, June 8-10, 2005.
- C89. Vasilis Tsourapas, Anna Stefanopoulou, Jing Sun, "Dynamics, Optimization and Control of a Fuel Cell Based Combined Heat Power System for Shipboard Applications," *Proceedings of the 2005 American Control Conference*, Portland, OR, June 8-10, 2005.
- C90. Handa Xi and Jing Sun, "Nonlinear Feedback Control of High Speed Planing Hulls," *Proceedings of the 2005 American Control Conference*, Portland, OR, June 8-10, 2005.
- C91. Handa Xi and Jing Sun, "Effects of Actuator Dynamics on Stabilization of High-Speed Planing Vessels with Controllable Transom Flaps," *Proceedings of the 8th International Conference on Fast Sea Transportation, St. Petersburg, Russia*, July, 2005.
- C92. Ilya Kolmanovsky, Jing Sun, and N. Sivashankar, "Optimal control-based powertrain feasibility assessment: A software implementation perspective," *Proceedings of the 2005 American Control Conference*, Portland, OR, June 8-10, 2005.
- C93. Handa Xi and Jing Sun, "Modeling and Stabilization of Porpoising for High Speed Planing Vessels," *Proceedings of the 16th IFAC World Congress*, Prague, Czech, 2005.
- C94. Jing Sun, Shuhao Chen, and Ilya Kolmanovsky, "A Stable Block Model Predictive Control with Variable Implementation Horizon," *Proceedings of the 2005 American Control Conference*, Portland, OR, June 8-10, 2005.
- C95. Ilya Kolmanovsky, Irena Sivergina, and Jing Sun, "Combined Input and Parameter Estimation With Input Observer and Set-Membership Parameter Bounding," *Proceedings of 43rd IEEE Conference on Decision and Control*, Paradise Island, Bahamas, December 14-17, 2004.
- C96. Jing Sun and Ilya Kolmanovsky, "Optimization of the Integrated Gasoline Direct Injection Engine and Lean Aftertreatment System: A Multi-dimensional Challenge," *Proceedings of the 23rd Chinese Control Conference*, Wuxi, China, August, 2004.
- C97. Vasilis Tsourapas, Jing Sun, and Anna Stefanopoulou, "Modeling and Dynamics of An Integrated Fuel Cell Stack and Fuel Process System with Catalytic Burner for Marine Applications," *Proceedings of the 1st WSEAS International Conference on Electrosience and Technology for Naval Engineering and All-Electric Ship*, Athens, Greece, July 12, 2004.
- C98. Jing Sun and Ilya Kolmanovsky, "Robust Reference Governor for Fuel Cell Starvation Protection," *Proceedings of the 2004 American Control Conference*, Boston, MA, June 30-July 2, 2004.

- C99. Yong Wha Kim, Jing Sun, and Leyi Wang, "Optimization of Lean NO_x Trap Control for Fuel Economy and Exhaust Emissions," *Proceedings of the 2004 American Control Conference*, Boston, MA, June 30-July 2, 2004.
- C100. Ilya Kolmanovsky and Jing Sun, "Parameter Governors for Discrete-Time Nonlinear Systems with Pointwise-in-Time State and Control Constraints," *Proceedings of the 2004 American Control Conference*, Boston, MA, June 30-July 2, 2004.
- C101. Jeffrey A. Cook, Jing Sun, and Jessy W. Grizzle, "Opportunities in Automotive Powertrain Control Applications," *Proceedings of the IEEE 7th Conference on Control and Its Applications*, Glasgow, UK, Sept. 10-13, 2002.
- C102. Yong Wha Kim, Jing Sun, Ilya Kolmanovsky, and Jeff Koncsol, "A Phenomenological Control Oriented Lean NO_x Trap Model," 2003-01-1164, *SAE Conference and Exhibitions*.
- C103. Leyi Wang, Yong Wha Kim, and Jing Sun, "Prediction of Oxygen Storage Capacity and Stored NO_x By HEGO Sensors for Improved LNT Control Strategies," *Proceedings of International Mechanical Engineering Congress and Exposition (IMECE2002)*, Orlando, FL, November, 2002.
- C104. Ilya Kolmanovsky, Jing Sun, and Maria Druzhinina, "Nonlinear Charge Control in Direct Injection Gasoline Engines," *Proceedings of 15th IFAC World Congress*, Barcelona, Spain, July 22-26, 2002.
- C105. Carlos Canudas de Wit, Ilya Kolmanovsky, and Jing Sun, "Adaptive Pulse Control of Electronic Throttle," *Proceedings of the 2001 American Control Conference*, pp. 2872-2877, Arlington, VA, June 25-27, 2001.
- C106. Jing Sun, Ilya Kolmanovsky, Jon Dixon, and Mathew Boesch, "Control of DISI Engines: Analytical and Experimental Investigations," *Proceedings of 3rd IFAC Workshop on Advances in Automotive Control*, pp. 249-254, Karlsruhe, Germany, March, 2001.
- C107. Ilya Kolmanovsky, Maria Druzhinina, and Jing Sun, "Nonlinear Torque and Air-to-Fuel Ratio Controller for Direct Injection Stratified Charge Gasoline Engines," *Proceedings of AVEC 2000, 5-th International Symposium on Advanced Vehicle Control*, Ann Arbor, MI, August 22-24, 2000.
- C108. Ilya Kolmanovsky, Jing Sun, Maria Druzhinina and Michiel van Nieuwstadt, "Charge Control for Direct Injection Spark Ignition Engines with EGR," *Proc. 2000 American Control Conference*, Chicago, IL, June 28-30, 2000.
- C109. Leyi Wang, Ilya Kolmanovsky, Jing Sun, "On-line Identification and Adaptation of LNT Models for Improved Emission Control in Lean Burn Automotive Engines," *Proc. 2000 American Control Conference*, Chicago, IL, June 28-30, 2000.
- C110. Ilya Kolmanovsky, Maria Druzhinina and Jing Sun, "Nonlinear Torque and Air-to-Fuel Ratio Controller for Direct Injection Stratified Charge Gasoline Engines," *Proceedings of AVEC 2000*, Ann Arbor, MI, August 22-24, 2000.

- C111. Maria Druzhinina, Ilya Kolmanovsky and Jing Sun, "Hybrid Control of Gasoline Direct Injection Engine," *Proc. 38th IEEE Conference on Decision and Control*, Phoenix, AZ, December 1999.
- C112. Ilya Kolmanovsky, Michiel van Nieuwstadt, Jing Sun and Elmer Gilbert, "Optimal Control of a Gasoline Direct Injection Gasoline Engine," *Proc. 1999 International Mechanical Engineering Congress and Exposition*, Nashville, TN, November 15, 1999.
- C113. Ilya Kolmanovsky, Jing Sun, and Michiel van Nieuwstadt, "Optimization of Complex Powertrain Systems for Fuel Economy and Emissions," *Proceedings of the IEEE Conference on Control Applications*, Hawaii, HI, August 22-27, 1999.
- C114. Jing Sun, Ilya Kolmanovsky, Diana Brehob, Jeffrey Cook, Julia Buckland, and Mo Haghgooie "Modeling and Control of Gasoline Direct Injection Stratified Charge Engines," *Proceedings of the IEEE Conference on Control Applications*, Hawaii, HI, August 22-27, 1999.
- C115. Ilya Kolmanovsky, Jing Sun and Leyi Wang, "Coordinated Control of Lean Burn Engines with Continuously Variable Transmissions," *Proceedings of the American Control Conference*, San Diego, CA, June, 1999.
- C116.** Ilya Kolmanovsky, Michiel van Nieuwstadt, Jing Sun, "Optimization of Complex Powertrain Systems for Fuel Economy and Emissions," *Proc. 17th Digital Avionics Systems Conf.*, Seattle, WA, October, 1998.
- C117. Jing Sun and Shiva Sivashankar, "Issues in Cold Start Emission Control for Automotive IC Engines," *Proc. American Control Conference*, Philadelphia, PA, June 1998
- C118. Frode Maaseidvaag, Paul Moraal, Jing Sun, and Jeffrey Cook, "Powertrain Control System Development for a Global Market," *Proc. International Conf. on Informatics and Control*, St. Petersburg, Russia, 1997.
- C119. Jing Sun, N. Sivashankar, "An application of Optimization Methods to the Automotive Emission Control Problem," *Proc. 1997 American Control Conference*, Albuquerque, NM, June, 1997.
- C120. Tehzeeb Gunja, Yang Zhao, Jing Sun, "Analysis of Knocking Characteristics of a Car Engine Using Wavelet Transform," *Proc. of International Conference of Signal Processing Application and Technology (ICSPAT)*, San Diego, CA, September, 1997.
- C121. Jing Sun, Davor Hrovat, "Modeling and Control Methodologies for IC Engine Idle Speed Control Designs," *Proc. IFAC World Congress*, , San Francisco, CA, 30 June - 05 July, 1996.
- C122. Miroslav Krstic, Jing Sun, and Petar Kokotovic, "Robust Control of Strict-and Output-Feedback Systems with Input Unmodeled Dynamics," *Proc. of the 1995 IEEE Conference on Decision and Control*, New Orleans, LA, Dec. 14, 1995.
- C123. Jing Sun, Miroslav Krstic and Petar Kokotovic, "Adaptive Control for a Class of Nonlinear Systems: Stabilization and Regulation," *Proc. IFAC Youth Automation*

- Conference*, Beijing, China, August, 1995.
- C124. Yong Liu, Jing Sun and Raman Yedavali, "Successive Approximation Algorithm for H_∞ Dynamic Compensation," *Proc. of the 1995 American Control Conference*, Seattle, WA, June 22, 1995.
- C125. Yong Liu and Jing Sun, "Target Slip Tracking using Gain Scheduling for Anti-Lock Braking Systems," *Proc. of the 1995 American Control Conference*, Seattle, WA, June 22, 1995.
- C126. Wei Zhan, Leyi Wang, Yong Liu and Jing Sun, " H_∞ Control for Systems with Sector Bound Nonlinearities," *Proc. IFAC NOLCOS 1995 Conference in Tahoe City*, June 1995.
- C127. Ken Butts, Shiva Sivashankar and Jing Sun, "Coordinated Feedforward and Feedback Design for Engine Idle Speed Control using l_1 Optimization," *Proc. of the 1995 American Control Conference*, Seattle, WA, June 22, 1995.
- C128. Miroslav Krstic, Jing Sun and Petar V. Kokotovic, "Control of Feedback Linearizable Systems with Unmodeled Input Dynamics," *Proc. IEEE Conf. Decision and Control*, Lake Buena Vista, FL, Dec., 1994.
- C129. Hui Wang and Jing Sun, "Modeling of Dynamic Systems Using Fuzzy Logic Control," *36th Midwest Symposium on Circuits and Systems*, Detroit, MI, 1993.
- C130. Jing Sun, "A Multilinear Parametric Model for the Parameter Identification of Partially Known Systems," *Proc. IEEE Conf. Decision and Control*, San Antonio, TX, Dec., 1993.
- C131. John Yester and Jing Sun, "Design and Adaptive Tuning of Fuzzy Logic Control for an Active Suspension System," *Proc. of the 12th World Congress of IFAC*, Sydney, Australia, 1993.
- C132. Jing Sun, "A Hybrid Adaptive Control Scheme using Sampled Data and Intersampling Compensation," *Proc. of the 12th World Congress of IFAC*, Sydney, Australia, 1993.
- C133. Feng Lin, Jing Sun and Leyi Wang, "A Hybrid Control Architecture with Fuzzy Interface for Intelligent Control," *Proc. IEEE Conf. Decision and Control*, Tucson, AZ, Dec., 1992.
- C134. Jing Sun and Hui Wang, "Modified Model Reference Adaptive Control with Saturated Input," *Proc. IEEE Conf. Decision and Control*, Tucson, AZ, Dec., 1992.
- C135. Jing Sun, Andrezej.W. Olbrot, and Michael P. Polis, "Robust Stability and Robust Performance Using Model Reference Control and Modeling Error Compensation," *Proc. American Control Conference*, Boston, MA, June, 1991.
- C136. Jing Sun, "A Modified Model Reference Adaptive Control Scheme," *Proc. American Control Conference*, Boston, MA, June, 1991.
- C137. Jing Sun, "Model Reference Control with Modeling Error Compensation: An Adaptive Approach for a Nonadaptive Design," *Proc. IEEE Conf. Decision and*

- Control*, Honolulu, HI, Dec., 1990.
- C138. Jing Sun and Petros A. Ioannou, "Parameter Convergence of Modified Adaptive Control Laws with Persistent Excitation," *Proc. American Control Conference*, San Diego, CA, May, 1990.
- C139. Feng Lin, Robert Brandt and Jing Sun, "Robust Control of Nonlinear Systems: Compensating for Uncertainty," *Proc. American Control Conference*, San Diego, CA, May, 1990.
- C140. Petros A. Ioannou and Jing Sun, "Robust Adaptive Control: A Unified Approach," *Proc. IEEE Conf. Decision and Control*, Tampa, FL, Dec., 1989.
- C141. Jing Sun and Petros A. Ioannou, "Robust Adaptive LQ Controller," *Proc. American Control Conference*, Pittsburgh, PA, June, 1989.
- C142. Jing Sun and Petros A. Ioannou, "Adaptive Tuning of Controllers," *Proc. of the 5th Yale Workshop on Adaptive Control*, New Haven, CT, May 1987.
- C143. Jing Sun and Petros A. Ioannou, "Robust Adaptive Control of a Large Flexible Structure," *Proc. IASTED Int. Symposium on Applied Control and Identification*, Los Angeles, CA, Dec., 1986.
- C144. Jing Sun and WeiBo Gong, "Bounded Variational Function and its Application to Control Systems Design," *Proc. National Conference on Automatic Control Theory and Application*, Kuming, PRC, Oct. 1983 (in Chinese).
- a. Submitted:
- C145. Richard B. Choroszuca, Jing Sun, Ken Butts, "Nonlinear Model Order Reduction for Predictive Control of the Diesel Engine Airpath," accepted by the 2016 American Control Conference, Boston, 2016.
- C146. Jun Hou, Jing Sun, Heath Hofmann, "Integrated Control of Power Generation, Electric Motor and Hybrid Energy Storage for All-Electric Ships," accepted by the 2016 American Control Conference, Boston, 2016.
- C147. Hao Wang, Ilya Kolmanovsky, Jing Sun, "Set Membership Condition Monitoring Framework for Dual Fuel Engines," accepted by the 2016 American Control Conference, Boston, 2016.
- C148. David Reed, Jing Sun, Heath Hofmann, "A Receding Horizon Approach to Simultaneous Identification and Torque Control of Permanent Magnet Synchronous Machines," accepted by the 2016 American Control Conference, Boston, 2016.
- C149. Zeng Qiu, Jing Sun, Mrdjan Jankovic, and Mario Santillo, "Enhanced Composite Adaptive IMC for Boost Pressure Control of a Turbocharged Gasoline Engine," accepted by the 2016 American Control Conference, Boston, 2016.
- C150. Zeng Qiu, Jing Sun, Mrdjan Jankovic, and Mario Santillo, "Generalized Composite Adaptive Internal Model Control: Design and Analysis," submitted to IEEE Conference on Decision and Control, March, 2016.
- C151. Defeng He, Jing Sun, Chunyu Yang, "Stability of Contractive Economic MPC with a Generalized Terminal Constraint for Nonlinear Systems," accepted by the 2016 Chinese Control Conference, July, 2016.

Book Chapters

- BC1. Jing Sun, "Model Reference Adaptive Control," in Encyclopedia of Systems and Control, Springer London, pp, 729-734, 2015.
- BC2. Jing Sun, Reza Ghaemi, Ilya Kolmanovsky, "Developments in Receding Horizon Optimization-based Controls: Towards Real-time Implementation for Nonlinear Systems with Fast Dynamics," *Advances in Control Theory and Applications*, Ed. G. Tao and J. Sun, University of Science and Technology of China Press, 2009.
- BC3. Zhao Lu and Jing Sun, "Soft-Constrained Linear Programming Support Vector Regression for Nonlinear Black-Box Systems Identification," in *Artificial Intelligence for Advanced Problem Solving Techniques*, Eds. Dimitris Vrakas and Ioannis Vlahavas, IGI Publishing, Feb. 2008.
- BC4. Ali Beydoun, Leyi Wang, Jing Sun and Shiva Sivashankar, "Hybrid Control of Automotive Powertrain Systems: A Case Study," in *Hybrid Systems: Computation and Control*, Springer-Verlag, April 1998.
- BC5. Leyi Wang, Ali Beydoun, Jeffrey A. Cook, Jing Sun, and Ilya Kolmanovsky, "Optimal Hybrid Control with Applications to Automotive Powertrain Systems," *Proc. of the Block Island Workshop on Control using Logic Based Switching*, Ed. A.S. Morse, Lecture Notes in Control and Information Science, Springer Verlag, 1996.
- BC6. Ken Butts, Ilya Kolmanovsky, N. Sivashankar, and Jing Sun, "Hybrid Systems in Automotive Control Applications," *Proc. of the Block Island Workshop on Control using Logic Based Switching*, Ed. A.S. Morse, Lecture Notes in Control and Information Science, Springer Verlag, 1996.
- BC7. Jing Sun, "A Multilinear Algorithm for Parameter Estimation of Nonlinear Parametric Models," *Adaptive Control, Filtering and Signal Processing*, Ed. K. Astrom, P.R. Kumar and G. Goodwin, published by Springer-Verlag., 1996.
- BC8. Jeffrey A. Cook, Jessy W. Grizzle and Jing Sun, "Engine Control," *The Controls Handbook*, Ed. by William S. Levine, published by CRC Press-Times Mirror Books, 1996.

Refereed conference summaries or abstracts

- 1. Soryeok Oh, Jing Sun, Herb Dobbs, and Joel King, "Dynamic Characterization and Analysis of Turbo-charged SOFC Engines," the 12th Annual ARC Conference, Ann Arbor, MI, May, 2010.
- 2. Handa Xi, Jing Sun, Kevin Centech, Joel King, "Model-based Analysis of a Combat Vehicle Fuel Cell Auxiliary Power Unit with On-board Reforming," *Proceedings of the 2006 Fuel Cell Seminar*, Hawaii, U.S., November, 2006.
- 3. Vasilis Tsourapas, Jing Sun, and Anthony Nickens, "Control-oriented modeling and analysis of a hybrid solid oxide fuel cell and gas turbine (SOFC/GT) system," *Proceedings of the 2006 Fuel Cell Seminar*, Hawaii, U.S., November, 2006.

4. Jing Sun, "Integrated Powerplants for Advanced Transportation Systems: Challenges for Control," *Proceedings of the 24th Chinese Control Conference*, Guangzhou, China, July, 2005.

Book Reviews and Editorials

- E1. Jing Sun, Miroslav Krstic, and Nikolas Bekiaris-Liberis, "Robust Adaptive Control, Legacies and Horizons," Editorial for the Special Issue of Robust Adaptive Control, *International Journal of Adaptive Control and Signal Processing*, January-February, 2013.
- E2. Jing Sun and Jeffrey A. Cook, Editorial for the Special Issue of Automotive Applications, *International Journal of Adaptive Control and Signal Processing*, Vol. 18, No. 2, March 2004.

Patents

- P1. Jing Sun, Kenneth R. Butts, Jacob Edward Faust, "Adaptive Air Charge Estimation Based on Support Vector Regression," US Patent 8880321, Nov. 4, 2014.
- P2. Zhao Lu, Jing Sun, Kenneth Butts, "Asymmetric Wavelet Kernel in Support Vector Learning," US Patent 7838271, May 27, 2014.
- P3. Zhao Lu, Jing Sun, and Kenneth Butts, "Linear Programming Support Vector Regression with Wavelet Kernel," US Patent, 7899652, March 11, 2011.
- P4. Kenneth Roy Butts, Christopher R. Vermillion, and Jing Sun, "Systems and Methods for Regulation of Engine Variables," US Patent 7660660, Feb., 9, 2010.
- P5. Christopher R. Vermillion, Jing Sun, Ken R. Butts, "Optimization-based modular control system," US Patent 7634323, Dec. 15, 2009.
- P6. Jing Sun, YongWha Kim, and Leyi Wang, "Method and Apparatus for Estimating Oxygen Storage Capacity and Stored NO_x in a Lean NO_x Trap," US Patent 6826902, December 7, 2004.
- P7. Jing Sun and Ilya Kolmanovsky, "Combustion Mode Control for a Direct Injection Spark Ignition (DISI) Internal Combustion Engine," U. S. Patent 6705276, March 16, 2004.
- P8. Alex Zarembar, Bader Badreddine, Jing Sun and Feng Lin, "Adaptive PID Control Method and System For Internal Combustion Engine Rotation Speed Pulsation Damping," U.S Patent 6591808, July 2003.
- P9. Ilya Kolmanovsky, Julie Buckland, Jeffrey Cook and Jing Sun, "Engine Knock Prevention System and Method," U. S. Patent 6553949, April 2003.
- P10. Ilya Kolmanovsky, Julie Buckland and Jing Sun, "Adaptive Torque Model for Internal Combustion Engines," U. S. Patent 6553958. April 2003.
- P11. Ilya Kolmanovsky and Jing Sun, "Lean Engine Control with Multiple Catalysts," U.S. Patent 6550240, April 2003.

- P12. Ilya Kolmanovsky, Julia Buckland, Jing Sun, Rodney Tabczyski, Richard Anderson, "Boosted Direct Injection Stratified Charge Engines," U. S. Patent 6513484, February, 2003.
- P13. Jessy Grizzle and Jing Sun, "Hybrid Operating Mode for DISI Engines," U. S. Patent No. 6,411,885, June 2002.
- P14. Jessy Grizzle, Ilya Kolmanovsky and Jing Sun, "Fuel Injection Method for an Internal Combustion Engine," U. S. Patent No. 6,393,832, May 2002.
- P15. N. Sivashankar and Jing Sun, "Engine Mode Control," U. S. Patent No. 6,390,055, May 2002.
- P16. Jing Sun, Jeffrey Cook and Ilya Kolmanovsky, "Torque Control Apparatus for Lean Burn Engine," U.S. Patent No. 6,389,352, May 2002.
- P17. Ilya Kolmanovsky, Jessy Grizzle, Jing Sun and John Russell, "Coordinated Control of Valve Timing During Mode Transitions of Direct Injection Stratified Charge Engine," U.S. Patent No. 6,378,484, April 2002.
- P18. Ilya Kolmanovsky and Jing Sun, "Method and System for Purge Cycle Management of a Lean NOx Trap," U.S. Patent No. 6,370,868, April 2002.
- P19. Jing Sun and N. Sivashankar, "Method of Estimating Barometric Pressure in an Engine Control System," U. S. Patent No. 6,366,847, April, 2002.
- P20. Ilya Kolmanovsky, Jeffrey Cook, and Jing Sun, "Mode Transition Control Scheme for Internal Combustion Engines Using Unequal Fueling," U. S. Patent No. 6,360,713, March 2002.
- P21. Ilya Kolmanovsky and Jing Sun, "Method and System for Controlling a Lean NOx Trap Purge Cycle," U.S. Patent No. 6,347,512, February, 2002.
- P22. Jessy Grizzle and Jing Sun, "Direct Injection Engine System and Method," U. S. Patent No. 6,336,071, January 2002.
- P23. Gopichandra Surnilla, Jing Sun, Dave Farmer, Ilya Kolmanovsky, "Engine Air and Fuel Control," U. S. Patent No. 6,324,835, December, 2001.
- P24. Jessy Grizzle, Jing Sun, "Hybrid Operating Mode for DISI Engines," U. S. Patent No. 6,321,714, November, 2001.
- P25. Jing Sun, Ilya Kolmanovsky, Jeffrey Cook, "Hybrid Modeling and Control of DISC Engines," U. S. Patent No. 6,321,157, November, 2001.
- P26. Ilya Kolmanovsky, Julia Buckland, Jing Sun, "Control of Exhaust Temperature in Lean Burn Engines," U. S. Patent No. 6,314,735, November 2001.
- P27. Maria Druzhinina, Ilya Kolmanovsky, Jing Sun, Michiel van Nieuwsdadt, "System and Method of Controlling Air-charge in Direct Injection Lean Burn Engines," U. S. Patent No. 6,311,679, November, 2001.
- P28. Ilya Kolmanovsky, Jing Sun, Michiel van Nieuwsdadt, "Calibration Optimization Method," U. S. Patent No. 6,304,812, October, 2001.

- P29. Jing Sun, Ilya Kolmanovsky, Julia Buckland, Mathew Boesch, "Torque Control Scheme for Low Emission Lean Burn Vehicle," U. S. Patent No. 6,253,546, July, 2001.
- P30. Jessy Grizzle and Jing Sun, "Direct Injection Engine System and Method," U. S. Patent No. 6,244,242, June 2001.
- P31. Jing Sun and Jessy Grizzle, "Direct Injection Engine System," U. S. Patent No. 6,209,526, April 2001.
- P32. Ilya Kolmanovsky, Jing Sun, Leyi Wang, "Torque Control Strategy for Engines with Continuous Variable Transmission," U. S. Patent No. 6,188,944, February 2001.
- P33. Jeffrey Cook, Ilya Kolmanovsky, and Jing Sun, "Torque Control for Direct Injected Engines Using a Supplemental Torque Apparatus," U. S. Patent No. 6,079,204, June, 2000.
- P34. N. Sivashankar and Jing Sun, "Idle Speed Control System For Direct Injection Spark Ignition Engines," U.S. Patent No. 5,975,048, November 2, 1999.
- P35. N. Sivashankar and Jing Sun, "Idle Speed Control for DISI Engines," U.S. Patent No. 5,894,828, April 20, 1999.
- P36. Jeffrey Cook, N. Sivashankar, Jing Sun, "Vapor Recovery Control System for Direct Injection Gasoline Engines," U.S. Patent No. 5,950,603, September 14, 1999.
- P37. N. Sivashankar and Jing Sun, "Mode Control System for Direct Injection Spark Ignition Engines," U.S. Patent No. 5,947,079, September 7, 1999.
- P38. Jessy Grizzle and Jing Sun, "Idle Speed Control," U.S. Patent No. 5,630,394, May 20, 1997.
- P39. Michael Cullen, Allen Dona, Daniel Meyer, and Jing Sun, "Engine Control System for Maintaining Idle Speed," U.S. Patent No. 5,492,094, January, 1996.

Professional Services

Journal Editor

- Associate Editor, *IEEE Transactions on Control System Technology*, 2015-
- Subject Editor (Adaptive Control), *International Journal of Adaptive Control and Signal Processing*, 2004-.
- Board Member, *International Journal of Powertrain Systems*, 2010-2014
- Associate Editor, *Journal of Control Science and Engineering*, 2006-2010.
- Guest Editor, *International Journal of Adaptive Control and Signal Processing: Special Issue on Robust Adaptive Control: Legacies and Horizons*, 2013
- Guest Editor, *International Journal of Adaptive Control and Signal Processing: Special Issue on Applications of Signal Processing and Adaptive Control to Automotive Systems*, 2004

- Associate Editor, *IEEE Transactions on Automatic Control*, 1995 – 1996.
- Associate Editor, Conference Editorial Board, IEEE Control Systems Society 1994 – 1997.

Panelist

- National Science Foundation proposal review panels (2009, 2006, 2002, 1996, 1994)
- 1st Workshop on “Women in Control,” 42nd IEEE Conference on Decision and Control (December 2003)
- “Control Awareness Day” at the 41st IEEE Conference on Decision and Control (December 2002)

National/International Conferences Planning Committees

- General Chair, 2017 American Control Conference.
- Committee co-chair for the Award Committee, the 11th (2014) World Congress on Intelligent Control and Applications
- Organizing Committee member of the Workshop: Control and Adaptation: A 30-year Journey, Cyprus, June 24, 2013.
- Committee co-chair for invited sessions for *2012 Chinese Control Conference*.
- Publicity co-chair for *2009 IEEE Conference on Decision and Control*
- Financial chair for *2009 American Control Conference*.
- Vice-chair (Invited Sessions) for *2008 American Control Conference*.
- Vice-chair (Industry and Applications) for *2007 American Control Conference*.
- Steering Committee Member for *ASNE Reconfigurability and Survivability Symposium 2005*.
- International Program Committee member for the following conferences:
 - *17th IFAC Symposium on System Identifications, 2015*
 - *10th IFAC Conference on Manoeuvring and Control of Marine Craft, 2015*
 - *IFAC Conference on Control Application in Marine Systems (2013)*
 - *9th Asian Control Conference (2013)*
 - *2011 American Control Conference*
 - *9th IFAC Conference 2010 IEEE Vehicular Electronics and Safety Conference, 2010*
 - *8th IFAC Conferences on Control Applications in Marine Systems, CAMS2010.*
 - *8th IFAC Conferences on Maneuvering Control of Marine Crafts, 2009.*
 - *2009 International Symposium on Intelligent Control*
 - *48th IEEE Conference on Decision and Control, 2009*

- *National Workshop on High-Confidence Automotive Cyber-Physical Systems, 2008.*
- *7th World Congress on Intelligent Control and Automation, 2008*
- *2007 IFAC Conference on Control Applications in Marine Systems (CAMS'07)*
- *2006 American Control Conference*
- *2003 American Control Conference*
- *2001 American Control Conference*
- *2000 IEEE Conference on Intelligent Transportation System*
- *1997 IEEE Conference on Decision and Control*
- *1997 IEEE Singapore International Symposium on Control Theory and Applications*
- *1996 IEEE Conference on Control Applications*
- *1995 International Federation of Automatic Control Youth Automation Conference*

Society and other working/ad hoc committees/service

- IEEE Control System Society Board of Governor, member (2006-2010)
- Control System Magazine Best Paper award committee member (2007-2008)
- IFAC (International Federation of Automatic Control) Technical Committee member for Marine Systems (2004-)
- IEEE Control System Society Education Committee (2001-2004)
- SAE ABET Relation Committee (2001-2004)