Zoran S. Filipi

Automotive Engineering Department and International Center for Automotive Research
College of Engineering, Computing and Applied Science
Clemson University
e-mail: zfilipi@clemson.edu

EDUCATION

- **Ph.D.**, Mechanical Engineering, University of Belgrade, 1992
- **M.S.E.** in Mechanical Engineering, University of Belgrade, 1987
- **B.S.E.** in Mechanical Engineering, University of Belgrade, 1980

PROFESSIONAL EXPERIENCE

POSITIONS AT CLEMSON UNIVERSITY

- Chair, Automotive Engineering Department,   January 2015 -
- Professor and Timken Endowed Chair in Vehicle System Design, Clemson University Automotive Engineering Department,   January 2012 –

POSITIONS AT THE UNIVERSITY OF MICHIGAN

- Research Professor, Mechanical Engineering Dept. (full appointment) 09/01/2008 – 12/31/2011
- Research Professor, University of Michigan Transportation Research Institute (dry appointment) 09/01/2009 – 12/31/2011
- Associate Research Professor,   09/01/2005 – 8/31/2008
- Associate Research Scientist,   09/01/2001 – 08/31/2005
- Assistant Research Scientist,   09/01/95 – 09/01/2001
- Visiting Research Investigator,   12/05/94 - 09/01/1995\

OTHER RELEVANT EXPERIENCE

- Assistant Professor w/tenure, Faculty of Mechanical Engineering, University of Belgrade, 9/23/93 - 12/01/94
- Lecturer/Research Investigator at the IC engine Department, Faculty of Mechanical Engineering, University of Belgrade, 1988 - 1993
- Fulbright Scholar at the University of Illinois, Urbana-Champaign, Department of Mechanical and Industrial Engineering, 1989 - 1990
- Visiting Scholar at the University of Bath, U.K., School of Mechanical Engineering, 11/88 - 2/89

HONORS AND AWARDS

- Fellow, American Society of Automotive Engineers (ASME), 2015
- International Journal of Automobile Engineering Best Paper Award, 2012
- Springer Award for the Most Cited Article in the International Journal of Automotive Technology, 2012
- Fellow, Society of Automotive Engineers, 2011

- Donald Julius Groen Award by the Institution of Mechanical Engineers' Mechatronics, Informatics and Control Group for the best paper in 2010
- University of Michigan Research Faculty Achievement Award, 2010
- Forest R. McFarland Award, Society of Automotive Engineers, 2009
- Society of Automotive Engineers Excellence in Oral Presentation Award; 2001, 2009
- Michigan Memorial Phoenix Energy Institute Faculty Fellow, 2007 -
- University of Michigan Research Faculty Recognition Award, 2005
- UM College of Engineering Outstanding Research Scientist Award, 2003
- Japanese Special Invitation Fellowship Program, 1997
- Fulbright Grant for Doctoral Students, 1989
- Yugoslav Science Foundation Young Faculty Fellowship, 1988

INVITED PRESENTATIONS AND SEMINARS

- November 2016, keynote address, "Thermal Barrier Coatings for Improved HCCI Engine Efficiency and Operating Range: Small Engine Perspective", SAE/JSAE 2016 Small Engine Technology Conference, Charleston, SC
- October 2016, keynote address, "Interplay Between Heat Transfer and Kinetics-driven Combustion: Lessons Learned and Directions for Future, 2016 ASME Internal Combustion Engine Fall Technical Conference, Greenville, SC
- September 2015, keynote, "Overcoming Gasoline HCCI Technology Barriers: Management of Fuel Variability and In-cylinder Thermal Environment", ICE2015 International Conference on Engines & Vehicles, Capri, Italy
- August 2015, seminar, "Enhancing HCCI Engine's High-Efficiency Potential: Fuel Effects and In-cylinder Thermal Environment", Oak Ridge National Lab, TN
- June 2015, keynote address, "Fuel-Engine System: Effects of the Refinery Stream Gasoline Properties on HCCI Combustion", International Conference on Engines for Vehicles ICEV 13, Stony Brook, NY
- May 2015, faculty seminar, "Heat Flux Measurements in a Low Temperature Combustion Engine: Insights and Development of Thermal Barrier Coatings for Improved Efficiency", University of Windsor, Canada
- May 2015, panelist, "Advanced Powertrain Technology Development", DoE ARPA-E Workshop on Powertrain Innovations for Connected and Autonomous Vehicles, Denver, CO
- October 2014, invited speaker, panel on "Emerging Powertrain and Emission System Technologies for Future Green Energy Opportunities and Greenhouse Emission Reduction", SAE International Powertrain, Fuels & Lubricants Conference, Birmingham, UK
- October 2014, "A Model for Public-Private Partnerships for Research and Workforce Development for the Transportation Industry", Conference Board - Business Performance Council, Greenville, SC
- July 2014, faculty seminar, "Pathways for Maximizing the High-efficiency and Low-emission Potential of Hydraulic Hybrid Powertrains", ETH Zurich, Switzerland
- July 2014, faculty seminar, "Multi-physics Simulation for HEV Analysis and Optimization", Porsche Entwicklungszentrum Weissach, Germany

- July 2014, faculty seminar, "High-efficiency and Low-emission Potential of Hydraulic Hybrid Powertrains", University of Stuttgart, Germany

- July 2014, faculty seminar, "Insights Gained from Heat Flux Measurements in Lean-Burn IC Engines" University of Stuttgart, Germany

- June 2014, keynote speaker, "Automotive innovation-driving R&D process spurs transformation of collaborative research", MathWorks Research Faculty Workshop, Newton, MA

- May 2014, invited speaker, "Efficient Small Engines for CHP: Research Needs, from Combustion and Heat Transfer to System Integration", DoE ARPA-E Workshop, Chicago, IL

- April 2014, panelist, "Are We Done with Efficiency Improvements in Internal Combustion Engine Development? Maybe Not!", SAE World Congress, Detroit, MI

- February 2014, "New Technologies Highlighted at the Washington Auto Show", Interview for the Voice of America Global Television and Web News

- October 2013, "Alternative Fuels Opportunities for Heavy-Duty Vehicles", SCCEBA Business Roundtable

- March 2013,"Characterizing Diesel Engine Transients and Real-time Models for Virtual Sensing", Faculty Seminar, University of Stuttgart, Germany

- July 2013, invited speaker, "Natural Gas and Electrified Powertrains for Heavy-Duty Vehicles", South Carolina Clean Energy Summit

- April 2013, invited speaker, "Onsite Power: Small scale, highly reliable engine opportunities", DoE workshop on Methane Mitigation, Fort Collins, CO

- April 2013, panelist, "Engine Combustion Modeling for Model-Based Control", 2013 SAE World Congress, Detroit, MI

- April 2013, panelist, "Light Duty/Heavy Duty Control, Calibration, and OBD", 2013 SAE World Congress, Detroit, MI

- February 2013, seminar, "Vision for Powertrain Research and the Impact of Gasoline Composition Variations on Homogeneous Charge Compression Ignition", Chevron Technology Center, Richmond, CA

- February 2013, "Multi-Physics Propulsion System Models for Studies of Electrified Vehicles", BMW Technical Center, Mountain View, CA

- January 2013, SmartState Science Café, "Hybrid Vehicles: An Electrified Car in Every Garage?", Columbia, SC

- November 2012, "Frontiers in Hydraulic Hybrid Propulsion Research: Modeling, Optimization, and Powertrain In-the-Loop Integration", Faculty Seminar, Ohio State University

- November 2012, "Energy for Transportation, and Opportunities of Plug-in Hybrids", Lecture at University of Michigan by invitation of Prof. S. Linic, Director of Energy Systems Engineering program, Ann Arbor, MI

- October 2012, Keynote Address, "Diesel Engine Transients: Novel Diagnostic Technique and Real-time Emissions Models for Control", IFP Energies Nouvelles E-COSM, Paris , France

- October 2012, Invited Talk "Characterizing Diesel Engine Transients and Real-time Models for Control", SAE Heavy Duty Vehicles Symposium - Technologies for High Efficiency & Fuel Economy

- March 2012, Invited Talk "Neuro-Fuzzy Model Tree Approach to Virtual Sensing of Transient Diesel Soot and NOx Emissions", International EmiMod Workshop (Emissions Modeling for Control and Diagnostics), Johannes Kepler University Linz, Austria

- November 2011, Invited talk "Frontiers in Research of Hydraulic Hybrid Propulsion: Modeling Techniques, Optimization Frameworks, and Component-In-the-Loop Integration", SAE Symposium on High Efficiency Heavy Duty Vehicles, Troy, Michigan

- October 2011, "Hydraulic Hybrid Propulsion for Heavy Vehicles: Combining the Simulation and Engine-in-the-Loop Techniques to Maximize the Fuel Economy and Emission Benefits", seminar at Robert Bosch LLC, Farmington Hills, MI

- September 2011, Keynote talk "Enhancing Real-World Benefits of the HCCI Engine: from Management of the Near-Wall Thermal Conditions to Vehicle Hybridization", 10th International Conference on Engines and Vehicles ICE2011, Capri, Italy

- July 2011, "Impact of Diesel Engine Transients on Particulate and NOx Emissions, and Development of a Diagnostic Technique for Cycle-Resolved Measurements of In-Cylinder Constituents", seminar at Robert Bosch LLC, Farmington Hills, MI

- June 2011, "Hydraulic Hybrid Propulsion Systems: Compact and Cost-effective Alternative", keynote at the SAE Symposium TO ZEV - Highlighting the latest Powertrain, Vehicle and Infomobility Technologies, Turin, Italy

- January 2011, Invited talk at Lund University, "Hydraulic Hybrid Propulsion Systems: Pathways and Tools for Maximizing the Benefits", Lund, Sweden,

- December 2010, Keynote talk at the Future of Electric Vehicles conference, "Electrification of Advanced Military Vehicles", San Jose, CA

- June 2010, Invited talk at the 1st annual US conference on the Design of Experiments in Engine Development, "Optimal Calibration of high DOF Engines Considering Multiple Objectives", Plymouth, MI

- November 2009, Keynote Speaker at the Advanced Engine Control Symposium, "Approaches to Engine Control in a Series Hybrid Vehicle", Tianjin, China

- November 2009, Keynote Speaker at the Advanced Engine Control Symposium – 2nd day, "A Simulation Based Approach for Developing Optimal Calibrations for High Degree-of-Freedom Engines", Tianjin, China

- November 2009, Invited talk at the Beijing Institute of Technology, "Impact of Real-world Driving Conditions on PHEV Design, Control and Charging Schedules", Beijing, China

- October 2009, Keynote talk, ASME Dynamic Systems and Control Conference, Frontiers session "Progress and Challenges in the Configuration, Control, and Battery Management of Vehicle-To-Grid (V2G) Integration Systems" V2G Integration, Hollywood, CA

- October 2009, "Supervisory Control Strategies for a Series Hydraulic Hybrid", invited speaker, Hydraulic Hybrid Session and Panel at the SAE Commercial Vehicle Congress, Chicago

- June 2009, Invited talk at the International Workshop *Facing the Challenge of Future CO2 Targets: Impact on European Passenger Car Technologies*, "Pathways for Reducing Vehicle CO2 Emission Based on Hybrid and Plug-in Hybrid Propulsion Concepts", Turin, Italy

- February 2009, "A Low-Cost Pathway to 100-mpg - Highly-Efficient Hydraulic Hybrids for a Range of Vehicle Applications", invited speaker, SAE Government/Industry Meeting, Washington DC

- October 2008, "Evaluating the Low-emission Potential of the Series Hydraulic Hybrid Using the Engine-In-the-Loop Capability", invited speaker, Hydraulic Hybrid Session and Panel at the SAE Commercial Vehicle Congress, Chicago

- June 2008, International Bio-fuels Symposium; "Effect of Biodiesel and Blends on Diesel Engine Performance, Combustion and Emissions under Steady and Transient Conditions" , Tongji University, China

- April 2008, "The HCCI Engine and Modern Diesel Engine Transient Control Challenge", Keynote Speaker at the Workshop on Control Fundamentals and Latest Developments in Automotive Control, Applied Control Technology Consortium, Dearborn

- June 2007, "The Impact of Diesel Engine Transients on Particulate Emissions", 2007; Invited Keynote Speaker at the International Workshop on Near Zero Emission Vehicle, Seoul, Korea

- June 2007, "Clean and Efficient Engine Technologies: gasoline HCCI and the Premixed Diesel", Daewoo Auto & Technology Center, Seoul, Korea

- March 2007, "Recent Advances in Modeling Complex Powertrain Systems and the Role of Hardware-in-the-loop Facility", Department of Thermodynamics and Energy, University of Rijeka, Croatia

- January 3 – 8, 2007: "Hybrids and Their Impact on the Future of Automotive Industry and Engineering Education", interview on the CNN Headline News, Comcast Newsmakers

- December 2006, "Cultivating and Sustaining University-Industry Collaborations", KAIST-UM Workshop on New Opportunities in Mechanical Engineering Education, Honolulu, Hawaii

- August 2006, "Simulation and Hardware-in-the-loop Techniques for Optimizing Advanced Hybrid Propulsion Systems", keynote speech at the AVL Modeling of Advanced Powertrain Systems Conference

- February 2006, "Engine-in-the-Loop Testing for Evaluating Hybrid Emissions in Truck Applications", SAE Hybrid Vehicle Technologies Symposium, San Diego

- August 2004, Berkeley, "Experimental Insight into Heat Transfer in the Gasoline HCCI Engine", SAE Homogeneous Charge Compression Ignition Symposium

- July 2003, "New Frontiers in Vehicle System Modeling ", keynote speech at the AVL Virtual Vehicle Thermal Management Conference

- October 2002, University of Hiroshima, "Systems Approach to Analysis of Hybrid Powertrain Technologies"

- August 2002, KAIST, Korea, Joint Seminar On Reactive Flow Systems: "Hydraulic Hybrid Systems for Automotive Applications"

- May 2002, EATON Technical Center – Southfield, "Modeling Hydraulic Hybrid Propulsion Systems for Future Light and Medium Trucks"

- December 2001, 21st Century Truck Partnership - Department of Transportation, "Automotive Research Center's Approach to Modeling and Simulation of Future Truck Systems"

- June 2001, Daimler-Chrysler Technical Center, "The Effect of Stroke-to-Bore Ratio on Combustion, Heat Transfer and Efficiency of a Spark Ignition Engine of Given Displacement"

- April 1999, Federal Mogul, "Environmental Impact of Heavy-Duty Diesels"

- October 1996, HORIBA Instruments, "Integrated, High Fidelity Simulation of Engine-In-Vehicle Transients"

- October 1996, Mazda Technical Research Center, "A Non-linear, Transient Diesel Engine Simulation for Predictions of Instantaneous Engine Speed and Torque"

- October 1996, Mitsubishi Research and Development Center, "Integrated Engine-In-Vehicle Simulation for Mobility, Fuel Economy and Drivability Studies"

- October 1996, Toyota Central Research Laboratories, "A Non-linear, Transient Diesel Engine Simulation, Its Validation and Integration With Driveline and Vehicle Dynamics Models"

- November 1996, Honda Research & Development Center, "The Effect of Stroke-to-Bore Ratio on Combustion, Heat Transfer and Efficiency of a Spark Ignition Engine of Given Displacement"

- November 1996, New ACE Institute, "Powertrain System Modeling"

- November 1996, Waseda University, "Engine-in-Vehicle Modeling and Integration"

PUBLICATIONS

Full Articles in Refereed Journals, Transactions or Archives

1. Zhang, X. and Filipi, Z., "Optimal Supervisory Control of the Series HEV with Consideration of Temperature Effects on Battery Fading and Cooling Loss," *SAE International Journal of Alternative Powertrains*, 5(2), 2016, pp.299-307

2. Lacey, J., Kameshwaran, K., Sathasivam, S., Filipi, Z., Cannella, W., Fuentes-Afflick, P. A.,"Effects of refinery stream gasoline property variation on the auto-ignition quality of a fuel and homogeneous charge compression ignition combustion," *International Journal Of Engine Research*, July 2016, DOI: https://doi.org/10.1177/1468087416647646

3. Xu, B., Yebi, A., Onori, S., Filipi, Z., Liu, X., Shutty, J., Anschel, P., Hoffman, M. "Transient Power Optimization of an Organic Rankine Cycle Waste Heat Recovery System for Heavy-Duty Diesel Engine Applications." *SAE International Journal of Alternative Powertrains* 6, V126-8

4. O'Donnell RN, Powell TR, Filipi ZS, Hoffman MA. "Estimation of Thermal Barrier Coating Surface Temperature and Heat Flux Profiles in a Low Temperature Combustion Engine Using a Modified Sequential Function Specification Approach," *ASME. J. Heat Transfer.* 2017;139(4):041201-041201-9. doi:10.1115/1.4035101.

5. Liu, Z., Ivanco, A. and Filipi, Z.S., "Impacts of Real-World Driving and Driver Aggressiveness on Fuel Consumption of 48V Mild Hybrid Vehicle," *SAE International Journal of Alternative Powertrains*, 5(2016-01-1166), 2016, pp.249-258.

6. Lawler, B., Mamalis, M., Joshi, S., Lacey, J., Guralp, O., Najt, P., Filipi, Z., "Understanding the effect of operating conditions on thermal stratification and heat release in a homogeneous charge compression ignition engine," *Applied Thermal Engineering*, Volume 112, 5 February 2017, pp. 392-402, ISSN 1359-4311, http://dx.doi.org/10.1016/j.applthermaleng.2016.10.056.

7. Ivanco, A., Zhou, K., Hofmann, H. and Filipi, Z.S., "Powerpack Optimal Design Methodology with Embedded Configuration Benchmarking," *SAE International Journal of Alternative Powertrains*, 5(2016-01-0313), 2016, pp.223-227.

8. Abdelhamid, M., Pilla, S., Singh, R., Haque, I., and Filipi, Z. (2016) "A comprehensive optimized model for on-board solar photovoltaic system for plug-in electric vehicles: energy and economic impacts," *Int. J. Energy Res.,* 40: 1489–1508. doi: 10.1002/er.3534.

9. Abdelhamid, M., Haque, I., Pilla, S., Filipi, Z.S. and Singh, R., "Impacts of Adding Photovoltaic Solar System On-Board to Internal Combustion Engine Vehicles Towards Meeting 2025 Fuel Economy CAFE Standards," *SAE International Journal of Alternative Powertrains*, 5(2). 2016

10. Zhang, D., Ivanco, A., and Filipi, Z., "Model-Based Estimation of Vehicle Aerodynamic Drag and Rolling Resistance," *SAE Int. J. Commer. Veh.* 8(2):433-439, 2015, doi:10.4271/2015-01-2776.

11. Liu, Z., Ivanco, A., Filipi, Z.,"Quantification of Drive Cycle's Rapid Speed Fluctuations Using Fourier Analysis", *SAE International Journal of Alternative Powertrains*, 4(1), pp. 170-177,2015

12. Zhou, K., Ivanco, A., Filipi Z. and Hofmann, H.,"Finite-Element-Based Computationally Efficient Scalable Electric Machine Model Suitable for Electrified Powertrain Simulation and Optimization," in IEEE Transactions on Industry Applications, vol. 51, no. 6, pp. 4435-4445, Nov.-Dec. 2015 doi: 10.1109/TIA.2015.2451094

13. Hoffman, M. A., Lawler, B. J., Güralp, O. A., Najt, P. M., Filipi, Z. S., "The impact of a magnesium zirconate thermal barrier coating on homogeneous charge compression ignition operational variability and the formation of combustion chamber deposits", 2015, *International Journal of Engine Research*, p. 968-981, Vol 16, Issue 8, doi:10.1177/1468087414561274.

14. Xu, S., Anderson, D., Singh, A., Hoffman, M., Prucka, R., Filipi, Z., "Development of a Phenomenological Dual-Fuel Natural Gas Diesel Engine Simulation and Its Use for Analysis of Transient Operation", *SAE Int. J. Engines*, Oct. 2014 7: pp. 1665-1673; doi:10.4271/2014-01-2546

15. Zhang, X., Ivanco, A., Tao, X., Wagner, J., Filipi, Z., "Optimization of the Series-HEV Control with Consideration of the Impact of Battery Cooling Auxiliary Losses", *SAE Int. J. Alternative Powertrain*, 3(2): pp. 234-243, 2014, doi:10.4271/2014-01-1904

16. Johri, R., Filipi, Z., "Optimal Energy Management of a Series Hybrid Vehicle with Combined Fuel Economy and Low Emission Objectives", *Proc. IMechE, Part D: Journal of Automobile Engineering,* October 2014, vol. 228 no. 12, pp. 1424-1439

17. Hoffman, M., Lawler, B., Filipi, Z., Guralp, O., and Najt, P., "Development of a Device for the Nondestructive Thermal Diffusivity Determination of Combustion Chamber Deposits and Thin Coatings", *J. of Heat Transfer* 136(7), 071601, March 17, 2014, doi: 10.1115/1.4026908

18. Kim, Y., Salvi, A., Siegel, J.B., Filipi, Z.S., Stefanopoulou, A.G., Ersal, T., "Hardware-in-the-Loop Validation of a Power Management Strategy for Hybrid Powertrains", *Control Engineering Practice*, Volume 29, 2014, doi:10.1016/j.conengprac.2014.04.008, pp. 277–286

19. Guralp, O., Najt, P., Filipi, Z.," Method for Determining Instantaneous Temperature at the Surface of Combustion Chamber Deposits in an HCCI Engine", paper GTP12-1488, *ASME Journal of Engineering for Gas Turbines and Power,* 135 (8), 081501, 2013

20. Johri, R., Filipi, Z.," Neuro-Fuzzy Model Tree Approach to Virtual Sensing of Transient Diesel Soot and NOx Emissions", *International Journal of Engine Research*, December 2014 vol. 15 no. 8, pp. 918-927

21. Marshall, B., Kelly, J., Lee, T.-K., Keoleian, G., Filipi, Z., ""Environmental assessment of plug-in hybrid electric vehicles using naturalistic drive cycles and vehicle travel patterns: A Michigan case study", JEPO-D-11-01150R3, *Journal of Energy Policy*, http://dx.doi.org/10.1016/j.enpol.2013.03.037 ,Volume 58, 2013, Pages 358–370

22. Patil, R., Filipi, Z., Fathy, H. K., "Comparison of Optimal Supervisory Control Strategies for Series Plug-in Hybrid Electric Vehicle Powertrains", in print, *IEEE Transactions on Control Systems Technology, accepted April 2013*

23. Lacey, J., Sathasivam, S., Filipi, Z., Cannella, W., Fuentes-Aflick, P., "HCCI Operability Limits: the Impact of Refinery Stream Gasoline Property Variation ", *ASME Journal of Engineering for Gas Turbines and Power*, 135 (8), 081505, 2013

24. Patil, R., Kelly, J. C., Filipi, Z., Fathy, H.,"A Framework for the Integrated Optimization of Charging and Power Management in Plug-in Hybrid Electric Vehicles", ", *IEEE Transactions on Vehicular Technology*, Vol. 62, No. 5, 2013.

25. Zaseck, K., Babajimopoulos, A., Brusstar, M., Filipi, Z., Assanis, D., "Design and Modeling of a Novel Internal Combustion Engine with Direct Hydraulic Power Take-off", *SAE Int. J. Alternative Powertrain*, May 2013 2:204-215; doi:10.4271/2013-01-1733

26. Patil, R., Filipi, Z., Fathy, H., "Computationally Efficient Combined Plant Design and Controller Optimization using a Coupling Measure", *ASME Journal of Mechanical Design*, Volume 134, No. 7, 2012, pp.071008.1-071008.8

27. Lawler, B., Hoffman, M., Filipi, Z., Guralp, O., Najt, P., "Development of a Post-Processing Methodology for Studying Thermal Stratification in an HCCI Engine", paper GTP12-1126, *ASME Journal of Engineering for Gas Turbines and Power,* 134(10), 102801 (Aug 17 2012)

28. Lacey, J., Sathasivam, S., Filipi, Z., Peyla, R., Cannella, W., Fuentes-Aflick, P., "Impact of Refinery Stream Gasoline Property Variation on Load Sensitivity of the HCCI Combustion", *ASME Journal of Engineering for Gas Turbines and Power, 135 (5), 052803*, 2013

29. Lawler, B., Filipi, Z., "Integration of a Dual-Mode SI-HCCI Engine Into Various Vehicle Architectures", paper GTP12-1125, *ASME Journal of Engineering for Gas Turbines and Power*, Vol 135, Issue 5, 052802, 2013

30. Johri, R., Salvi, A., Filipi, Z., "Real-time Transient Soot and NOx Virtual Sensors for Diesel Engine Using Neuro-Fuzzy Model Tree and Orthogonal Least Squares", *ASME Journal of Engineering for Gas Turbines and Power*, 134(9), 092806 (Jul 23 2012); doi: 10.1115/1.4006942

31. Prucka, R. G., Filipi, Z. S., Assanis, D. N., "Control-oriented model-based ignition timing prediction for high-degrees-of freedom spark ignition engines", Proceedings of the IMechE, Part D, Journal of Automobile Engineering, Vol. 226, No. 6, 2012, pp. 828-839

32. Lin, X., Ivanco, A., Filipi, Z., "Optimization of Rule-Based Control Strategy for a Hydraulic-Electric Hybrid Light Urban Vehicle Based on Dynamic Programming", SAE paper 2012-01-1015, *SAE Journal of Alternative Powertrains*, July 2012 1:249-259; doi:10.4271/2012.01.1015, also presented at the 2012 SAE World Congress, Detroit, 2012

33. Ivanco, A., Filipi, Z., "Assessing the Regeneration Potential for a Refuse Truck over a Real-World Duty Cycle", *SAE Int. Journal of Commercial Vehicles,* 5(1):2012, doi:10.4271/2012-01-1030, also presented at the 2012 SAE World Congress, Detroit, 2012

34. Kim, Y., Lee, T.-K., Filipi, Z., "Frequency Domain Power Distribution Strategy for Series Hybrid Electric Vehicles", SAE paper 2012-01-1003, *SAE Journal of Alternative Powertrains*, July 2012 1:208-218; doi:10.4271/2012.01.1003, also presented at the 2012 SAE World Congress, Detroit

35. Lee, T.-K., Filipi, Z., "Representative real-world driving cycles in Midwestern US", *Oil & Gas Science and Technology - Revue de l'Institut Francais du Petrole,* Volume 68, Number 1, January-February 2013, Page(s) 117 – 126, DOI http://dx.doi.org/10.2516/ogst/2012045

36. Lee, T.-K., Kim, Y., Rizzo, D. M., Filipi, Z. S.," Battery power management in heavy-duty HEVs based on the estimated Critical Surface Charge, *Int. J. Vehicle Design,* 2013 Vol.61, No.1/2/3/4, pp.108 – 127, DOI: 10.1504/IJVD.2013.050842

37. Wen, L., Lee, T. –K., Filipi, Z. S., X. Meng, and C.-N., Zhang, "Development of electric machine duty cycles for parallel hybrid electric Beijing city bus based on Markov chain", *Int. J. Vehicle Design*, Vol. 58, Nos. 2/3/4, 2012, pp. 348-366

38. Lee,T.-K. and Filipi, Z. S., "Computationally Efficient Approaches for Studies of Large Scale Plug-in HEV Impact on the Grid", *Global Journal of Technology and Optimization (GJTO)*, in print, 2013

39. Lee, T-K., Bareket, Z., Gordon, T., Filipi. Z., "Stochastic Modeling for Studies of Real-World PHEV Usage: Driving Schedules and Daily Temporal Distributions", *IEEE Transactions on Vehicular Technology*, VT-2011-00596, Vol 61, Number 4, 2012, pp 1493-1502

40. Lee,T.-K. and Filipi, Z. S., "Impact of Model-Based Lithium-Ion Battery Control Strategy on Battery Sizing and Fuel Economy in Heavy-Duty HEVs", SAE Paper 2011-01-2253, SAE Int. Journal of Commercial Vehicles, October 2011 4: pp. 198-209; also presented at the SAE 2011 Commercial Vehicle Engineering Congress

41. Tavares, F., Rajit, J., Filipi, Z., "Simulation Study of Advanced Variable Displacement Engine Coupled to Power-split Hydraulic Hybrid Powertrain", *ASME Journal of Engineering for Gas Turbines and Power*, Vol 133, Issue 12, 2011, pp. 122803-1 to 122803-12

42. Lee, T. –K., Adornato, B., and Filipi, Z. S.,"Synthesis of Real-World Driving Cycles and Their Use for Estimating PHEV Energy Consumption and Charging Opportunities: Case Study for Midwest/US", IEEE Trans. Vehicular Technology, Vol. 60, No. 9, pp. 1-11, 2011

43. Lawler, B., Ortiz-Soto, E., Gupta, R., Peng, H., Filipi, Z.," Hybrid Electric Vehicle Powertrain and Control Strategy Optimization to Maximize the Synergy with a Gasoline HCCI Engine", SAE Technical Paper 2011-01-0888, *Journal of Engines*, also presented at the 2011 SAE World Congress, Detroit, April 12-14, 2011

44. Lee, T. -K. and Filipi, Z. S., "Characterizing One-day Missions of PHEVs Based on Representative Synthetic Driving Cycles", SAE Technical Paper 2011-01-0885, *Journal of Engines*, also presented at the 2011 SAE World Congress, Detroit, April 12-14, 2011

45. Hagena, J., Assanis, D., Filipi, Z., "Cycle-Resolved Measurements of In-Cylinder Constituents during Diesel Engine Transients and Insight into their Impact on Emissions", Proceedings of the IMechE, Part D, Journal of Automobile Engineering, vol. 225, 9: pp. 1103-1117., Special Issue on *Transient Operation of Internal Combustion Engines – 2011 Best Paper Award*, London, UK, 2011

46. Lee, T.-K., Kramer, D., Ohl, G., Filipi, Z., "Simulation-based Optimal Calibration of SI Engines with Multiple-Objectives: Fuel Economy and Combustion Variability", *Proceedings of the IMechE, Part D, Journal of Automobile Engineering*, Vol. 226, 0954407011406609, London, UK, 2011

47. Lee, T.-K., Filipi, Z. S., "Nonlinear model predictive control of a dual-independent variable valve timing engine with electronic throttle control", Proceedings of the IMechE, Part D, Journal of Automobile Engineering, vol. 225, 9: pp. 1221-1234, London, UK, 2011

48. Lee, T. -K. and Filipi, Z., "Synthesis of Real-world Driving Cycles Using Stochastic Processes and Statistical Methodologies", Int. J. Vehicle Design, Vol. 56, No. 1., 2011, pp. 43-62

49. Patil, R. Adornato, B., Filipi, Z.," Design Optimization of a Series Plug-in Hybrid Electric Vehicle for Real-World Driving Conditions", SAE paper 2010-01-0840, *SAE International Journal of Engines*, Vol 3, No. 1, 2010, pp. 655-665;also presented at the 2010 SAE World Congress, Detroit, April 2010

50. Ersal, T., Brudnak, M., Salvi, A., Stein, J., Filipi, Z., Fathy, H.,"Development and Model-Based Transparency Analysis of an Internet-Distributed Hardware-In-the-Loop Simulation Platform", *Mechatronics*, 21(1) Elsevier Ltd, pp. 22-29, doi: 10.1016/j.mechatronics.2010.08.002.

51. Lee, T.-K., Kramer, D., and Filipi, Z. S., "High Degree-of-freedom Engine Model for Control Design Using a Crank-Angle Resolved Flame Propagation Simulation and ANN Surrogate Models", *Proc. IMechE, Part I: J. Systems and Control Engineering*, Vol. 224, No. 16, 2010, pp.

747-762 ; *Awarded a Donald Julius Groen Award by the Institution of Mechanical Engineers' Mechatronics, Informatics and Control Group*

52. Lee, T.-K., Filipi, Z., "Improving the Predictiveness of the Quasi-D Combustion Model For Spark Ignition Engines With Flexible Intake System", International Journal of Automotive Technology, Vol. 12, No. 1, KSAE and Springer, 2010, pp. 1−9

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53. Lee, T.-K., Filipi, Z., "Simulation Based Assessment of Plug-in Hybrid Electric Vehicle Behavior During Real-World 24-Hour Missions", SAE paper 2010-01-0827, presented at the 2010 SAE World Congress, Detroit, April 2010

54. Prucka, R. G., Lee, T.-K., Filipi, Z., Assanis, D., "Turbulence Intensity Calculation from Cylinder Pressure Data in a High Degree of Freedom Spark-Ignition Engine", SAE paper 2010-01-0175, presented at the 2010 SAE World Congress, Detroit, April 2010

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2. Filipi, Z., (2014) "Engine Thermal Management" in D. Crolla, D.E. Foster, T. Kobayashi and N. Vaughan (Eds.) <u>Encyclopedia of Automotive Engineering</u>, John Wiley & Sons Ltd: Chichester. DOI:10.1002/9781118354179.auto128. Published 23rd October 2014.

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- "Method and Apparatus to Determine Magnitude of Combustion Chamber Deposits", Patent No. US 7,367,319 (B2) issued May 6, 2008 to a team of UM and GM researchers: Kuo, T.-W., Najt, P., Eng., J., Rask, R. (GM), Guralp, O., Filipi, Z., Assanis, D., Hoffman, M. (UM)

- "Method for Mid Load Operation of Gasoline Direct-Injection Controlled Auto-Ignition Combustion Engines", Patent No. US7128062(B2) issued Oct. 31st, 2006 to a joint UM – GM team: J. Chang, Z. Filipi, D. Assanis, O. Guralp, T.-W. Kuo, J. Eng, P. Najt

- "Artificial Neural Networks for Estimating the Air Flow Rate through a VVT Engine", Invention Development Record P706964 disclosed 04/21/2004. Filed by a joint team of UM and DCX researchers: Bin Wu, Zoran Filipi, Dennis Assanis, Denise Kramer, Gregory Ohl, Michael Prucka, Eugene DiValentin

- "Pre-Turbocharging Catalyzed Porous Metal Foam Filter for Diesel Particulates Treatment", Invention Disclosure No. 2924 to UM Tech Transfer Office, July 2004, by Albert J. Shih, Zoran Filipi, and Dennis Assanis

TEACHING

Ph.D. Committees

- Thomas Powell, **Chair,** in progress (candidate), Clemson University

- Ryan O'Donnell, **Chair,** in progress (candidate), Clemson University

- Zifan Liu, **Chair,** in progress (candidate), Clemson University

- Bin Xu, **Co-Chair**, in progress (candidate), Clemson University

- Xueye Zhang, **Chair,** "Supervisory Control Optimization for a Series Hybrid Electric Vehicle with Consideration of Battery Thermal Management and Aging", completed August 2016, Clemson University

- Shuonan Xu, **Chair,** "Physics-Based Models for Engine System Studies: Quasi-D Dual-Fuel Combustion and Real-Time Intake Charge Flow Estimation", completed May 2016, Clemson University

- Shu Wang, **Co-Chair,** "Model Based Combustion Phasing Control for High Degree of Freedom Spark-Ignition Engines", completed in March 2015, Clemson University

- Youngki Kim, "Power Capability Estimation Accounting for Thermal and Electrical Constraints of Lithium-Ion Batteries", **Co-Chair**, completed in December 2013 (UM)

- Ben Lawler "A Methodology for Assessing Thermal Stratification in an HCCI Engine and Understanding the Impact of Engine Design and Operating Conditions", **Chair**, completed in September 2013 (UM)

- Kevin Zaseck, "Modeling and Control of Hydraulic Linear and Free-Piston Engines", **Co-Chair**, completed in September 2013 (UM)

- Joshua Lacey, "The Effects of Advanced Fuels and Additives on Homogeneous Charge Compression Ignition Combustion and Deposit Formation", **Chair**, completed in December, 2012 (UM)

- Rakesh Patil, "Combined Design and Control Optimization: Application to PHEV Design and Control for Multiple Objectives", **Co-Chair**, completed in May in 2011 (UM)

- Mark Hoffman, "Characterizing the Effects of Thermal Barrier Coating Properties on HCCI Combustion and Deposit Formation", committee **Co-Chair**, completed in September 2012 (UM)

- Rajit Johri, "Optimal Energy Management for Series Hydraulic Hybrid Vehicle considering Transient Behavior with Powertrain-in-Loop Validation", committee **Chair**, completed in August 2011

- Fernando Tavares, "Thermally Boosted Concept for Improved Energy Storage Capacity of a Hydro-Pneumatic Accumulator", committee **Chair**, completed in April 2011

- Tae-Kyung Lee, "Optimal Calibration and Transient Actuator Scheduling for a High Degree of Freedom Engine", committee **Chair**, completed in March 2009

- Young Jae Kim, "Integrative Hydraulic Hybrid System Design Methodology Utilizing Modeling and Engine-in-the Loop Testing" Ph.D. committee **Chair**, completed in January 2008

- Jonathan Hagena, "Transient Diesel Engine Emission Characterization and Its Application Towards Development of Low Emissions Conventional and Hybrid Vehicle Strategies", Ph.D. committee **Co-chair**, completed in January 2008

- Robert Prucka, "An Experimental Characterization of Residual Gas Fraction and a Model for Turbulence Intensity Estimation in a High Degree of Freedom Spark-Ignition Engine", Ph.D. committee **Co-chair**, completed in January 2008

- Orgun Guralp, "The Effect of Combustion Chamber Deposits on Heat transfer and Combustion in an HCCI engine", Ph.D. committee **Co-chair**, completed in March 2008

- Bin Wu, "Simulation-Based Management of an Engine System with Multiple Degrees of Freedom", Ph.D. committee **Co-chair**, 2005

- Junseok Chang, "Thermal Characterization of Direct Injected Gasoline HCCI Engine Through Heat Flux Measurements on the Combustion Chamber Wall", Ph.D. committee **Co-chair**, 2004

- Kukwon Cho, "Characterization of Combustion and Heat Transfer in a Direct Injection Spark Ignition Engine through the Measurements of Instantaneous Combustion Chamber Surface Temperature", Ph.D. committee **Co-chair**, 2003

Ph.D. Committee Membership

- Fabian Koepple, University of Stuttgart, "Investigation of the potential of numerical simulation to predict the particulate emissions in SI-engines with gasoline direct injection", **Invited PhD Defense Reviewer**, January 2015

- Sasa Trajkovic, Lund University, Sweden, "The Pneumatic Hybrid Vehicle: A New Concept For Fuel Consumption Reduction", **Invited PhD Defense Opponent**, January 2011

- Jerry Fuschetto, "Design and Assessment of HCCI Free-Piston Engine", in –progress

- Donghoon Lee, "Modeling and Control of a heated air intake HCCI Engine", committee member, completed 2011

- Simo Mäkiharju, "Effects of Upstream Flow Conditions and Pressure Perturbations on a Ventilated Cavity", committee member, in progress

- Kyung Ho Ahn, "Estimation of Ethanol Content and Control of Air-to-Fuel Ratio in Flex Fuel Vehicles", committee member, completed 2010

- Dongsuk Kum, "Modeling and Optimal Control of HEVs and Plug-in HEVs for Performance Objectives with Dynamic Costate", committee member, completed 2010

- Michael Smith, "Transient Kinetic Modeling of Ammonia SCR System in Lean and Rich Engine Exhaust", committee member, completed 2010

- Byungchan Lee, "Two-Stage Turbocharging: Matching and Boost Control Options", Ph. D. committee member, completed in 2009

- Burit Kittirungsi, "A Scaling Methodology for Dynamic Models", Ph.D. committee member, completed in 2008

- Yanbin Mo, "Development of HCCI Combustion Correlations for Simulation Studies of HCCI Engine Transient Operation", Ph.D. committee member, completed in 2008

- Bradley Ziegler, "Instantaneous, Time-resolved Absorption Spectroscopy for Quantitative Interrogation of H_2O and Temperature in Internal Combustion Engine Systems", Ph.D. committee member, completed in 2008

- Chen-Chun Kao, "The Development of Smart Electrical Discharge Machining (EDM)", Ph.D. committee member, 2007

- Manbae Han, "Species Resolved Hydrocarbon Emission Profiles From Advanced Diesel Combustion and Characterization of Heat-up Diesel Oxidation Catalyst", committee member, 2007

- Rui Zhang, "Simultaneous multi-component fuel imaging strategies for an optical direct-injection spark-ignition engine", Ph.D. committee member, 2006

- Kyoungjoon Chang, "Using 1-D Cycle Simulation and Transient Thermal Networks to Develop Strategies for Load and Speed Transitions in the HCCI Engine with Rebreathing", Ph.D. committee member, 2007

- Timothy Jacobs, "Simultaneous Reduction of Nitric Oxide and Particulate Matter Emissions From a Light Duty Diesel Engine Using Combustion Development and Diesel Oxidation Catalyst", Ph.D. committee member, 2005

- Pin Zeng, "Unsteady Convective Heat Transfer Modeling and Application to Internal Combustion Engines", Ph.D. committee member , 2004

- Wooheoum Cho, "A Study on Pressure Reactive Piston for Spark Ignition Engines", Ph.D. committee member, 2004

- Guntram Lechner, "A Concept to Establish Premixed Diesel Combustion", Ph.D. committee member, 2003

- Stani Bohac, "Reduction of Spark-Ignition Engine Hydrocarbon Emissions Through Optimization of Exhaust valve Timing", Ph.D. committee member, 2002

- Corey Weaver, "Quantitative, Laser-Based Fuel Distribution and Combustion Measurements in a Port and Direct Fuel Injected Spark-Ignition Engine", Ph.D. committee member, 2001

- George Delagrammatikas, "A Design Optimization Methodology for Advanced and Hybrid, Diesel-Based, Automotive Powertrains", Ph.D. committee member, 2001

M.S. Committees

- Sidhart Nakra, 2012
- Ben Lawler, 2011
- Kevin Zaseck, 2011
- Michael Woon, 2011
- Sakthish Ranganathan Sathasivam, 2011
- Joshua Lacey, 2011
- Ryan Bosn, M.Eng. Capstone Project Advisor, 2011
- Juan A. Garduno, M.Eng. Capstone Project Advisor, 2011
- Mark Heikkila, M.Eng. Capstone Project Advisor, 2011
- Brian Adornato, 2010
- Andrew Wong, M.Eng., 2009
- Javier Somoza, 2009
- Mark Hoffman, 2009
- Jackey Fong, M.Eng. Capstone Project Advisor, 2008
- Evan Frings, M.Eng. Capstone Project Advisor, 2008
- Bachar Kaafarani, M.Eng. Capstone Project Advisor, 2008
- Maxime Oullet, M.Eng. Capstone Project Advisor, 2008
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- Jason Moore,2007
- Bryan Hoy, M.Eng. Capstone Project advisor, 2006
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- Gerald Fernandes, 2005
- Orgun Guralp, M.S. 2004
- Jae Yoon Jung, M.Eng. Capstone Project advisor, 2004
- Roberto Nigro, M.Eng. Capstone Project advisor, 2004
- Carrie Morton, M.Eng. Capstone Project advisor, 2004
- Jonathan Hagena, 2004
- Wesley Williamson, 2004
- Se Young Yi, M.Eng. Capstone Project advisor, 2004
- Chad Jagmin2003
- Berrin Daran, 2002

- Tim Jacobs, 2002
- Brian Baldwin, 2001
- Gautam Baksi, 2001
- Cheol Su Lee, 2001
- George Seaward, 2000

Fulbright Visiting Scholar

- Prof. Danilo Nikolic, University of Montenegro, Podgorica; Fall 2007 – Summer 2008

Studienarbeit – Special Undergraduate Research Project at a German University

- Christoph Pregizer, University of Stuttgart, Germany, 10/2010 -
- Michael Mosburger, University of Karlsruhe, Germany, 5/2006 - 11/2006.
- Patrick Englmaier, University of Applied Sciences in Regensburg, Germany, 10/2004 – 3/2005

New Course Introduced at Clemson University

AuE 893 Advanced IC Engine Concepts; This course covers novel modes of combustion in IC engines, in-depth study of the underlying phenomena and advanced engine systems required to translate the novel combustion concept into a viable technology. The course prepares students for contributing to future advanced efforts in the research and development setting, at either the university or the industry R&D facility. The advanced IC engine concepts include the direct-injection stratified SI engines, Homogenous Charge Compression Ignition engines, mixing-controlled and premixed diesels, two-stroke and split-cycle engines. Critical phenomena such as the thermodynamics of advanced cycles, fluid flow, auto-ignition, combustion chemistry, and heat transfer establish the foundation. State-of-the-art modeling and simulation tools are introduced to establish a link between the fundamental processes and design, and support integration and analysis of engine systems, such as turbocharging, air- and EGR-management, variable valve actuation and exhaust aftertreatment. Taught in 2012, 2013, 2014, 2015, 2016-

AuE 881 Automotive Systems Overview, co-taught, developed a module on *Powertrain: Performance, Efficiency, Impact on the Environment, Integration.* Includes Energy for Transportation, Basics of Vehicle Performance and Fuel Economy, Energy Conversion, Driveline/Transmission, Energy Storage, Hybrid Vehicle Architectures, Fundamentals of HEV System Integration, Design and Control, 2016-

New Courses Introduced at U of M

ME599–05 Modeling, Analysis and Control of Hybrid Electric Vehicles, Winter 2011, 24 students on campus, 55 distance learning.
ME599-05 Modeling, Analysis and Control of Hybrid Electric Vehicles, Winter 2010, 36 students, evaluation score 4.29/4.82.
Co-instructor sharing duties equally with Prof. H. Peng
The course covers modeling, analysis and control of vehicles with electrified propulsion systems, including electric vehicles, hybrid vehicles, plug-in and fuel cell vehicles. It introduces the concepts and terminology, the state-of-the-art development, energy conversion and storage options, modeling, analysis, system integration and basic principles of vehicle controls. Part of the new DOE Transportation Electrification Education Partnership for Green Jobs and Sustainable Mobility

AUTO599 Analysis and Control of Alternative Powertrains, Winter 2008, Winter 2009 (19 on-campus students and 22 distance learning), evaluation scores 4.83/4.70

Co-instructor sharing duties equally with Prof. H. Peng
The course provides an overview of Alternative Powertrains, introduces fundamentals of energy conversion for propulsion, the concepts and terminology, system integration and basic principles of vehicle control systems. The energy conversion includes advanced combustion concepts, such as the Homogenous Charge Compression Ignition engine and the Low Temperature Combustion in a Premixed Diesel, alternative fuels, electric motors and batteries, hydraulic pump/motors and hydro-pneumatic accumulators. Vehicle system integration is analyzed in the context of all major hybrid architectures, e.g. the parallel, the series and the power-split, followed by application of advanced algorithms for optimization of hybrid power management. The course includes a student-team project.

Short Courses and Workshops

- Design and Control of Hybrid Vehicles, University of Michigan Center for Professional Development, Co-chair with Prof. Huei Peng, first offered in February 2007, 26 participants Second offering November 12- 14, 18 participants; third offering June 8-10, 2009.
- Modeling and Computer Simulation of Internal Combustion Engines, University of Michigan Center for Professional Development, 1996, 1997, 1998, 1999, 2000, *Instructor*
- Turbocharging the IC Engine, Michigan State University, Lansing, May 4 -5, 1998, 20 participants, Instructor

SERVICE

Administrative Duties at Clemson University

- Member, Advisory Board for the ADRGS   2014-2016
- Member, Dean's Advisory Council   2013-2015
- Member, Dean's Strategic Planning Committee   2013 -
- Chair, Tenure, Promotion and reappointment Committee, AuE Department   2012-2015
- Chair, Search Committee for the BMW Chair position, AuE Department   2012-2015
- Chair, Search Committee for two faculty positions in AuE Department,   2012-2013
- Member, Graduate Research Committee, AuE Department   2012-2013
- Member, Clemson University Research Foundation Strategic Planning Committee 2012

Administrative Duties at UM prior to 2012

- Deputy Director of the Automotive Research Center, 2009- 2011
- Assistant Director of the Automotive Research Center, 2002- 2009

Major Committee Assignments in the UM ME Department, College and/or University

- ME Safety Committee 2009-2011
- Energy Systems Engineering Program Council Member, 2011-
- ME Department Advisory Committee, 2002 – 2004, and 2004-2006
- ME Department Facilities Renovation Steering Committee, 2005 - 2006
- ME Department Space Strategic Planning Committee, 2003 - 2004

- College of Engineering Strategic Planning Advisory Committee, 2003

Service to Government or Professional Organizations

- Associate of the ASME Internal Combustion Engine Division, Fuels and Combustion Committee
- Executive Committee member, SAE Powertrains, Fuels & Lubricants Activity, 2010 –
- Invited participant in DOE-Army strategy meeting on Advanced Vehicle Power Technologies, 2011
- Chair of the SAE Advanced Power Sources Committee, 2008 – 2010
- State of Michigan Renewable Fuels Commission, 2006 - 2011
- Member of the SAE Combustion and Fuels Committee, 2005 –
- Member of the SAE Advanced Power Sources Committee, 2007-
- Member of the SAE Hybrid Vehicle Standardization Committee, 2004

Editorial, Reviewing and Refereeing Activities

- Editor-In-Chief, SAE International Journal of Alternative Powertrain, 2012-
- Associate Editor, ASME International Journal of Engineering for Gas Turbines and Power (JEGTP), 2010-2016
- Editorial Board Member, Proceedings of the Institution of Mechanical Engineers Part D: Journal of Automobile Engineering, 2010 -
- Editorial Board member , "Journal of Combustion", Hindawi Publishing Corporation, 2009 –
- Editorial Board member , "International Journal of Powertrain", Inderscience Publishers, 2010
- Guest Editor, International Journal of Powertrains (Inderscience), Special issue on: "Energy and Propulsion Systems for Electrified Powertrains", 2012
- Guest Editor: Special Issue on "Vehicle Fuel Economy: High Efficiency Engines and Hybrid Powertrains", Proceedings of the Institution of Mechanical Engineers Part D: Journal of Automobile Engineering, January 2013; 227 (1), DOI: 10.1177/0954407012470600; one of the top five most downloaded publications in 2013
- Guest Editor: Special Issue on "Modelling and Simulation of Ground Vehicles Systems", International Journal of Vehicle Design, Vol. 61, Nos. 1/2/3/4, 2013. Inderscience
- Referee for a "PhD Thesis Award Barsanti e Matteuci", awarded by the Italian Community of the Professors of Thermal and Hydraulic Machinery & Energy Systems, 2011
- NSF FY 2010 Unsolicited Panel on Combustion of biofuels
- Reviewer: ASME Journal of Engineering for Gas Turbines and Power reviewer, International Journal of Engine Research, SAE Papers and Journals

Organizing and Chairing Conference Sessions

- Organizer/local host, 2016 ASME ICEF - Internal Combustion Engine Fall Technical Conference, Greenville, SC

- Organizer, SAE High-Efficiency IC Engine Symposiums 2011, 2012, 2013, 2014, 2015, 2016, 2017
- Organizer, 2013 SAE International Natural Gas symposium, March 2013, Greenville, SC
- Co-chair of the "EV system architecture concepts" track, IEEE conference on Electrical Vehicles-IEVC 2012, March 2012, Greenville, SC
- Organizer, SAE High Efficiency HD Vehicles Symposium 2011, Detroit, MI
- Chair of the Alternative Power Systems area at the10th International Conference on Engines and Vehicles ICE2011, Capri, Italy, September 11-15, 2011. Led the team of sub-session organizers for advanced engine concepts, hybrid propulsion and hydrogen for transportation
- Co-Chair of the SAE 2011 "High-Efficiency IC Engine Symposium", Detroit, April 10-11, 2011
- Co-Chair of the 1st annual US Conference on the Design of Experiments in Engine Development, June 24th, 2010 in Plymouth, MI
- Chair of the Alternative and Advanced Power Systems area at the International Conference on Engines and Vehicles ICE2009, Capri, Italy, September 13-18, 2009. Led the team of five sub-session organizers responsible for 35 papers
- Organizer, "Engine Controls and Optimization", Society of Automotive Engineers International Fuels & Lubricants Meeting, Florence, Italy, June 2009
- Member of the Organizing Committee, 2009 International Symposium on Cavitation (Chair S. Ceccio)
- Organizer, "Homogenous Charge Compression Ignition Engines", 2008 Society of Automotive Engineers International Powertrains, Fuels and Lubricants Congress, Shanghai, China, June 2008
- Organizer, "Homogenous Charge Compression Ignition Engines", Society of Automotive Engineers JSAE/SAE International Fuels & Lubricants Meeting, Kyoto, Japan, July 2007
- Co-organizer, Annual ARC Technical Conference on "Critical Technologies for Modeling and Simulation of Ground Vehicles", Ann Arbor, 2007
- Organizer and Co-Chair, "Homogenous Charge Compression Ignition (HCCI)", Society of Automotive Engineers Powertrain and Fluid Systems Conference, Toronto, Canada, 2006
- Co-organizer, Annual ARC Technical Conference on "Critical Technologies for Modeling and Simulation of Ground Vehicles", Ann Arbor, 2006
- Organizer and Co-Chair, "Homogenous Charge Compression Ignition (HCCI)", Society of Automotive Engineers Powertrain and Fluid Systems Conference, San Antonio, Texas, 2005
- Organizer, "Homogenous Charge Compression Ignition (HCCI)", Society of Automotive Engineers Spring Fuels and Lubricants Meeting, Rio de Janeiro, Brazil, 2005
- Co-organizer, Annual ARC Technical Conference on "Critical Technologies for Modeling and Simulation of Ground Vehicles", Ann Arbor, 2005
- Organizer and Chair, "Spark-Ignition Engine Modeling", Society of Automotive Engineers Spring Fuels and Lubricants Meeting, Toulouse, France, 2004
- Co-organizer, Annual ARC Technical Conference on "Critical Technologies for Modeling and Simulation of Ground Vehicles", Ann Arbor, 2004
- Organizer, "Spark-Ignition Engine Modeling", SAE International Spring Fuels and Lubricants Meeting, Yokohama, Japan, 2003
- Co-organizer, Annual ARC Technical Conference on "Critical Technologies for Modeling and Simulation of Ground Vehicles", Ann Arbor, 2003
- Organizer and Chair, "Spark-Ignition Engine Modeling", SAE International Spring Fuels and Lubricants Meeting, Reno, Nevada, 2002

- Organizer and Chair, "Diesel Engines: Experiments", SAE International Spring Fuels and Lubricants Meeting, Orlando, Florida, 2001

Membership

- Society of Automotive Engineers
- American Society of Mechanical Engineers
- IEEE
- Combustion Institute