Marcello Canova, Ph.D.

Associate Chair for Graduate Programs, Department of Mechanical and Aerospace Engineering
Associate Director for Research and Education, Center for Automotive Research
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PROFESSIONAL EXPERIENCE

Department of Mechanical and Aerospace Engineering, The Ohio State University

Associate Chair for Graduate Studies	July 2021 – Present
Professor	June 2021 – Present
Associate Professor with Tenure	June 2016 – May 2021
Tenure-Track Assistant Professor	January 2011 – May 2016

Center for Automotive Research - The Ohio State University

Associate Director for Research and Education	August 2018 – Present
Associate Director for Graduate and Continuing Education	2016 – 2018
Associate Fellow	August 2011 – Present
Research Scientist	December 2009 – December 2010
Senior Research Associate	April 2008 – November 2009
Research Associate	November 2006 – March 2008
Post-Doctoral Research Fellow	February 2006 – October 2006

EDUCATION

Ph.D., Mechanical Engineering, 2006	*University of Parma, Italy*
M.S., Mechanical Engineering *(Summa Cum Laude)*, 2002	*University of Parma, Italy*

HONORS AND AWARDS

1. Lumley Interdisciplinary Research Award, College of Engineering, The Ohio State University, 2020;
2. Michael J. Moran Award for Excellence in Teaching, The Ohio State University, 2017;
3. Lumley Research Award, College of Engineering, The Ohio State University, 2016;
4. SAE Ralph E. Teetor Education Award, Society of Automotive Engineers, 2016;
5. CAREER Award, The National Science Foundation, 2016;
6. Lumley Interdisciplinary Research Award, College of Engineering, The Ohio State University, 2012;
7. Kappa Delta Distinguished Faculty Award, The Ohio State University, 2011;
8. SAE (Society of Automotive Engineers) 2009 Vincent Bendix Automotive Electronics Engineering Award, 2011;

JOURNAL PUBLICATIONS

Under Review

Z. Zhu, S. Gupta, A. Gupta, M. Canova, "A Deep Reinforcement Learning Framework for Eco-driving in Connected and Automated Hybrid Electric Vehicles", arXiv preprint arXiv:2101.05372 , 2021 (Submitted to IEEE Transactions on Intelligent Transportation Systems)

Accepted for Publication

Published

1. A. Zhu, N. Pivaro, S. Gupta, A. Gupta, **M. Canova**, "Safe Model-based Off-policy Reinforcement Learning for Eco-driving in Connected and Automated Hybrid Electric Vehicle". IEEE Transactions on Intelligent Vehicles (2022).
   Impact Factor: 6.72

2. A. Gupta, S. Rajakumar Deshpande, **M. Canova**, "An Algorithm to Warm Start Perturbed (WASP) Constrained Dynamic Programs", IEEE Open Journal of Control Systems (2022).
   Impact Factor: N/A

3. S. Scaravonati, M. Sidoli, G. Magnani, A. Morenghi, **M. Canova**, J. Kim, M. Riccò, D. Pontiroli, "Combined Capacitive and Electrochemical Charge Storage Mechanism in High-performance Graphene-based Lithium-ion Batteries", Materials Today Energy 24 (2022): 100928.
   Impact Factor: 7.311

4. S. Rajakumar Deshpande, S. Gupta, A. Gupta, **M. Canova**, "Real-time Eco-Driving Control in Electrified Connected and Autonomous Vehicles using Approximate Dynamic Programming", ASME Journal of Dynamic Systems, Measurements and Control (2021).
   Impact Factor: 1.372

5. D. Kibalama, Y. Liu, S. Stockar, **M. Canova**, "Model Predictive Control for Automotive Climate Control Systems via Value Function Approximation", IEEE Control Systems Letters 6 (2021): 1820-1825.

6. *Impact Factor: 3.698*

7. S. Rajakumar Deshpande, D. Jung, **M. Canova**. "Integrated Approximate Dynamic Programming and Equivalent Consumption Minimization Strategy for Eco-Driving in a Connected and Automated Vehicle." IEEE Transactions on Vehicular Technology, Vol. 7 (11) (2021).
   Impact Factor: 5.978

8. C. Dangwal, **M. Canova**, "Parameter Identification for Electrochemical Models of Lithium ion Batteries using Sensitivity Analysis", ASME Letters of Dynamics Systems and Control 1(4), 041014 (2021).
   Impact Factor: 1.825

9. Z. Salyer, M. D'Arpino, **M. Canova**. Extended Physics-Based Reduced-Order Capacity Fade Model for Lithium-Ion Battery Cells. ASME Letters in Dynamic Systems and Control, 1(4), 041002 (2021).
   Impact Factor: 1.825

10. K. Pan, F. Zou, **M. Canova**, Y. Zhu, J-H. Kim, "Comprehensive Electrochemical Impedance Spectroscopy Study of Si-Based Anodes", Journal of Power Sources, 479, 229083 (2020).
    Impact Factor: 9.127

11. Y. Liu, **M. Canova**, Y-Y Wang, "Distributed Energy and Thermal Management of a 48V Diesel Mild Hybrid Electric Vehicle with Electrically Heated Catalyst", IEEE Transactions on Control Systems Technology, 28(5), 1878-1891, 2020.
    Impact Factor: 5.312

12. Z. Zhu, S. Midlam-Mohler, **M. Canova**. "Development of physics-based three-way catalytic converter model for real-time distributed temperature prediction using proper orthogonal decomposition and collocation." International Journal of Engine Research, 1468087419876127, 2019.
    Impact Factor: 2.272

13. M. Zhao, **M. Canova**, H. Tian, G. Shu, "Design Space Exploration for Waste Heat Recovery System in Automotive Applications Under Driving Cycle", Energy 176, 980-990, 2019.
    Impact Factor: 5.537

14. K. Pan, F. Zou, **M. Canova**, Y. Zhu, J-H Kim, "Systematic Electrochemical Characterizations of Si and SiO Anodes for High-Capacity Li-Ion Batteries", Journal of Power Sources 413: 20-28, 2019.
    Impact Factor: 7.467

15. C. Rostiti, Y. Liu, S. Stockar, **M. Canova**, G. Chen, M. Prucka, H. Dourra, "A Backlash Compensator for Drivability Improvement via Real-Time Model Predictive Control", Journal of Dynamic Systems, Measurements and Control 140(10), 2018.
    Impact Factor: 1.466

16. G. Fan, X. Li, **M. Canova**, "A Reduced-Order Electrochemical Model of Li-ion Batteries for Control and Estimation Applications", IEEE Transactions on Vehicular Technology, 67(1), 76-91, 2017.
    Impact Factor: 2.243

17. X. Li, G. Fan, K. Pan, G. Wei, C. Zhu, G. Rizzoni, **M. Canova**. "A Physics-Based Fractional Order Model and State of Energy Estimation for Lithium-Ion Batteries. Part I: Model Development and Observability Analysis", Journal of Power Sources 367, 187-201, 2017.
    Impact Factor: 7.467

18. X. Li, G. Fan, K. Pan, G. Wei, C. Zhu, G. Rizzoni, **M. Canova**. "A Physics-Based Fractional Order Model and State of Energy Estimation for Lithium-Ion Batteries. Part II: Parameter Identification and State of Energy Estimation for LiFePO4 Battery", Journal of Power Sources 367, 202-213, 2017.
    Impact Factor: 7.467

19. J. Zhou, **M. Canova**, A. Serrani, "Non-intrusive Reference Governors for Over-Actuated Linear Systems", IEEE Transactions on Automatic Control, Vol. 62, No. 9, 2017.
    Impact Factor: 5.093

20. M. Canova, C. Rostiti, L. D'Avico, S. Stockar, G. Chen, M. Prucka, H. Dourra. "Model-Based Wheel Torque and Backlash Estimation for Drivability Control." SAE International Journal of Engines 10.2017-01-1111, 2017.
    Impact Factor: N/A

21. G. Fan, K. Pan, G. Storti, **M. Canova**, J. Marcicki, X. Yang, "A Reduced-Order Multi-Scale, Multi-Dimensional Model for Performance Prediction of Large-Format Li-Ion Cells", Journal of Electrochemical Society, Vol. 164, Is. 2, A252-A264, 2017.
    Impact Factor: 3.120

22. J. Zhou, L. Fiorentini, **M. Canova**, "Model-based Optimization and Predictive Control of Diesel Engines with a Variable Geometry Compressor System", International Journal of Powertrains, Vol. 5, No. 2, 2016.
    Impact Factor: 0.61

23. Q. Zhang, **M. Canova**, "Mild Hybrid Technique using Automotive Air Conditioning System", Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, Vol. 230, No. 10, 2016.
    Impact Factor: 1.275

24. X. Li, G. Fan, G. Rizzoni, **M. Canova**, C. Zhu, G. Wei, "A Simplified Multi-Particle Model for Lithium Ion Batteries via a Predictor-Corrector Strategy and Quasi-Linearization", Energy, Volume 116, Part 1, 2016.
    Impact Factor: 5.537

25. C. Tan, D. Lyons, K. Pan, K.Y. Leung, W. Chuirazzi, **M. Canova**, A. Co, L. Cao, "Radiation Effects on the Electrode and Electrolyte of a Lithium Ion Battery", Journal of Power Sources, Volume 318, Pages 242-250, 2016.
    Impact Factor: 7.467

26. S. Stockar, **M. Canova**, B. Xiao, W. Dai, J. Buckland, "Fast Simulation of Wave Action in Engine Air Path Systems Using Model Order Reduction", SAE International Journal of Engines 9.2016-01-0572, 2016.
    Impact Factor: N/A

27. G. Fan, K. Pan, **M. Canova**, J. Marcicki, X. Yang, "Modeling of Li-Ion Cells for Fast Simulation of High C-Rate and Low Temperature Operations", Journal of Electrochemical Society, 163.5: A666-A676, 2016.
    Impact Factor: 3.120

28. J. Zhou, **M. Canova**, A. Serrani, "Predictive Inverse Model Allocation for Constrained Over-Actuated Linear Systems", Automatica. 67 (2016): 267-276.
    Impact Factor: 7.780

29. Q. Zhang, S. Stockar, **M. Canova**, "Energy-Optimal Control of an Automotive Air Conditioning System for Ancillary Load Reduction", IEEE Transactions on Control Systems Technology, 24.1, 67:80, 2016.
Impact Factor: 4.883

30. J. Zhou, L. Fiorentini, **M. Canova**, Y-Y. Wang. "Coordinated Performance Optimization of a Variable Geometry Compressor with Model Predictive Control for a Turbocharged Diesel Engine." IEEE Transactions on Control System Technology, 24(3), 804-816, 2016
Impact Factor: 4.883

31. C. Waldman, S. Gurusubramanian L. Fiorentini, **M. Canova**, "A Model-Based Supervisory Energy Management Strategy for a 12V Vehicle Electrical System", Control Engineering Practice, Vol. 44, 20-30, 2015.
Impact Factor: 3.232

32. C. Tan, K. Leung, D. Liu, **M. Canova**, R. Downing, A. Co, R. Cao, "Gamma Radiation Effects on Li-ion Battery Electrolyte in Neutron Depth Profiling for Lithium Quantification", Journal of Radioanalytical and Nuclear Chemistry, 1-6, 2015.
Impact Factor: 1.186

33. Q. Zhang, **M. Canova**, "Modeling and Output Feedback Control of Automotive Air Conditioning System", International Journal of Refrigeration, Vol. 58, 207-218, 2015.
Impact Factor: 3.177

34. Q. Zhang, **M. Canova**, "Fault Detection and Isolation of Automotive Air Conditioning Systems using First Principle Models", Control Engineering Practice, Vol. 43, Pg. 49-58, 2015.
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35. Q. Zhang, **M. Canova**, "Improving Tracking Performance of Automotive Air Conditioning System via mu-Synthesis", Science and Technology for the Built Environment, Vol. 21, No. 4, 2015.
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36. Q. Zhang, **M. Canova** "Modeling Air Conditioning Systems with Storage Evaporator for Vehicle Energy Management", Applied Thermal Engineering, Vol. 87, p. 779-787, 2015.
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37. M. Naddeo, Y. Liu, J. Zhou, **M. Canova**, "A Scalable Modeling Approach for the Simulation and Design Optimization of Automotive Turbochargers", SAE International Journal of Engines 8(4), 2015.
Impact Factor: N/A

38. S. Stockar, **M. Canova**, Y. Guezennec, G. Rizzoni, "A Lumped-Parameter Modeling Methodology for One-Dimensional Hyperbolic Partial Differential Equations Describing Nonlinear Wave Propagation in Fluids", J. Dyn. Sys., Meas., Control 137 (1), 2014
Impact Factor: 1.466

39. S. Stockar, **M. Canova**, Y. Guezennec, A. Della Torre, G. Montenegro, A. Onorati, "Model-Order Reduction for Wave Propagation Dynamics in IC Engine Air Path Systems", International Journal of Engine Research, Vol. 16 No. 4, 547-564, 2015.
Impact Factor: 2.272

40. D. Liu, J. Wang, K. Pan, J. Qiu, **M. Canova**, L. Cao, A. Co, "In Situ Quantification and Visualization of Lithium Transport with Neutrons", Angewandte Chemie International Edition, Vol. 53, No. 36, 2014.
Impact Factor: 12.257

41. J. Wang, D. Liu, **M. Canova**, R. Downing, L. Cao, "Profiling lithium distribution in Sn anode for lithium-ion batteries with neutrons". Journal of Radioanalytical and Nuclear Chemistry, 1-8, 2014.
Impact Factor: 1.186

42. S. Nagpure, P. Mulligan, **M. Canova**, L. Cao, "Neutron Depth Profiling of Li-ion Cell Electrodes with a Gas-Controlled Environment", Journal of Power Sources, Vol. 248, P. 489-497, 2014.
Impact Factor: 7.467

43. E. Hillstrom, **M. Canova**, Y. Guezennec, G. Rizzoni, "Modeling the Cathode Pressure Dynamics in the Buckeye Bullet II 540kW Hydrogen PEM Fuel Cell System", Journal of Power Sources, Vol. 241, Pages 33-45, 2013.
Impact Factor: 7.467

44. J. Marcicki, **M. Canova**, A.T. Conlisk, G. Rizzoni, "Design and Parametrization Analysis of a Reduced-Order Electrochemical Model of Graphite/LiFePO4 Cells for SOC/SOH Estimation", Journal of Power Sources, Vol. 237, Pages 310–324, 2013.
Impact Factor: 7.467

45. J. Qiu, L. Cao, P. Mulligan, D. Turkoglu, S. Nagpure, **M. Canova**, A. Co, "The Potential of Using Lithium-ion Batteries for Radiation Detection", IEEE Transactions on Nuclear Science, Vol. 60, Pages 662-667, 2013.
Impact Factor: 1.428

46. F. Chiara, **M. Canova**, "A Review of Energy Consumption, Management and Recovery in Automotive Systems with Considerations on Future Trends", Proc. Inst. Mech. Engr., Part D: Journal of Automobile Engineering – Vol. 227 No. 6, Pages 914-936, 2013.
Impact Factor: 1.275

47. A. Al-Durra, **M. Canova**, S. Yurkovich, "A Real-Time Pressure Estimation Algorithm for Closed-Loop Combustion Control", Mechanical Systems and Signal Processing, Vol. 38, 411–427, 2013.
Impact Factor: 5.005

48. S. Stockar, **M. Canova**, Y. Guezennec, A. Della Torre, G. Montenegro, A. Onorati, "Modeling Wave Action Effects in IC Engine Air Path Systems: Comparison of Numerical and System Dynamics Approaches", International Journal of Engine Research, Vol. 14 No. 4, 391-408, 2013.
Impact Factor: 2.272

49. M. Muratori, **M. Canova**, Y. Guezennec: "A Spatially-Reduced Dynamic Model for the Thermal Characterization of Li-Ion Battery Cells", Int. J. Vehicle Design, Vol. 58, No. 2/3/4, pp.134–158, 2012.
Impact Factor: 0.66

50. M. Taburri, F. Chiara, **M. Canova**, Y. Y. Wang, "A Model-Based Methodology to Predict the Compressor Behavior for the Simulation of Turbocharged Engines", Prof. Inst. Mech. Engr., Part D: Journal of Automobile Engineering Vol. 226 No. 4, 560-574, 2012.
Impact Factor: 1.275

51. M. Taburri, L. Fiorentini, F. Chiara, **M. Canova**, Y.Y. Wang, "Modeling and Analysis of a Turbocharged Diesel Engine with Variable Geometry Compressor System", SAE International Journal of Engines, Vol. 4, No. 2, 2011.
Impact Factor: N/A

52. S. Stockar, V. Marano, **M. Canova**, G. Rizzoni, L. Guzzella: "Energy-Optimal Control of Plug-in Hybrid Electric Vehicles for Real-World Driving Cycles", IEEE Transactions on Vehicular Technology, Vol. 60, No. 3, 2011.
Impact Factor: 5.339

53. A. Al-Durra, **M. Canova**, S. Yurkovich: "A Model-Based Methodology for Real-Time Estimation of Diesel Engine Cylinder Pressure", ASME Journal of Dynamic Systems, Measurement, and Control, Volume 133, Issue 3, 2011.
Impact Factor: 1.466

54. M. Hsieh, J. Wang, **M. Canova**: "Two-Level Model Predictive Control for Lean NOx Trap Regenerations", ASME Journal of Dynamic Systems, Measurement, and Control, Volume 132, Issue 4, 2010.

55. *Impact Factor: 1.466*
M. Canova, F. Chiara, G. Rizzoni, Y. Wang: "Design and Validation of a Control-Oriented Model of a Diesel Engine with Two-Stage Turbocharger", SAE International Journal of Fuels and Lubricants, Vol. 2, Pages 387-397, 2010.
Impact Factor: N/A

56. **M. Canova**, S. Midlam-Mohler, P. Pisu, A. Soliman: "Model-Based Fault Detection and Isolation for a Diesel Lean NOx Trap Aftertreatment System", Control Engineering Practice Volume 18, Issue 11, 2010.
Impact Factor: 3.232

57. **M. Canova**, Y. Guezennec, S. Yurkovich: "On the Control of Engine Start/Stop Dynamics in a Hybrid Electric Vehicle", ASME Journal of Dynamic Systems, Measurement and Control Vol. 131, 2009.
    Impact Factor: 1.466

58. M. Hsieh, **M. Canova**, J. Wang: "Model Predictive Control Approach for AFR Control During Lean NOx Trap Regenerations", SAE International Journal of Fuels and Lubricants, Vol. 2, Pages 149-157, 2009.
    Impact Factor: N/A

59. F. Chiara, **M. Canova**: "Mixed-Mode HCCI-DI Combustion on Common Rail Diesel Engines: an Experimental Characterization", International Journal of Engine Research, Vol. 10, pp. 81-96 (2009).
    Impact Factor: 2.272

60. **M. Canova**, S. Midlam-Mohler, Y. Guezennec, G. Rizzoni: "Mean Value Modeling and Analysis of HCCI Diesel Engines with External Mixture Formation", ASME Journal of Dynamic Systems, Measurement and Control, Vol. 131, No. 11, 2009.
    Impact Factor: 1.466

61. **M. Canova**, S. Midlam-Mohler, Y. Guezennec, G. Rizzoni: "Theoretical and Experimental Investigation on Diesel HCCI Combustion with External Mixture Formation", Int. J. Vehicle Design, Vol. 44, No. 1/2, 2007.
    Impact Factor: 0.66

62. **M. Canova**: "A Development and Validation of a Control-Oriented Library for the Simulation of Automotive Engines", International Journal of Engine Research, Vol. 5, No. 3, 2004.
    Impact Factor: 2.272

PEER-REVIEWED CONFERENCE PROCEEDINGS

1. Y. Liang, A. Emadi, O. Gross, C. Vidal, M. Canova, S. Panchal, P. Kollmeyer, M. Naguib, F. Khanum, "A comparative study between physics-based, electrical, and data-driven lithium-ion battery voltage modelling approaches", SAE Technical Paper 2022-01-0700, 2022.

2. D. Seals, P. Ramesh, M. D'Arpino, M. Canova, "Physics-Based Equivalent Circuit Model for Lithium-Ion Cells via Reduction and Approximation of Electrochemical Model", SAE Technical Paper 2022-01-0701, 2022.

3. D. Kibalama, Y. Liu, S. Stockar, M. Canova, "Model Predictive Control for Automotive Climate Control Systems via Value Function Approximation", Proc. Of American Control Conference, 2022.

4. Z. Salyer, M. D'Arpino, M. Canova, Y. Guezennec, "Optimal Health-Conscious Fast Charging of Lithium Ion Batteries", Proc. Of Modeling, Estimation and Control Conference (MECC), 2021.

5. S. Gupta, M. Canova, "Eco-Driving of Connected and Autonomous Vehicles with Sequence-to-Sequence Prediction of Target Vehicle Velocity", Proc. IFAC Workshop on Engine and Powertrain Control Simulation and Modeling (ECOSM), 2021.

6. Z. Zhu, S. Gupta, N. Pivaro, S. Rajakumar Deshpande, M. Canova, "A GPU Implementation of a Look-Ahead Optimal Controller for Eco-Driving Based on Dynamic Programming", Proc. Of European Control Conference, 2021

7. S. Rajakumar Deshpande, S. Gupta, D. Kibalama, N. Pivaro, M. Canova, K. Aggoune, P. Olin, "In-Vehicle Test Results for Advanced Propulsion and Vehicle System Controls using Connected and Automated Vehicle Information", SAE Technical Paper No. 2021-01-0430, 2021

8. S. Rajakumar Deshpande, S. Gupta, D. Kibalama, N. Pivaro, M. Canova, "Benchmarking Fuel Economy of Connected and Automated Vehicles in Real World Driving Conditions via Monte Carlo Simulation", Proc. Of ASME Dynamic Systems and Control Conference, 2020.

9. Z. Salyer, M. D'Arpino, M. Canova, "Extended Physics-based Reduced-Order Capacity Fade model for Lithium Ion Battery Cells", Proc. Of ASME Dynamic Systems and Control Conference, 2020.

10. D. Freudiger, M. D'Arpino, M. Canova, "Optimal Energy and Thermal Management of Hybrid Battery Packs Using Convex Optimization", Proc. Of American Control Conference, 2020.

11. Z. Zhu, Y. Liu, M. Canova, "Energy Management of Hybrid Electric Vehicles via Deep Q-Networks", Proc. Of American Control Conference, 2020.

12. Sergent, A., Ramunno, M., D'Arpino, M., Canova, M., Perullo, C., "Optimal Design and Control of Battery Energy Storage Systems for Hybrid Turbo-Electric Aircraft". SAE Technical Paper No. 2020-01-0050, 2020.

13. Brodsky, P., Canova, M., Kim, J. H., Ramesh, P., Bae, C., Deng, J., & Park, H. Calibration of Electrochemical Models for Li-ion Battery Cells Using Three-Electrode Testing. SAE Technical Paper No. 2020-01-1184, 2020.

14. D'Arpino, M., Cancian, M., Sergent, A., Canova, M., Perullo, C.., "A Simulation Tool for Turbo-Hybrid-Electric Aircraft Battery Life Prediction for the NASA ULI Program". AIAA/IEEE Electric Aircraft Technologies Symposium (EATS), pp. 1-9, 2019.

15. P. Olin, K. Aggoune, J. Kirwan, S. Rajakumar Deshpande, M. Canova, G. Rizzoni, "Intelligent Driving through Advanced Propulsion System Control to Reduce Fuel Consumption". 28th Aachen Colloquium Automobile and Engine Technology, 2019.

16. C. Perullo, A. Alahmad, J. Wen, M. D'Arpino, M. Canova, D. Mavris, M. Benzakein, "Sizing and Performance Analysis of a Turbo-Hybrid-Electric Regional Jet for the NASA ULI Program", AIAA Propulsion and Energy Forum, 2019.

17. C. Rostiti, M. Canova, A. Serrani, E. Hellström, B. Xiao, "Inverse Model Allocation for Optimized Coordination of a Turbocharged SI Engine with Electric Supercharger", Proc. American Control Conference, 2019.

18. D. Freudiger, M. D'Arpino, M. Canova, "A Generalized Equivalent Circuit Model for Design Exploration of Li-Ion Battery Packs Using Data Analytics", Proc. 9th IFAC International Symposium on Advances in Automotive Control (AAC), 2019.

19. S. Gupta, S. Rajakumar Deshpande, P. Tulpule, M. Canova, G. Rizzoni, "An Enhanced Driver Model for Evaluating Fuel Economy on Real-World Routes", Proc. 9th IFAC International Symposium on Advances in Automotive Control (AAC), 2019.

20. C. Rostiti, M. Canova, "Model Order Reduction for Control of Engine Thermal Management Systems Using Singular Perturbation", Proc. 9th IFAC International Symposium on Advances in Automotive Control (AAC), 2019.

21. P. Olin, K. Aggoune, L. Tang, K. Confer, J. Kirwan, S. Rajakumar Deshpande, S. Gupta, P. Tulpule, M. Canova, G. Rizzoni, "Reducing Fuel Consumption by Using Information from Connected and Automated Vehicle Modules to Optimize Propulsion System Control". SAE Technical Paper 2019-01-1213, 2019.

22. A. Misley, A. Taylor, M. Canova, S. Marelli, M. Capobianco, "A Physics-Based, Control-Oriented Turbocharger Compressor Model for the Prediction of Pressure Ratio at the Limit of Stable Operations", SAE Technical Paper 2019-01-0320, 2019.

23. Z. Zhu, M. Canova, S. Midlam-Mohler, "A Physics-Based Three-Way Catalytic Converter Model for Real-Time Prediction of Light-Off Temperatures", Proc. IFAC Workshop on Engine and Powertrain Control Simulation and Modeling (ECOSM), 2018.

24. Y. Liu, M. Canova, and Y.Y. Wang, "Distributed Model Predictive Control of an Electrically Boosted Diesel Engine Air Path System," American Control Conference, 2018.

25. A. Misley, A. Taylor, P. Silvestri, S. Marelli, M. Capobianco, M. Canova, "Experimental Investigation on Surge Phenomena in an Automotive Turbocharger Compressor", SAE Technical Paper 2018-01-0976, 2018.

26. M. Canova, C. Rostiti, L. D'Avico, S. Stockar, G. Chen, M. Prucka, H. Dourra. "Model-Based Wheel Torque and Backlash Estimation for Drivability Control." SAE Technical Paper 2017-01-1111, 2017.

27. P. Brodsky, G. Fan, M. Canova, "Battery Pack Design and Optimization for the OSU Buckeye Current 2016 Electric Racing Motorcycle", Proc. of IEEE Electrical Systems for Aircraft, Railway, Ship Propulsion and Road Vehicles & International Transportation Electrification Conference (ESARS-ITEC), International Conference, 2016.

28. Y. Liu, J. Zhou, L. Fiorentini, M. Canova, Y-Y. Wang, "Control of a Two-Stage Turbocharged Diesel Engine Air Path System for Mode Transition via Feedback Linearization", Proc. of American Control Conference, 2016.

29. S. Stockar, M. Canova, B. Xiao, W. Dai, J. Buckland, "Modeling for Estimation of Wave Action in Multi-Cylinder Turbocharged SI Engines", IFAC Symposium on Advances in Automotive Control, 2016.

30. S. Stockar, M. Canova, B. Xiao, W. Dai, J. Buckland, "Fast Simulation of Wave Action in Engine Air Path Systems Using Model Order Reduction", SAE Technical Paper 2016-01-0572.

31. G. Fan, K. Pan, M. Canova, "A comparison of model order reduction techniques for electrochemical characterization of Lithium-ion batteries." IEEE Conference on Decision and Control (CDC), 2015.

32. G. Fan, M. Canova, "Model Order Reduction of Electrochemical Batteries Using Galerkin Method", Proc. of ASME Dynamic Systems and Control Conference, 2015.

33. M. Crialesi-Esposito, N. Pompini, A. Gambarotta, V. Chandrasekaran, J. Zhou, M. Canova, "Nonlinear Model Predictive Control of an Organic Rankine Cycle for Exhaust Waste Heat Recovery in Automotive Engines", Proc. IFAC Workshop on Engine and Powertrain Control Simulation and Modeling (ECOSM), 2015.

34. Y. Liu, J. Zhou, L. Fiorentini, M. Canova, "Model Predictive Control of a Two-Stage Turbocharged Diesel Engine Air Path System for Rapid Catalyst Warm-Up", European Control Conference, 2015;

35. J. Zhou, M. Canova, A. Serrani, "Non-Intrusive Reference Governors for Over-Actuated Constrained Linear Systems", European Control Conference, 2015;

36. J. Zhou, M. Canova, A. Serrani, "Stability and Feasibility of Predictive Inverse Model Allocation for Constrained Over-actuated Linear Systems", American Control Conference, 2015.

37. M. Naddeo, Y. Liu, J. Zhou, M. Canova, "A Scalable Modeling Approach for the Simulation and Design Optimization of Automotive Turbochargers", SAE Paper 2015-01-1288, 2015.

38. Rostiti, C., Stockar, S., and Canova, M., "A Rule-Based Control for Fuel-Efficient Automotive Air Conditioning Systems", SAE Technical Paper 2015-01-0366, 2015.

39. A. Bonnell-Kangas, P. Brodsky, J. Cline, N. Lord, M. Canova, "System Design and Optimization of The Ohio State University Electric Motorcycle for the 2014 Isle of Man TT Zero Race", Stuttgart International Symposium on Automotive and Engine Technology, 2015.

40. M. Crialesi-Esposito, N. Pompini, A. Gambarotta, M. Canova, "A Switching Moving Boundary Model for the Simulation of ORC Plants in Automotive Applications" Stuttgart International Symposium on Automotive and Engine Technology, 2015.

41. J. Zhou, M. Canova, A. Serrani, "On the Stability of Predictive Inverse Model Allocation for Constrained Over-actuated Linear Systems", IEEE Conference on Decision and Control, December 2014.

42. G. Fan, K. Pan, A. Bartlett, G. Rizzoni, M. Canova, "Electrochemical-Thermal Modeling of Li-ion Battery Packs", Proc. of ASME Dynamic Systems and Control Conference 2014.

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PATENTS AND PATENT APPLICATIONS

1. "Segmented Route Optimization for Reduced Vehicle Energy Consumption", Invention filed on 04/2020 as Trade Secret (OSU Reference Number T2020-290). Inventors: Karim Aggoune, Peter M. Olin, Daniela Tufano, Marcello Canova, Shreshta Rajakumar Deshpande, Shobhit Gupta.

2. "Systems and Methods for Eco-Approach and Departure at a Signalized Intersection using Vehicle Dynamics and Powertrain Control with Multiple Horizon Optimization". Inventors: Karim Aggoune, Peter M. Olin, Daniela Tufano, Marcello Canova, Shreshta Rajakumar Deshpande, Shobhit Gupta.

3. "Methods to Reduce Computation Time of Dynamic Programming", Invention filed on 12/2019 as Trade Secret (OSU Reference Number T2020-289). Inventors: Punit Tulpule, Marcello Canova, Shreshta Rajakumar Deshpande, Shobhit Gupta, Jeremy Kraenzlein.

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MEMBERSHIPS AND PARTICIPATION TO PROFESSIONAL SOCIETIES

Journal Editing:

1. ASME Journal of Intelligent Vehicles and Systems – Associate Editor (June 2020 – Present).

2. ASME Journal of Dynamic Systems, Measurement and Control – Associate Editor for Special Issue "Optimal Energy Management and Control in Connected and Automated Vehicles (CAVs)" (Oct 2020 – Dec 2021).

Panelist and Reviewer:

3. National Science Foundation - Dynamics, Control and System Diagnostics Program (CMMI), since 2015 - 1 panels/year.

4. National Science Foundation - SBIR Program (CMMI), since 2016 – 1 panel/year.

5.   ARPA-E – Panelist and Reviewer for (OPEN 2018, REEACH Solicitations).
6.   US Department of Energy – Reviewer for DOE EERE Annual Merit Review.
7.   ORAU – Reviewer for Ralph Power Junior Faculty Award

Conference Organizing Committees:
8.   NOC Vice Chair: 2022 IFAC Automotive Control Conference, Columbus, OH.
9.   Organizing Committee Member: 2015 IFAC E-COSM Conference, Columbus, OH, 2015/08/14 – 2015/08/16
10. Students and Young Members Chair: 2015 ASME Dynamic Systems and Control Conference, Columbus, OH, 2015/10/28 – 2015/10/30.
11. Industry Chair: 2017 ASME Dynamic Systems and Control Conference, Tysons Corner, VA, 2017/10/11-13.

Conference Editorial Boards:
6.   Vice Chair, Conference Editorial Board of ASME Dynamic Systems and Control Division, since 2019.
7.   Associate Editor, Conference Editorial Board of ASME Dynamic Systems and Control Division, 2012-2019.
8.   Associate Editor, American Control Conference, since 2012.
9.   Associate Editor, ASME Dynamic Systems and Control Conference, (Associate Editor for Invited Sessions, since 2013.
10. Chair/Organizer, Engine Boosting Systems Sessions (PFL-520), SAE World Congress, since 2012.

Technical Committees:
11. Chair, Automotive and Transportation Systems Technical Committee (ASME), 2018-2020.
12. Vice-Chair, Automotive and Transportation Systems Technical Committee (ASME), 2016-2018;
13. Secretary, Automotive and Transportation Systems Technical Committee (ASME), 2014-2016;
14. Invited Sessions Organizer, Automotive and Transportation Systems Technical Committee (ASME), 2012-2014;
15. Member, Technical Committee on Automotive Control (IFAC), since 2012;
16. Member, SAE New Engines, Components, Actuators and Sensors Committee, since 2015.

Reviewer:
11. ASME Journal of Dynamic Systems, Measurements and Controls
12. IEEE Transactions on Control Systems Technology
13. IEEE Transactions on Vehicular Technologies
14. Journal of Power Sources
15. Journal of Energy Storage
16. Journal of the Electrochemical Society
17. International Journal of Engine Research

Membership to Professional Organizations:
18. Member, Society of Automotive Engineers (SAE), since 2004
19. Member, American Society of Mechanical Engineers (ASME), since 2004
20. Member, International Federation of Automatic Control (IFAC), since 2006