CURRICULUM VITAE OF GIORGIO RIZZONI

The Ford Motor Company Chair in ElectroMechanical Systems
Director, Center for Automotive Research
Professor, Department of Mechanical and Aerospace Engineering
Professor, Department of Electrical and Computer Engineering
Member of the Graduate Faculty: Aerospace Engineering, Nuclear Engineering

The Ohio State University

January 2024

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https://car.osu.edu/about-center-automotive-research/2023-annual-report

THE OHIO STATE UNIVERSITY
CENTER FOR AUTOMOTIVE RESEARCH

Overview

Giorgio Rizzoni, the Ford Motor Company Chair in ElectroMechanical Systems, is a Professor of Mechanical and Aerospace Engineering and of Electrical and Computer Engineering at The Ohio State University (OSU). Since 1999, he has been the Director of the Center for Automotive Research (CAR), an interdisciplinary university research center in Ohio State's College of Engineering.

Prof. Rizzoni's research activities are related to modeling, control and diagnosis of advanced propulsion systems, vehicle fault diagnosis and prognosis, electrified powertrains and energy storage systems, vehicle safety and intelligence, and sustainable mobility. He has contributed to the development of graduate curricula in these areas and has served as the director of three U.S. Department of Energy (DOE) Graduate Automotive Technology Education Centers of Excellence. Between 2011 and 2016, he served as the Ohio State Site Director for the DOE China-USA Clean Energy Research Center on Clean Vehicles. He is currently leading an ARPA-E project in the NEXTCAR program.

During his career at Ohio State, Prof. Rizzoni has directed externally sponsored research projects funded by major government agencies and by the automotive industry in approximately equal proportion. Prof. Rizzoni is a Fellow of ASME (2022), SAE (2005) and a Life Fellow of IEEE (Fellow, 2004; Life Fellow, 2023), and a recipient of the 1991 National Science Foundation Presidential Young Investigator Award, in addition to many other technical and teaching awards.

Background

I. Personal

Born in Bologna, Italy, on Oct. 8, 1958. Married, three children. Naturalized US citizen.

II. Education

The University of Michigan at Ann Arbor, Michigan.

Ph.D. in Electrical and Computer Engineering, May 1986.
Dissertation: A Dynamic Model for the Internal Combustion Engine
Advisor: Prof. William B. Ribbens

M.S. in Electrical and Computer Engineering, April 1982.
Thesis: Design of a Sub-Nanosecond Pulse Amplifier for an Electro-Optic Modulator
Advisor: Prof. William B. Ribbens

B.S. in Electrical and Computer Engineering, August 1980.

Liceo Classico Convitto Nazionale Vittorio Emanuele II at Roma, Italy.
Diploma di Maturità Classica, July 1976.

III. Experience

The Ohio State University at Columbus, Ohio

Professor, Department of Mechanical (and Aerospace) Engineering, October 2000 to present.

Professor, Department of Electrical and Computer Engineering, October 2002 to present.

  Director, Center for Automotive Research, September 1999 to present.

  Member of the Graduate Faculty, Aerospace Engineering, October 2012 to present.

  Member of the Graduate Faculty, Nuclear Engineering, October 1995 to present.

  Adjunct Professor, Department of Design, 2002 to 2010.

Associate Professor, Department of Mechanical Engineering, October 1995 to September 2000.

Assistant Professor, Department of Mechanical Engineering, October 1990 to September 1995.

Visiting Scholar (while on professional leave from OSU)

Visiting Professor, January to June 2007.
  Dipartimento di Elettronica e Informazione, Politecnico di Milano, Italy
  Dipartimento di Meccanica, Politecnico di Torino, Italy

Visiting Professor, Department of Mechanical Engineering, Swiss Federal Institute of Technology (ETHZ), Zürich, Switzerland, May to June 1998.

Visiting Professor, Università di Bologna (DIEM), Italy, September to November 1997.

Visiting Research Scientist, Italian National Agency for Technology, Energy and the Environment (ENEA), September to November 1997.

Visiting Lecturer and Research Scientist, Università di Bologna (DIEM), Italy, September to November 1997, December 1995 to January 1996, September 1994, March 1993, September 1991 and June 1990.

University of Michigan at Ann Arbor, MI

Research Fellow, Assistant Research Scientist and Adjunct Lecturer, Department of Electrical Engineering and Computer Science, January 1986 to August 1990.

Assistant Director, Vehicular Electronics Laboratory, January 1986 to August 1990.

IV. Honors and Awards

Mentor of the Next Generation Award, College of Engineering, The Ohio State University, April 2025.

Distinguished Graduate Faculty Award, Department of Mechanical and Aerospace Engineering, The Ohio State University, April 2024 and April 2016.
This award recognizes exceptional support and guidance to graduate students in classroom teaching, curriculum development, thesis advising and professional development.

Life Fellow, Institute of Electrical and Electronic Engineers, 2023.

Best Presentation Award given by Automotive SPIN Italia for a virtual presentation on May 30, 2023 at the 21st Workshop on Automotive Software & Systems.

Fellow, American Society of Mechanical Engineers, 2022.

Faculty Mentoring Award, College of Engineering, The Ohio State University, May 2021.
This award is presented to a College of Engineering faculty member who has demonstrated excellence in mentoring one or more early-career college faculty members.

The Clara M. and Peter L. Scott Faculty Award for Excellence in Engineering Education, College of Engineering, The Ohio State University, May 2017.
This award recognizes a senior faculty member who has achieved both national and international status as a leading educator and researcher.

FKFS Medal of Merit, Research Institute of Auto Engineering & Vehicle Engines (FKFS), 2017.
Founded in 1930, FKFS is affiliated with the University of Stuttgart, Germany. This Medal is awarded to a member of the FKFS Advisory Board in recognition of outstanding achievements, particularly economic, political, scientific and social services, which support the institute.

Best Paper Award for "Dynamic Modeling for Electric Vehicle Land Speed Record Performance Prediction," co-authored with M. D'Arpino, M. Villing and J. Chrstos, IEEE Transportation Electrification Conference and Exposition, Asia-Pacific (ITEC Asia-Pacific), August 2017.

Lumley Interdisciplinary Research Award, College of Engineering, Ohio State, May 2012.
Awarded to 11 COE faculty; for research in electrochemical energy storage systems.

TechColumbus Innovation Awards, Outstanding Technology Team, 2011.
Selected from 23 nominations. The team included G. Rizzoni, Y. Guezennec, S. Onori, S. Midlam-Mohler, J. Neal from CAR, Ken Dudek, Robert Lane from CAR Technologies LLC.

Best Paper Award for "PEVs Market Penetration and Impact on Fuel Taxes," co-authored with V. Marano and M. Muratori, 24th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS) 2011.

Guest Professor, Hefei University of Technology, Hefei, Anhui, China, November 2010.

Excellence in Teaching Award, Department of Mechanical Engineering, The Ohio State University, May 2010, May 2005, May 1993.

NSF Outstanding Long-Term Faculty Advisor Award, ChallengeX, June 2007.
The award included a $15,000 check in support of the ChallengeX team.

ASME Dynamic Systems and Control Division Best Student Paper Award for "Analysis and Evaluation of a Two-Engine Configuration in a Series Hybrid Electric Vehicle," co-authored with Ph.D. student Lorenzo Serrao, ASME, IMECE, November 2006.

SAE Award for Excellence in Oral Presentation, SAE International Congress and Exposition, Detroit, MI, April 2005, February 1996.

Fellow, Society of Automotive Engineers, "for the development and application of model-based powertrain control and diagnostic methods for passenger and commercial vehicles, including hybrid-electric and fuel cell vehicles," January 2005.

Fellow, Institute of Electrical and Electronic Engineers, "for leadership in automotive control systems," January 2004.

Best Paper Award for "Model-Based Sensor Fault Detection and Isolation in a Steer-By-Wire System with Parameter Uncertainties," FISITA World Automotive Congress, Barcelona, Spain, May 2004.

SAE Myers Award for Outstanding Student Paper for "New Model for Simulating the Dynamics of Pneumatic Heavy Truck Brakes with Integrated Anti-Lock Control," co-authored with doctoral student Ashley L. Dunn and published as *2003-01-1322*, *SAE Transactions, Journal of Commercial Vehicles.*

Lumley Interdisciplinary Research Award, College of Engineering, The Ohio State University, May 2002, with Y. Guezennec, A. Soliman, V. Utkin, G. Washington and S. Yurkovich, for research in hybrid electric vehicles.

The Ford Motor Company Chair in Electromechanical Systems, The Ohio State University, July 2002 to present.

Stanley Harrison Award for Excellence in Engineering Education*, College of Engineering, The Ohio State University, May 1996.
   One award annually to recognize a faculty member's excellence in teaching and research.

Technical Person of the Year Award, Columbus Technical Council, April 1995.

Best Paper Award for "A New Generation of On-Board and Service Diagnostics for Passenger Vehicles," co-authored with V. Krishnaswami and A. Soliman, FISITA World Automotive Congress, Beijing, China, 1994.

Ralph R. Teetor Educational Award, Society of Automotive Engineers, 1992.

NSF Presidential Young Investigator, 1991 – 1996.

Tau Beta Pi Outstanding Teaching Award, College of Engineering, University of Michigan, April 1990.

Special Commendation for Excellence in Teaching, College of Engineering, the University of Michigan, 1988, 1989 and 1990.

Distinguished Achievement as Teaching Assistant Award, EECS Department, the University of Michigan, April 1980.

V. Editorships

Editorial Board, *International Journal of Powertrains*, 2011 – present.

Guest Editor (with Y.A. Vershinin and V. Utkin), Special Issue: Advanced Control Systems in Automotive Applications, *Int. J. Modelling, Identification and Control*, 2008**,** 3, 3.

Associate Editor (Transportation), *Transactions of the ASME, Journal of Dynamic Systems, Measurements and Control*, 1993 – 1999.

Associate Editor (Vehicle Electronics, ITS), *IEEE Transactions on Vehicular Technology*, 1988 – 1998.

Editor, *Proceedings of the ASME Dynamic Systems and Control Division*, IMECE, Dallas, TX, 1997.

Guest Editor, Special Issue: Powertrain Control, *IEEE Control Systems Magazine*, 1998.

Editorial Consultant, SAE Motorsports CD-ROM, 1998.

Editor, Proceedings of IFAC Workshop: *Advances in Automotive Control,* Mohican State Park, OH, February 1998.

Guest Editor, Special Section: Advances in Automotive Control, *Control Engineering Practice*, August 1999.

Guest Editor, Special Section: Hybrid Electric Vehicles, *IEEE Transactions on Vehicular Technology*, November 1999.

Guest Editor, Special Issue: Automotive Control, *IEEE Transactions on Control Systems Technology*, 1995, 3, 1.

Organizer and Proceedings Editor, Third ASME Symposium on Transportation Systems, Anaheim, CA, November 1992.

Reviewer for numerous conferences/symposia organized by ASME, IEEE, IFAC and SAE.

Reviewer for many IEEE, ASME, IFAC and other journals.

VI. Professional Service

Host, General Chair & Planning Committee, SAE Energy & Propulsion Conference, Columbus, OH, November 2024.

Planning Committee, Ohio State's Third Annual Sustainable Aviation Forum, Columbus, OH, October 2024.

Co-Chair, 4th Conference on Sustainable Mobility, Catania, Italy, September 2024.

Scientific & Advisory Committee, THIESEL 2024 Conference on Thermo and Fluid Dynamics Process for Clean Propulsion Powerplants, Valencia, Spain, September 2024.

Advisory Board, CTI Symposium, Novi, MI, May 2024.

Advisory Board, Politecnico di Torino Doctoral Program in Energy Systems, 2023 – present.

Chair, National Organizing Committee, International Federation of Automatic Control (IFAC) – Advances in Automotive Control (AAC), Columbus, OH, August 2022.

Chair, External Advisory Board, Oak Ridge National Laboratory (ORNL) National Transportation Research Center (NTRC), 2019 – present.

Executive Committee, SAE Commercial Vehicle Conference, 2018 – present.

Board of Advisors, Swedish ElectroMobility Center, National Center of Excellence for Electromobility, 2018 – present.

Reviewer, National Academy of Engineering Report, Assessment of Technologies for Improving Fuel Economy of Light-Duty Vehicles – Phase 3.

General Chair, IFAC Workshop on Engine and Powertrain Control, Simulation and Modeling (E-COSM), Columbus, OH, August 2015.

General Chair, American Society of Mechanical Engineers (ASME) – Dynamic Systems and Control Conference, Columbus, OH, October 2015.

General Chair, IFAC E-COSM, Paris, October 2012.

Executive Committee, **Technical Committee**, IFAC, 2002 – present.

Selection Committee, IFAC Industrial Achievement Award, 2014 – 2017.

Technical Team, US DRIVE Vehicle Systems Analysis (VSATT), August 2013 – 2017.

Board of Trustees of Forschungsinstitut für Kraftfahrtwesen und Fahrzeugmotoren (FKFS) at University of Stuttgart, November 2012 – present.

Board Member, Ohio Plug-in EV Readiness Consortium, 2011 – 2013.

Operating Board, Central OH Hub of Innovation for Energy Storage & Mfg, 2010 – 2012.

Executive Committee, Ohio Fuel Cell Coalition, 2005 – 2006.

Special Task Force on Federal Funding for Fuel Cell Research, appointed by Science Advisor to the Governor of Ohio, 2005.

Chair, ASME Dynamic Systems and Control Division Executive Committee, 2003 – 2004.

Review Board, US DOE Advanced Combustion and Emissions, 2003 – 2005.

Advisory Panel, Engine and Exhaust Emissions Research Laboratory, ORNL, 2003 – 2004.

Executive Committee, ASME Dynamic Systems and Control Division, 2000 – 2008.

Chair, IFAC Technical Committee on Automotive Control, 1999 – 2002.

Review Panelist, NSF SBIR program, September 2002, Washington, DC.

Review Committee, ME Graduate Programs, Università di Bologna, September 2002.

Scientific Advisory Board, Italian Nat'l Research Council, Istituto Motori, 1998 – 2002.

ASME IMECE Representative, Dynamic Systems and Control Division, 1997.

Chair, Transportation Technical Committee, ASME Dynamic Systems and Control Division, 1993 – 1995.

Organizer and General Chair, Second IFAC Workshop "Advances in Automotive Control," Mohican State Park, Loudonville, OH, March 1998.

VII. Service to The Ohio State University (since 1998)

Service to the University at Large

NSF TIP UMETRICS Advisory Board, The Ohio State University, October 2023 – present.

Principal Investigator, R&D Council Chair, Electrified Mobility Innovation Engine (EMIE) proposed to the NSF, December 2021 – August 2023. Engaged leaders across MI, OH, IN, KY and TN, the American automotive heartland, in an effort to propel electrified mobility technology forward in the US. Institutions engaged include:

- Ohio State, Michigan State, Purdue, the University of Kentucky and the University of Tennessee (the five land-grant state universities in the region).
- Community colleges and vocational/technical schools.
- Technology accelerators and incubators.
- State and local governments.
- Federally funded research labs (including NASA Glenn and AFRL at WPAFB).
- Small, medium and enterprise-level industries across our region.

Planning Team, H2 Hub, 2022.

Lead, Advanced Air Mobility Initiative, The Ohio State University, September 2021 – present.

Academic Collaboration Council, OSU Energy, October 2017 – present.

Faculty Advisory Committee, OSU China Gateway, September 2016 – 2019.

Core Implementation Team, Discovery Themes: Materials for A Sustainable World, 2014 – 2019; Faculty Advisory Committee, Energy & Environment Theme, 2013.

Faculty Advisory Committee, Subsurface Energy Resources Center (SERC), January 2013 – 2020.

Faculty Advisory Committee, Institute for Energy and Environment, 2008 – present.

Chair, Institute for Energy and Environment, Director Search Committee, 2008 – 2009.

Faculty Advisory Committee, Center for Energy, Sustainability and the Environment, 2008 – 2011.

Advisory Board, Fisher College of Business Center for Operational Excellence, 2007 – 2018.

Production Advisory Committee, Ohio Supercomputer Center, 2005 – 2009.

Executive Committee, NSF IGERT at OSU – Molecular Engineering of Micro Devices, 2002 – 2004.

Service to the College of Engineering

Director, Center for Automotive Research, 1999 – present.

Research Committee (re-organized to include Center Directors), September 2013 – present.

CEMAS Faculty Advisory Committee, 2023 – present.

ESL Director Search Committee, 2023 & 2024.

Center Directors Committee, 2012 – 2013.

Task Force: Space Planning, 2012.

Task Force: Ground Transportation, 2012.

Task Force: Communications, Autumn 2011.

Budget Committee, 2007 – 2011.

Executive Committee, 2006 – 2012.

Energy Committee, Targeted Investment in Excellence, 2006 – 2008.

Strategic Planning Committee, 2005 – 2006.

Search Committee, Aerospace Engineering Department Chair, 2005.

Search Committee, College of Engineering Dean, 2004 – 2005.

Search Committee, Electrical Engineering Department Chair, 2004.

Faculty Professional Leave Committee, 1999 – 2001.

Advisory Committee, College Student Projects, 1998 – present.

Search Committee, College of Engineering Dean, 1998 – 1999.

Service to the Mechanical and Aerospace Engineering Department

Promotion and Tenure Committee, 2016 – present.

Chair, Ohio Eminent Scholar & Winbigler Chair in Mechanical Systems Search Committee, 2024 – 2025.

Search Committee, DS Faculty, 2021 – 2022.

Chair, MAE/CAR Faculty Search Committee, academic years 2012 – 2016.

Qualifying Exam Committee, Graduate Program, 2011 – 2022.

Promotion and Tenure Committee, 2001 – 2003.
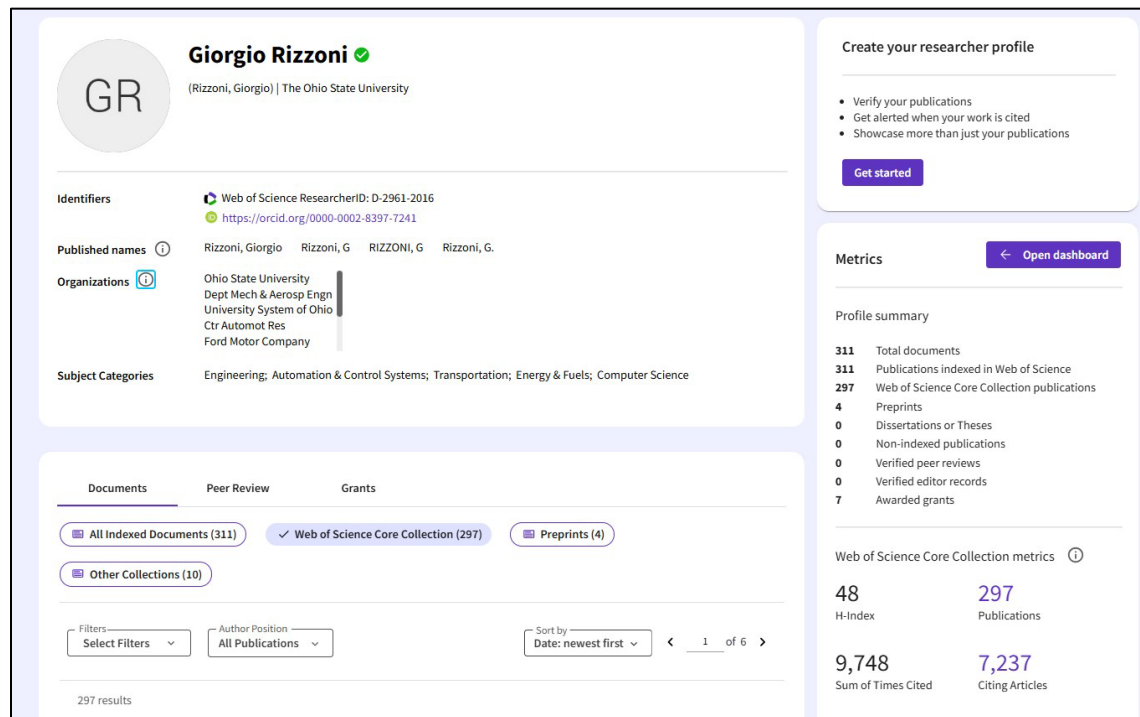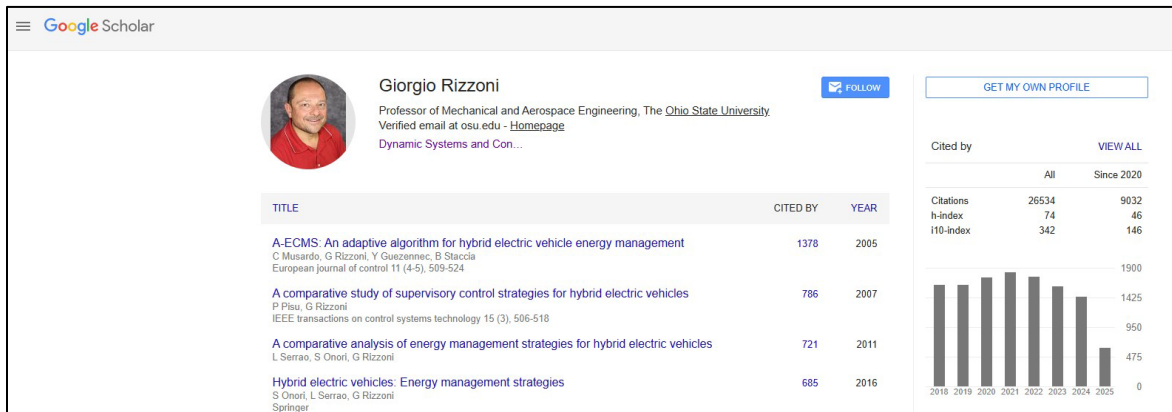
Capital Campaign Committee, 1998 – 2001.
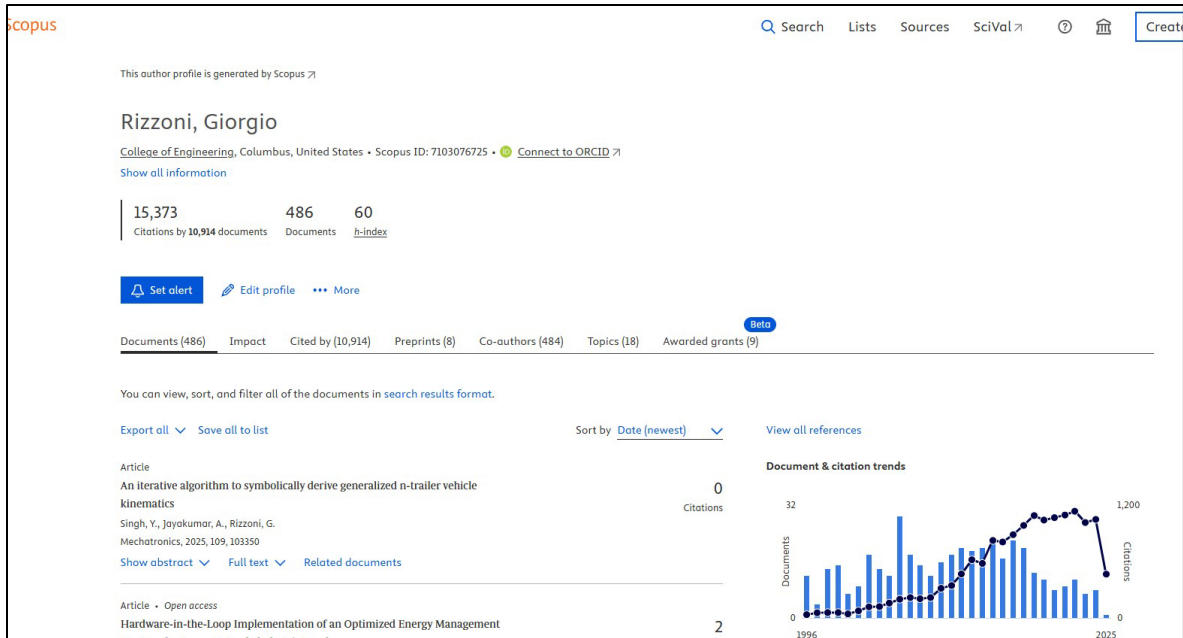
Honors and Awards Committee, 1998 – 2000.

Publications

I. Productivity and Impact Summary

Google Scholar h-index: 74   ●   Web of Science h-index: 48   ●   SCOPUS h-index: 60

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Article
An iterative algorithm to symbolically derive generalized n-trailer vehicle kinematics
Singh, Y., Jayakumar, A., Rizzoni, G.
Mechatronics, 2025, 109, 103350

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2

II. Books

Books and Monographs

1. Rizzoni, G., Kearns, J.A. *Principles and Applications of Electrical Engineering*, Seventh Edition; McGraw-Hill: New York, 2022, 1134 pp. (ISBN 978-0-07-352959-2)
   Various editions of this book have been translated into Chinese, Korean, Spanish, Italian, Portuguese and Greek.

2. Rizzoni, G., Kearns, J.A. *Fundamentals of Electrical Engineering*, Second Edition, McGraw-Hill: New York, 2022, 800 pp. (ISBN 978-0-07-338056-8)
   Various editions of this book have been translated into Chinese, Korean, Spanish, Italian, Portuguese and Greek.

3. Onori, S., Serrao, L., Rizzoni, G. *Hybrid Electric Vehicles: Energy Management Strategies*, Springer: New York, 2016, 1134 pp. (ISBN 978-1-4471-6779-2)

4. Rizzoni G., Kearns, J.A. *Principles and Applications of Electrical Engineering*, Sixth Edition, McGraw-Hill: New York, 2015, 1152 pp. (ISBN 978-0-07-352959-2)

5. Rizzoni, G. *Fundamentals of Electrical Engineering,* First Edition, McGraw-Hill: New York, 2009, 766 pp. (ISBN 0-07-338037-7)

6. Rizzoni, G. *Principles and Applications of Electrical Engineering*, Fifth Edition, McGraw-Hill: New York, 2005, 1134 pp. (ISBN 0-07-296298-4)

7. Rizzoni, G. *Principles and Applications of Electrical Engineering*, Fourth Edition, McGraw-Hill: New York, 2002. (ISBN 0-07-246347-3)

8. Rizzoni, G. *Principles and Applications of Electrical Engineering*, Third Edition, McGraw-Hill: New York, 1999. (ISBN 0-07-117727-2)

9. Rizzoni, G. *A Practical Introduction to Electronic Instrumentation*, Third Edition, Kendall Hunt: Dubuque, IA, 1997. (ISBN 0-7872-3576-8)

10. Rizzoni, G. *Principles and Applications of Electrical Engineering*, Second Edition, R.D. Irwin: Burr Ridge, IL, 1995. (ISBN 0-256-17770-8)

11. Rizzoni, G. *A Practical Introduction to Electronic Instrumentation*, Second Edition, Kendall Hunt: Dubuque, IA, 1994. (ISBN 0-8403-9035-1)

12. Rizzoni, G. *Principles and Applications of Electrical Engineering*, R.D. Irwin: Burr Ridge, IL, 1993. (ISBN 0-256-07827-0)

13. Rizzoni, G. *A Practical Introduction to Electronic Instrumentation*, Kendall Hunt: Dubuque, IA, 1989. (ISBN 0-8403-51514-2)

Edited Books

1. Rizzoni, G. Ed. *Proceedings of 2nd IFAC Workshop – Advances in Automotive Control,* Elsevier: New York, 1998. (ISBN 0-08-043226-3)

2. Rizzoni, G. Ed. *Proceeding of Dynamic Systems and Control Division*, IMECE, ASME Press: New York, November 1997.

3. Rizzoni, G., El-Gindy, M., Wong, J., Zeid, A., Eds. *Proceedings of ASME Third Symposium on Transportation Systems,* ASME Press: New York, November 1992. (ISBN 0-7918-1119-0)

Chapters in Edited Books

1. Rizzoni, G. Powertrain Control for Hybrid-Electric and Electric Vehicles. In *Encyclopedia of Systems and Control,* Springer: New York, 2021; pp. 1761-1770. (ISBN 3-03-044185-2)

2. Rizzoni, G. Powertrain Control for Hybrid-Electric and Electric Vehicles. In *Encyclopedia of Systems and Control,* Springer: New York, 2015; pp. 1090-1098. (ISBN 978-1-4471-5058-9)

3. Khayyam, H., Kouzani, A., Nahavandi, S., Marano, V., Rizzoni, G. Intelligent Energy Management in Hybrid Electric Vehicles. In *Energy Management*; Macia Perez, F., Ed.; IntechOpen: London, 2010; pp. 147-175. (ISBN 978-953-307-065-0)

4. Rizzoni, G. Electrical Engineering. In *CRC Handbook of Mechanical Engineering*, Second Edition; Kreith, F., Goswami, D.Y., Eds; CRC Press: Boca Raton, FL, 2005; 224 pp. (ISBN 0-8493-0866-6)

5. Rizzoni, G. Electrical Engineering. In *The Mechatronics Handbook*, Bishop, R.H., Ed.; CRC Press: Boca Raton, FL, 2001; pp. 11.1-11.36.

6. Rizzoni, G. Electrical Engineering. In *CRC Handbook of Mechanical Engineering*; Kreith, F., Ed.; CRC Press: Boca Raton, FL, 1997; pp. 5.1-5.231. (ISBN 0-8493-9418-X)

7. Rizzoni, G., Ribbens, W.B., Sensors and Systems for Crankshaft Position Measurement. In *Automotive Sensory Systems*, Nwagboso, C., Ed.; Chapman and Hall: London, 1993; pp. 61-94. (ISBN 0-412-45880-2)

III. Peer-Reviewed Archival Publications

1. Singh, Y., Jayakumar, A., Rizzoni, G. An Iterative Algorithm to Symbolically Derive Generalized n-Trailer Vehicle Kinematics. *Mechatronics*, **2025**, *109*, 103350. (https://doi.org/10.1016/j.mechatronics.2025.103350)

2. Shiledar, A., Villani, M. Lucero, J.N.E., Sun, R., Sujan, V.A., Onori, S., Rizzoni, G. Assessing Geographical and Seasonal Influences on Energy Efficiency of Electric Drayage Trucks. **arXiv:2504.02575**. (https://doi.org/10.48550/arXiv.2504.02575)

3. Shiledar, A., Villani, M., Rizzoni, G. Hardware-in-the-Loop Implementation of an Optimized Energy Management Strategy for Range-Extended Electric Trucks. *Energies*, **2024**, 17(21), 5294. (https://doi.org/10.3390/en17215294**, IF 3.2**)

4. Heyer, G., D'Arpino, M., Rizzoni, G. Performance Metrics for the Comparison of Lithium Ion Cell Aging Experiments. *Energy Reviews*, **2023**, 2(2), 100025. (https://doi.org/10.1016/j.enrev.2023.100025)

5. Porpora, F., D'Arpino, M., Cheng, Y., Rizzoni, G., Tomasso, G. Reduced Order Model of Common Battery Pack Architectures for Assessment of Cell Parameter Variation Propagation. *IEEE Access*, **2023**, 11. (**DOI:** 10.1109/ACCESS.2023.3312236)

6. Zhao, T., Yurtsever, E., Paulson, J.A., Rizzoni, G. Formal Certification Methods for Automated Vehicle Safety Assessment. *IEEE Transactions on Intelligent Vehicles*, **2023**, *8(1)*, pp. 232-249. (Print ISSN 2379-8858, Online ISSN 2379-8904, Digital Object Identifier 10.1109/TIV.2022.3170517, IF 5.3)

7. Villani, M., Shiledar, A., D'Arpino, M., Rizzoni, G. Battery Selection and Optimal Energy Management for a Range-Extended Electric Delivery Truck. *SAE International Journal of Advances and Current Practices in Mobility*, **2022**, *5(3)*, 1282-1291.

8. Hegde, B., Ahmed, Q., Rizzoni, G. Energy Saving Analysis in Electrified Powertrain Using Look-Ahead Energy Management Scheme. *Applied Energy*, **2022**, *325*, 119823. (IF 11.45)

9. Wang, Z., Zhou, J., Rizzoni, G. A Review of Architectures and Control Strategies of Dual-Motor Coupling Powertrain Systems for Battery Electric Vehicles. *Renewable and Sustainable Energy Reviews*, **2022**, *162*, 112455. (IF 16.8)

10. Khodadadi Sadabadi, K., Ramesh, P., Guezennec, Y., Rizzoni, G. Development of an Electrochemical Model for a Lithium Titanate Oxide||Nickel Manganese Cobalt Battery Module. *Journal of Energy Storage*, **2022**, *50*, 104046. (IF 8.907)

11. Perez, W., Tulpule, P., Midlam-Mohler, S., Rizzoni, G. Data-Driven Adaptive Equivalent Consumption Minimization Strategy for Hybrid Electric and Connected Vehicles. *Applied Sciences*, **2022**, *12 (5)*, 2705. (IF 2.838)

12. Zhao, T., Yurtsever, E., Paulson, J., Rizzoni, G. Automated Vehicle Safety Guarantee, Verification and Certification: A Survey. **2022**, arXiv:2202.02818, preprint. (https://arxiv.org/abs/2202.02818)

13. Khodadadi-Sadabadi, K., Ramesh, P., Guezennec, Y., Rizzoni, G. Development of an Electrochemical Model for a Lithium Titanate Oxide||Nickel Manganese Cobalt Battery Module. *Journal of Energy Storage*, **2022**, *50(6)*, 104046.

14. Cheng, Y., D'Arpino, M., Rizzoni, G. Optimal Sensor Placement for Multi-Fault Detection and Isolation in Lithium-Ion Battery Pack. *IEEE Transactions on Transportation Electrification*, **2022**, *8(4)*, 4687-4707. (doi: 10.1109/TTE.2021.3137462)

15. Iannazzone, D., Pisani, M.M., Sorrentino, M., Rizzoni, G. Battery State-of-Charge-Driven Control of a Solar Mild-Hybrid Vehicle. *SAE International Journal of Electrified Vehicles*, **2022**, *11(1)*, 85-96. (also SAE Technical Paper 14-11-01-0007)

16. Deshpande, S.R., Gupta, S., Kibalama, D., Pivaro, N., Canova, M., Rizzoni, G., Aggoune, K., Olin, P., Kirwan, J. In-Vehicle Test Results for Advanced Propulsion and Vehicle System Controls Using Connected and Automated Vehicle Information. *SAE Int. J. Adv. & Curr. Prac. in Mobility*, **2021**, *3(6)*, 2915-2930. (https://doi.org/10.4271/2021-01-0430)

17. Leonori, S., Rizzoni, G., Mascioli, F.M.F., Rizzi, A. Intelligent Energy Flow Management of a Nanogrid Fast Charging Station Equipped with Second Life Batteries. *International Journal of Electrical Power & Energy Systems*, **2021**, *127*, 106602.

18. Khodadadi Sadabadi, K., Ramesh, P., Tulpule, P., Guezennec, Y., Rizzoni, G. Model-based State of Health Estimation of a Lead-Acid Battery Using Step-Response and Emulated *In-Situ* Vehicle Data. *Journal of Energy Storage*, **2021**, *36*, 102353.

19. Khodadadi Sadabadi, K., Jin, X., Rizzoni, G. Prediction of Remaining Useful Life for a Composite Electrode Lithium Ion Battery Cell Using an Electrochemical Model to Estimate the State of Health. *Journal of Power Sources*, **2021**, *481*, 228861.

20. Hegde, B., Ahmed, Q., Rizzoni, G. Velocity and Energy Trajectory Prediction of Electrified Powertrain for Look Ahead Control. *Applied Energy*, **2020**, *279*, 115903.

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329. Soliman, A., Rizzoni, G., Kim, Y.W. Diagnosis of Automotive Emission Control System Using Fuzzy Inference. *SAFEPROCESS* in Hull, UK, August 1997.

330. Krishnaswami, V., Rizzoni, G. Robust Residual Generation for Nonlinear System Fault Detection and Isolation. *SAFEPROCESS* in Hull, UK, August 1997.

331. Krishnaswami, V., Kim, Y.W., Rizzoni, G. Determination of Influencing Inputs and Their Orders for Nonlinear Dynamic Systems - Application to IC Engine Modeling. *ACC* in Albuquerque, NM, June 1997.

332. An, F., Rizzoni, G., Upadhyay, D. Combustion Diagnostics in Methane-Fueled SI Engines Using the Spark Plug as an Ionization Probe. *SAE International Congress* in Detroit, MI, February 1997, *SAE Technical Paper 970033*.

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334. Soliman, A., Krishnaswami, V., Rizzoni, G. The Application of Fuzzy Logic to the Diagnosis of Automotive Systems. *SAE International Congress* in Detroit, MI, February 1997, *SAE Technical Paper 970208*.

335. Rizzoni, G. Fault Diagnosis for Mechatronic Systems. *NSF-DDM Grantees Conference* in Seattle, WA, January 1997.

336. Rizzoni, G. Motorsports in the Engineering Curriculum at The Ohio State University. *SAE Motorsports Conference and Exposition* in Dearborn, MI, December 1996.

337. Grider, K., Rizzoni, G. Design of the Ohio State University Electric Race Car. *SAE Motorsports Conference and Exposition* in Dearborn, MI, December 1996.

338. Azzoni, P., Moro, D., Rizzoni, G. Estimation of Engine Performance Parameters via Time-Frequency Signal Processing of the Acoustic Emission Signal. *ASME IMECE* in Atlanta, GA, November 1996.

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340. Krishnaswami, V., Siviero, C., Carbognani, F., Rizzoni, G., Utkin, V. Application of Sliding Mode Observers to Automobile Powertrain Diagnostics. *IEEE Conference on Control Applications* in Dearborn, MI, September 1996.

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345. Soliman, A., Rizzoni, G., Krishnaswami, V. Integrated Powertrain Diagnostic System: Linking On- and Off-Board Control Strategies. *SAE International Congress* in Detroit, MI, February 1996, *SAE Technical Paper 960621*.

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351. Rizzoni, G., Wang, Y.Y., Drakunov, S. Estimation of Engine Torque Using Nonlinear Observers in the Crank Angle Domain. *5th ASME Symposium on Advanced Automotive Technologies* in San Francisco, CA, November 1995.

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354. Kim, Y.W., Rizzoni, G., Wang, Y.Y. Design of an Engine Torque Estimator Using Unknown Input Observers. *3rd European Control Conference* in Rome, Italy, September 1995.

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358. Kim, Y.W., Rizzoni, G., Wang, Y.Y., Samimy, B. Analysis and Processing of Shaft Angular Velocity Signals in Rotating Machinery for Diagnostic Applications. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)* in Detroit, MI, May 1995.

359. Samimy, B., Rizzoni, G. Time-Frequency Analysis of Crank Shaft Speed Data in a Lamborghini V-12 Engine. *49th Meeting of the Society for Machinery Failure Prevention Technology* in Virginia Beach, VA, April 1995.

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361. Drakunov, S., Rizzoni, G., Wang, Y.Y. Estimate of Indicate Pressure using Nonlinear Observers. *SAE Int'l Congress* in Detroit, MI, March 1995, *SAE Technical Paper 950840*.

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370. Rizzoni, G. A New Generation of On-Board and Service Diagnostics for Passenger Vehicles. *FISITA* in Beijing, China, October 1994.

371. Samimy, B., Rizzoni, G. Time-Frequency Analysis for Improved Detection of Internal Combustion Engine Knock. *IEEE-SP International Symposium on Time-frequency and Time-scale Analysis* in Philadelphia, PA, October 1994.

372. Rizzoni, G., Keyhani, A. Design of Mechatronic Systems: An Integrated, Inter-Departmental Curriculum. *Workshop on Mechatronics Education* in Stanford, CA, July 1994.

373. Krishnaswami, V., Rizzoni, G. Nonlinear Parity Equation Residual Generation for Fault Detection and Isolation. *SAFEPROCESS* in Espoo, Finland, June 1994.

374. Krishnaswami, V., Luh, G.C., Rizzoni, G. Diagnosis of Exhaust Emissions Control Systems During the E.P.A. Tailpipe Inspection Program. *SAFEPROCESS* in Espoo, Finland, June 1994.

375. Krishnaswami, V., Rizzoni, G. A Survey of Observer Based Residual Generation for FDI. *SAFEPROCESS* in Espoo, Finland, June 1994.

376. Luh, G.C., Rizzoni, G. Identification of a Nonlinear MIMO IC Engine Model during I/M240 Driving Cycle for On-Board Diagnosis. *ACC* in Baltimore, MD, June 1994.

377. Krishnaswami, V., Luh, G.C., Rizzoni, G. Fault Detection in IC Engines Using Nonlinear Parity Equations. *ACC* in Baltimore, MD, June 1994.

378. Rizzoni, G., Soliman, A. The Effects of Various Engine Control System Malfunctions on Exhaust Emissions Levels During the EPA I/M 240 Cycle. *SAE International Congress* in Detroit, MI, February-March 1994, *SAE Technical Paper 940448*.

379. Rizzoni, G. Design of Fault Tolerant Systems. 20th *Annual NSF Grantees Conference on Design and Manufacturing Systems Research* in Cambridge, MA, January 1994.

380. Park, J., Rizzoni, G. A Closed-Form Expression for the Fault Detection Filter. *32nd IEEE CDC* in San Antonio, TX, December 1993.

381. Park, J., Rizzoni, G., Ribbens, W.B. On the Representation of Sensor Faults in Fault Detection Filters. *32nd IEEE CDC* in San Antonio, TX, December 1993.

382. Zhang, Y., Rizzoni, G. An On-line Indicated Torque Estimator for IC Engine Diagnosis and Control. *ASME Symposium on Transportation Systems* in New Orleans, LA, December 1993.

383. Rizzoni, G., Lee, D., Ribbens, W.B. Detection of Partial Misfire in IC Engines Using a Measurement of Crankshaft Angular Velocity. *IMEC* in Chicago, IL, November 1994.

384. Rizzoni, G., Connolly, F.T. Estimate of IC Torque from Measurement of Crankshaft Angular Position., *SAE Off-Highway Meeting* in Milwaukee, WI, September 1993, *SAE Technical Paper 932410*.

385. Azzoni, P., Minelli, G., Moro, D., Rizzoni, G. Modellizzazione di un Motore Alternativo Endotermico per Fini Diagnostici. *48th Congresso Nazionale dell' Associazione Termotecnica Italiana (ATI)* in Taormina, Italy, September 1993.

386. Rizzoni, G., Chen, X.C. Detection of Internal Combustion Engine Knock Using Time-Frequency Distributions. *36th Midwest Symposium on Circuits and Systems* in Dearborn, MI, August 1993.

387. Park, J., Rizzoni, G. A New Interpretation of the Fault Detection Filter: The Optimal Detection Filter. *ACC* in San Francisco, CA, June 1993.

388. Engelman, G., Rizzoni, G. Including the Force Generation Process in Active Suspension Control Formulation. *ACC* in San Francisco, CA, June 1993.

389. Rizzoni, G., Krishnaswami, V., Luh, G.C. On-Board Diagnosis of Emission Control System Malfunctions in Electronically Controlled Internal Combustion Engines. *ACC* in San Francisco, CA, June 1993.

390. Rizzoni, G., Azzoni, P.M., Minelli, G. On-Board Diagnosis of Emission Control System Malfunctions in Electronically Controlled Spark Ignition Engines. *ACC* in San Francisco, CA, June 1993.

391. Olin, P.M., Rizzoni, G. Fault Detection and Isolation in the Joint Time-Frequency Domain. *TOOLDIAG* in Toulouse, France, April 1993.

392. Rizzoni, G., Azzoni, P., Minelli, P. On-Board Diagnosis of Emission Control System Malfunctions in Electronically Controlled IC Engines. *TOOLDIAG* in Toulouse, France, April 1993.

393. Rizzoni, G., Soliman, A., Passino, K. A Survey of Automotive Diagnostic Equipment and Procedures. *SAE Int'l Congress* in Detroit, MI, March 1993, *SAE Technical Paper 930769*.

394. Rizzoni, G. Health Monitoring of Mechatronic Systems Using an Embedded Diagnostic Coprocessor. *19th Annual NSF Grantees Conference on Design and Manufacturing Systems Research* in Charlotte, NC, January 1993.

395. Rizzoni, G. Fault Detection and Identification in the Joint Time-Frequency Domain. *SIAM Conference on Control Theory and its Application* in Minneapolis, MN, November 1992.

396. Rizzoni, G., Sjafri, L. Detection of Engine Knock Signals in the Joint Time-Frequency Domain. *ASME Symposium on Transportation Systems* in Anaheim, CA, November 1992.

397. Srinivasan, K., Rizzoni, G., Trigui, M., Luh., G.C. On-Line Estimation of Net Engine Torque from Crankshaft Angular Velocity Measurement Using Repetitive Estimators. *ACC* in Chicago, IL, June 1992.

398. Rizzoni, G., Ribbens, W.B. An Integrated Circuit Engine Analyzer for IC Engine On-Board Diagnostics. *FISITA* in London, June 1992.

399. Rizzoni, G. A Unified Design Methodology for Fault Detection and Identification in Dynamic Systems. *18th Annual NSF Grantees Conference on Design and Manufacturing Systems Research* in Atlanta, GA, January 1992.

400. Connolly, F., Rizzoni, G. Real-Time Estimation of Engine Torque for the Detection of Engine Misfires. *ASME Symposium on Advanced Automotive Technologies* in Atlanta, GA, Dec. 1991.

401. Yu, T., Rizzoni, G. A Floating Point Co-processor for Real-time Fault Detection and Isolation in Electronically Controlled IC Engines. *8th International Conference on Automotive Electronics* in London, October 1991.

402. Olin, P.M., Rizzoni, G. Robust Fault Detection and Isolation. *IFAC/IMACS SAFEPROCESS* in Baden-Baden, Germany, September 1991.

403. Rizzoni, G. Automotive Application of Fault Detection and Identification Theory. *8th International Conference on Systems Engineering* in Coventry, KY, September 1991.

404. Olin, P.M., Rizzoni, G. Design of Robust Fault Detection Filters. *ACC* in Boston, MA, June 1991.

405. Yu, T., Rizzoni, G. A Processor Architecture for Real Time Fault Detection and Isolation in Electronically Controlled Engines. *41st Vehicular Tech. Conf.* in St. Louis, MO, May 1991.

406. Rizzoni, G., Ribbens, W.B. Onboard Detection of Internal Combustion Engine Misfires. *IEEE Workshop on Automotive Applications of Electronics* in Dearborn, MI, October 1990.

407. Rizzoni, G., Ribbens, W.B. Onboard Diagnosis of Engine Misfire. *SAE Passenger Car Meeting* in Dearborn, MI, September 1990, *SAE Technical Paper 901768*.

408. Park, J., Rizzoni, G. Design of Strong Detection Filters by Eigenvector Assignment: Theory and Application to Real Time Auto Failure Diagnosis. *ACC* in San Diego, CA, May 1990.

409. Riggins, R.N., Rizzoni, G. the Distinction between a Special Class of Multiplicative Events and Additive Events: Theory and Application to Automotive Failure Diagnosis. *ACC* in San Diego, CA, May 1990.

410. Connolly, F.T., Rizzoni, G., Dong, Y., Olin, P.M. An IBM PS/2 Based General Purpose Engine Analyzer. *40th IEEE Vehicular Technology Conference* in Orlando, FL, May 1990.

411. Ribbens, W.B., Rizzoni, G., Olin, P.M. Failure Detection and Isolation for Electronically Controlled 4-Wheel Steering System. *XVIII ISATA Symposium* in Florence, Italy, May 1990.

412. Connolly, F.T., Rizzoni, G., Ribbens, W.B. An IBM PS/2 Based General Purpose Engine Analyzer. *XVIII ISATA Symposium* in Florence, Italy, May 1990.

413. Rizzoni, G., Ribbens, W.B. Crankshaft Position Measurement for Engine Testing, Control and Diagnosis. *39th IEEE Vehicle Technology Conference* in San Francisco, CA, May 1989.

414. Rizzoni, G. Diagnosis of Individual Cylinder Misfires by Signature Analysis of Crankshaft Speed Fluctuations. *SAE International Congress* in Detroit, MI, February-March 1989, *SAE Technical Paper 890884*.

415. Rizzoni, G., Hampo, R., Liubakka, M., Marko, K. Real Time Detection Filters for Onboard Diagnosis of Incipient Failures. *SAE International Congress* in Detroit, MI, February-March 1989, *SAE Technical Paper 890763*.

416. Ribbens, W.B., Rizzoni, G. Application of Precise Crankshaft Position Measurement for Engine Testing, Control and Diagnosis. *SAE International Congress* in Detroit, MI, February-March 1989, *SAE Technical Paper 890885*.

417. Rizzoni, G., Min, P.S. Application of Failure Detection to the Diagnosis of Sensor and Actuator Failures in Electronically Controlled Engines. *IEEE Workshop on Automotive Applications of Electronics* in Dearborn, MI, October 1988.

418. Rizzoni, G., Pipe, J.G., Riggins, R.N., Van Oyen, M.P. Fault Isolation and Analysis for IC Engine Onboard Diagnostics. *38th IEEE Vehicle Tech. Conf.* in Philadelphia, PA, June 1988.

419. Rizzoni, G. Engine Fault Diagnosis by Signature Analysis of Crankshaft Speed Fluctuations. *XVIII ISATA Symposium* in Florence, Italy, May 1988.

420. Liubakka, M., Rizzoni, G., Ribbens, W.B., Marko, K.A. Failure Detection Algorithms Applied to Control System Design for Improved Diagnostics and Reliability. *SAE International Congress* in Detroit, MI, February 1988, *SAE Technical Paper 880726*.

421. Dong, Y., Rizzoni, G., Ribbens, W.B. Crankshaft Position Measurement with Applications to Ignition Timing, Diagnostics and Performance Measurement. *SAE Passenger Car Meeting* in Dearborn, MI, September 1987, *SAE Technical Paper 871914*.

422. Rizzoni, G. Fast Transforms for Rapid Isolation of Misfiring Cylinders. *SAE Passenger Car Meeting* in Dearborn, MI, September 1987, *SAE Technical Paper 871915*.

423. Rizzoni, G. A Passenger Vehicle Onboard Computer System for Engine Fault Diagnosis, Performance Measurement and Control. *37th IEEE Vehicle Technology Conference* in Tampa, FL, June 1987.

424. Rizzoni, G. Estimate of Indicated Torque from Crankshaft Speed Fluctuations: A Model for the Dynamics of IC Engine. *XVII ISATA Symposium* in Florence, Italy, May 1987.

Plenary and Keynote Lectures

1. Advancing Electrification: Innovations, Challenges and Research Directions. Keynote Lecture for the MathWorks Automotive Conference 2025 in Plymouth, MI on April 29, 2025.

2. The Future of Automotive Propulsion Systems, Sustainable Fuels and Energy Sources: What Cars Will Our Grandchildren Drive? Carl F. Zorowski Distinguished Lecture in Mechanical & Aerospace Engineering at NC State University in Raleigh, NC on March 28, 2025.

3. Powering the Future: Challenges and Opportunities in the Electrification of Commercial, Industrial and Utility Vehicles. Keynote Lecture for The Future of Electrification virtual conference on February 27, 2025.

4. The Central Role of Modeling, Estimation and Control in Sustainable, Connected and Automated Mobility. Plenary Lecture for MECC 2024 in Chicago, IL on October 30, 2024.

5. Prediction of Battery Remaining Useful Life Using In-Vehicle Data. Keynote Lecture for the Conference on Sustainable Mobility in Catania, Italy on September 19, 2024.

6. Prediction of Battery Remaining Useful Life Using In-Vehicle Data. Keynote Lecture for the Maha Fluid Power Conference in W. Lafayette, IN on September 5, 2024.

7. Electrification Enabling Technologies. Keynote Lecture for the 2023 Smoky Mountain Mobility Conference in Chattanooga, TN on October 24, 2023.

8. Electricity and Transportation – Batteries or Hydrogen? Or Both? Keynote Lecture for the European Fuel Cells and Hydrogen Piero Lunghi Conference in Capri, Italy on Sept. 14, 2023.

9. Improving ICE Efficiency through Connectivity and Automation – the NEXTCAR Program, keynote lecture presented at the JSAE/SAE Powertrains, Energy and Lubricants conference in Kyoto, Japan on August 31, 2023.

10. Battery Life and Life Estimation – Physics- and Data-Based Approaches. Conference on Sustainable Mobility (CSM) Plenary Lecture in Catania, Italy on Sep. 26, 2022.

11. Force-centric Perspectives on Autonomous Safety Maneuvers. 10th IFAC AAC Plenary Lecture in Columbus, OH on August 29, 2022.

12. Battery Life and Life Estimation – Physics- and Data-Based Approaches. International Conference on Electric Vehicles, Smart Grid and IT (ICESI) Plenary Lecture in Jeju, South Korea on May 5, 2022.

13. Battery Life and Second Life Estimation – Data- vs Model-Based Estimation Methods. Roads to the Future, Swedish Electromobility Centre Conference in Linköping, Sweden on Oct. 2021.

14. Next Generation Energy Technologies for Connected and Automated On-Road Vehicles. IEEE Vehicular Technology Society Distinguished Lecture on September 23, 2021.

15. Advancing Autonomous Vehicle Technology to Achieve Unprecedented Energy Efficiency Gains. Automotive Research Association of India (ARAI) Mobility Keynote Lecture in September 2021.

16. The Future of Automotive Powertrains in the Age of Electrification, Connectivity, and Automation. IFAC E-COSM in Tokyo on August 24, 2021.

17. Enhancing Vehicle Fuel Economy through Connectivity and Automation – the NEXTCAR Program, 39th Annual Conference of the Tire Society Plenary Lecture on September 29, 2020.

18. Improving Fuel Economy through Connectivity and Automation – The NEXTCAR Project. THIESEL 2020 Keynote Lecture in Valencia, Spain on September 9, 2020.

19. Improving Fuel Economy through Connectivity and Automation – the NEXTCAR Project. SAE/ATA CO_2 Reduction for Transportation Systems Conference Keynote Lecture in Torino, Italy on July 8, 2020.

20. 20 Years of Hydrogen and Fuel Cell Research at OSU CAR. CERTAIN Hydrogen Symposium Keynote Lecture at The Ohio State University in Columbus, OH on December 6, 2019.

21. The Evolution of Powertrain Control in a Connected and Automated World. Hyundai-Kia Powertrain Conference Plenary Lecture in Gyeonggi-do, S. Korea on October 23, 2019.

22. Future Mobility: Connectivity, Autonomy, Energy Efficiency and the Smart City. SAE Conference on Sustainable Mobility Keynote Lecture in Catania, Italy on October 14, 2019.

23. Mobility, Connectivity, Autonomy, Energy Efficiency and the Smart City. Cognizant Autonomous Systems for Safety Critical Applications Keynote Lecture at the Institute of Navigation in Miami, FL on September 17, 2019.

24. Transformational Technologies Reshaping Transportation – An Academia Perspective. L. Ray Buckendale Lecture at SAE COMVEC in Indianapolis, IN on September 10, 2019.

25. Future Mobility: The Transition to Smart Cities and Connected and Automated Vehicles. International Conference on Advanced Vehicle Powertrains Plenary Lecture in Hefei, Anhui, China on August 26, 2019.

26. The Evolution of Electrified Powertrains in Passenger and Commercial Vehicles - A Look at the Next Decade. CTI Symposium USA Keynote Lecture in Novi, MI on May 15, 2019.

27. Mobility, Energy Efficiency and the Smart City, 2019 ITEC Asia-Pacific Plenary Lecture in Jeju, South Korea on May 9, 2019.

28. Safety and Security in Automated Vehicles – New Challenges for the Automotive Industry. IAVSD Workshop on Connected and Automated Vehicles Keynote Lecture in Ann Arbor, MI on April 28, 2019.

29. Smart Mobility: Electric Vehicles and the Path towards Autonomous Vehicles. ARAI Symposium on Int'l Automotive Technology (SIAT) Keynote Lecture in Pune, India on January 19, 2019.

30. Connected and Automated Vehicle and Advances in Powertrain Control to Achieve Unprecedented Fuel Economy Gains. IEEE CCTA in Kohala, HI on August 30, 2017.

31. Personal Mobility in 2020 and Beyond – How Can Jeju Lead the Way? Jeju Forum on Peace and Prosperity in Jeju, South Korea on June 2, 2017.

32. From the Ford Model T to the Apple Car...What is the Future of the Automotive Industry? American Welding Society Workshop on Welding, Joining and Advanced Materials in Columbus, OH on January 23, 2017.

33. Model-Based Functional Safety and Fault Diagnosis in Automotive Systems. IEEE Workshop on Open Problems and Challenges in Automotive Control in Las Vegas on December 11, 2016.

34. USA Directions in New Energy Vehicles – The EV Everywhere Program. US-China Eco-Cooperation Conference on New Energy Vehicles in Hefei, Anhui, China on Dec. 5, 2016.

35. Smart Mobility and Smart Cities – the Columbus Experiment. 3rd Workshop on Sustainable Mobility Opening Lecture in Rome, Italy on November 7, 2016.

36. Connected and Automated Vehicles and Advances in Powertrain Control to Achieve Improved Fuel Economy. ITEC Plenary Lecture in Toulouse, France on November 3, 2016.

37. Connected and Automated Vehicles and Advances in Powertrain Control to Achieve Improved Fuel Economy. IFAC AAC Plenary Lecture in Kolmarden, Sweden on June 23, 2016.

38. China, Europe and USA Trends in Powertrain Electrification. Shanghai-Stuttgart Symposium Keynote Lecture in Shanghai, China on April 18, 2016.

39. Sustainable Mobility, Vehicle Electrification, Connectivity and Automation – a North American Perspective. 2nd Workshop on Sustainable Mobility Opening Lecture in Rome, Italy on November 16, 2015.

40. Towards Model Based Functional-Safety-Driven Fault Tolerance in Automotive Control System Implementation. ITEC Keynote Lecture in Dearborn, MI on June 15, 2015.

41. Buckeye Bullet! The Story of Three Land Speed Records for Electric Cars. IEEE Int'l Electric Vehicle Conference Plenary Lecture in Florence, Italy, December 17-19, 2014.

42. Challenges and Opportunities in the Development of Hybrid Electric Vehicles. 1st Workshop on Sustainable Mobility Opening Lecture in Rome, Italy on November 17, 2014.

43. Optimal Energy Management of Hybrid Electric Vehicles – 15 Years of Development at OSU. E-COSM Keynote Lecture in Rueil-Malmaison, France, October 23-25, 2012.

44. A U.S. Perspective on Vehicle Electrification – Progress and Challenges related to Technology and Infrastructure for Vehicle-Grid Systems. 10th ICE Keynote Lecture in Capri, Italy, September 11-15, 2011.

45. Diagnosis and Prognosis of Automotive Systems: Motivations, History and Some New Results. 7th SAFEPROCESS Plenary Lecture in Barcelona, June 30-July 3, 2009.

46. Industry-Government-University Collaboration, a Case Study: The FutureTruck Competition. FISITA World Student Congress Plenary Lecture in Barcelona, May 23-27, 2004.

47. Market Introduction of Hybrid Electric Vehicles: Current Developments and Challenges to their Introduction. Invited Plenary Lecture at the Inauguration of the SAE-Napoli Section, National Research Council Istituto Motori in Napoli, Italy on December 12, 2000.

48. Estimation Problems in Engine Control and Diagnosis. ICE Modeling and Experiments Plenary Presentation in Capri, Italy, September 1999.

49. Vehicle Comfort - Some Thoughts from a North American Perspective. ATA Automotive Comfort Conference Opening Lecture in Bologna, Italy on October 20, 1997.

50. A Survey of Current Technical Challenges in Automotive On-Board Diagnostics. IFAC AAC Plenary Session Presentation in Ascona, Switzerland, March 1995.

Seminars

1. Electrified Powertrains. Future Powertrains for Sustainable & Clean on Road Mobility workshop at the Politecnico di Torino in Torino, Italy on March 13, 2025.

2. Prediction of Battery Remaining Useful Life Using In-Vehicle Data for Transit Buses. Brainlink Technology Exchange Conference sponsored by the Korean Federation of Science & Technology Societies/Korean Ministry of Science & Information & Communication Technology in Busan, S.Korea on November 7, 2024.

3. Improving Safety of Vulnerable Road Users at Intersections – the Intersection Safety Challenge. Brainlink X-Lab Day sponsored by the Korean Federation of Science & Technology Societies/Korean Ministry of Science & Information & Communication Technology in Seoul, S.Korea on November 5, 2024.

4. Energy Saving Technologies for Connected and Automated On-Road Vehicles – the ARPA-E NEXTCAR Program. U. of Cincinnati's MME Distinguished Seminar Series in Cincinnati, OH on March 22, 2024.

5. Bridging Material Science with Dynamic Systems & Control Theory and Machine Learning: Forecasting Response and Life of High Energy Density Materials for Li-Ion Batteries. GM Energy & Propulsion Systems Research Laboratory seminar with Marcello Canova in Warren, MI on February 29, 2024.

6. The Ohio State University Center for Automotive Research. OSU Detroit Alumni Club at the Pontiac Transportation Museum in Pontiac, MI on February 29, 2024.

7. Prediction of Battery Remaining Useful Life Using In-Vehicle Data. Ford Control Technology Council Global Technical Seminar Series virtual seminar on February 23, 2024.

8. Electrification of Vehicle Propulsion Systems – A Brief Introduction. Honda Young Professionals virtual seminar with Matilde D'Arpino on February 15, 2024.

9. Electricity and Transportation – Batteries or Hydrogen? Or Both? Part of CAR's Research Seminar Series with Manfredi Villani in Columbus on January 23, 2024.

10. Electrification of Vehicle Propulsion Systems. Graduate seminar in Welding Engineering presented at The Ohio State University on October 30, 2023.

11. An Introduction to Electric Vehicles. Wake County Public Libraries virtual program presented with Srinath Ekkad of North Carolina State University on October 22, 2023.

12. Challenges and Opportunities for Electric Mobility in the Commercial Vehicle Sector. IFP Energies Nouvelles (IFPEN) in Rueil-Malmaison, France on May 25, 2023.

13. Some Thoughts on the Future of Mobility. ACEC Ohio in Columbus, OH on April 21, 2023.

14. The Electrified Mobility Innovation Engine – an Innovation Ecosystem for the U.S. Mobility Industry. NAE Regional Meeting in Champaign-Urbana, IL on April 4, 2023.

15. Advanced Air Mobility at The Ohio State University. Ohio Air Mobility Symposium in Columbus, OH on March 30, 2023.

16. Ohio Air Mobility Higher Education Network. Ohio Air Mobility Symposium in Columbus, OH on March 29, 2023.

17. GTS - Powering the Future: Challenges and Opportunities in Vehicle Battery Technologies. Green Truck Summit, Work Truck Week in Detroit, MI on March 7, 2023.

18. Some Thoughts on the Future of Mobility. IBI Group in Worthington, OH on Feb. 28, 2023.

19. Energy Saving Technologies for Connected and Automated on-Road Vehicles – the ARPA-E NEXTCAR Program. Linköping Universitet Department of Electrical Engineering in Linköping, Sweden on December 7, 2022.

20. Limit-Handling Vehicle Control for Improving Automated Vehicle Safety. Linköping Universitet Dept. of Electrical Engineering in Linköping, Sweden on December 7, 2022.

21. Technology Trends in the Commercial Vehicle Industry Panel: How are Electrification and Automation Changing Traditional Vehicle Components. SAE COMVEC Powering Future Innovation in Indianapolis, IN on September 21, 2022.

22. How Are Electrification and Automation Changing Traditional Vehicle Components? SAE COMVEC Powering Future Innovation in Indianapolis, IN, September 20-22, 2022.

23. Electric Mobility Innovation Corridor: Re-Imagining the Electric Mobility Future of our Region. Montrose Group EV Industry Panel at the Columbus Athletic Club on September 14, 2022.

24. Energy Saving Technologies for Connected and Automated on-Road Vehicles – the ARPA-E NEXTCAR Program. Virginia Tech, Mechanical Engineering, College of Engineering Distinguished Speaker Series in Blacksburg, VA on April 28, 2022.

25. Highlights of the OSU NEXTCAR Program. ARPA-E NEXTCAR Industry Day in Detroit, MI on April 7, 2022.

26. Innovation in Battery Life Extension. National Security Innovation Network EMERGE Workshop, April 2022.

27. Vehicle Connectivity and Automation – What is the Road Ahead? AAA Technology Takes the Wheel^{TM} Webinar on February 4, 2021.

28. Advancing Autonomous Vehicle Technology to Achieve Unprecedented Energy Efficiency Gains – the ARPA-E NEXTCAR Program. ASME Insider Webinar, December 2, 2020.

29. Transformational Technologies Reshaping Transportation – An Academia Perspective. Center for Automotive Research Seminar in Columbus, OH on November 21, 2019.

30. Transformational Technologies Reshaping Transportation. The Ohio State University Bus Transit Forum in Columbus, OH on November 6, 2019.

31. Future Mobility: The Transition to Smart Cities and Connected and Automated Vehicles. Samueli School of Engineering Distinguished Lecture at the University of California in Irvine on May 22, 2019.

32. From Henry Ford and Will Durant to the Apple Car...What Vehicles Will We Drive Tomorrow? A Gearhead's Thoughts on the Future of Mobility. National Society of Black Engineers at The Ohio State University in Columbus, OH on March 26, 2019.

33. Energy Storage Systems for Stationary and Grid-Connected Systems. Apple Product Design in San Jose, CA on February 13, 2019.

34. The Ohio State University Center for Automotive Research – Research in Mobility and Smart Cities. Hinduja Corporation in Mumbai, India on December 21, 2018.

35. The Ohio State University Center for Automotive Research – Research in Vehicle Electrification, Safety and Security. Eaton Technology Center in Pune, India on December 20, 2018.

36. Connected and Automated Vehicles and Advances in Powertrain Control to Achieve Unprecedented Fuel Economy Gains. Cummins Technical Center in Pune, India on December 19, 2018.

37. The Ohio State University Center for Automotive Research – Research in Vehicle Electrification, Safety and Security. Cummins Inc. at Columbus, IN on December 11, 2018.

38. From Henry Ford and Will Durant to the Apple Car...What Vehicles Will We Drive Tomorrow? A Gearhead's Thoughts on the Future of Mobility. The Forum at Knightsbridge in Columbus, OH on November 28, 2018.

39. Energy Storage Systems for Future Mobility, from Electrochemistry to System Integration. Ferrari S.p.A. in Maranello, Italy on November 16, 2018.

40. Energy Storage Systems for Future Mobility, from Electrochemistry to System Integration. Centro Ricerche Fiat in Torino, Italy on November 15, 2018.

41. Energy Storage Systems for Future Mobility, from Electrochemistry to System Integration. Università degli Studi di Napoli Federico II in Napoli, Italy on November 13, 2018.

42. Mobility – At the Intersection of Education and Industry. Dana Global Engineering Symposium in Dearborn, MI on October 30, 2018.

43. From Henry Ford and Will Durant to the Apple Car...What Vehicles Will We Drive Tomorrow? A Gearhead's Thoughts on the Future of Mobility. Ferrari Club of America, Ohio Chapter in Columbus on October 27, 2018.

44. The Ohio State University Center for Automotive Research. National Urban Youth League in Columbus, OH on July 20, 2018.

45. From Henry Ford and Will Durant to the Apple Car...What Vehicles Will We Drive Tomorrow? A Gearhead's Thoughts on the Future of Mobility. Kendal at Granville, OH on July 18, 2018.

46. Advances in Powertrain Electrification. IEW, Universität Stuttgart in Germany on June 27, 2018.

47. Functional Safety and Fault Diagnosis in Automotive Systems. General Motors Powertrain in Torino, Italy on June 5, 2018.

48. Mechatronics Education at The Ohio State University. Schaeffler Group USA in Wooster, OH on May 30, 2018.

49. Powertrain Electrification Programs at the Ohio State University Center for Automotive Research. Lubrizol in Wickliffe, OH on May 18, 2018.

50. Powertrain Electrification Programs at the Ohio State University Center for Automotive Research. Fiat Chrysler Automobiles in Auburn Hills, MI on May 15, 2018.

51. Connected and Automated Vehicles and Advances in Powertrain Control to Achieve Unprecedented Fuel Economy Gains. Politecnico di Torino in Italy on April 18, 2018.

52. Connected and Automated Vehicles and Advances in Powertrain Control to Achieve Unprecedented Fuel Economy Gains. Università di Parma in Italy on November 30, 2017.

53. Optimal Energy Management of Electrified Powertrains. Maserati S.p.A. in Modena, Italy on November 30, 2017.

54. Vehicle Electrification Activities at the OSU Center for Automotive Research. Maserati S.p.A. in Modena, Italy on November 29, 2017.

55. From Henry Ford and Will Durant to the Apple Car...What Vehicles Will We Drive Tomorrow? Environment Ohio in Columbus on November 21, 2017.

56. An Introduction to Structural Fault Diagnosis. Ford Motor Company Research and Innovation Center in Dearborn, MI on November 14, 2017.

57. From Henry Ford and Will Durant to the Apple Car...What Vehicles Will We Drive Tomorrow? The History Club in Columbus, OH on November 13, 2017.

58. From Will Durant to Alfred Sloan to the Apple Car...What Vehicles Will We Drive Tomorrow? General Motors Section of Sigma Xi in Warren, MI on November 3, 2017.

59. Connected and Automated Vehicles and Advances in Powertrain Control to Achieve Unprecedented Fuel Economy Gains. Kookmin University in Seongbuk-gu, Seoul, South Korea on May 31, 2017.

60. Functional Safety and Fault Diagnosis in Automotive Systems. Tsinghua University in Beijing, China on May 17, 2017.

61. Seeking the Optimal Powertrain Configuration for On-Road Trucks. Tsinghua University in Beijing, China on May 17, 2017.

62. Seeking the Optimal Powertrain Configuration for On-Road Trucks. Hefei University of Technology in Anhui, China on May 12, 2017.

63. Technology and Government Regulations for Alternative Fuel Buses in the USA. Ankai Bus Company in Hefei, Anhui, China on May 12, 2017.

64. Functional Safety, Model-Based Diagnosis and Fault Tolerant Control – An Overview and Some Open Problems. Department of Mechanical Engineering, the University of California at Berkeley on May 2, 2017.

65. Buckeye Bullet! Powertrain Modeling, Design and Integration for the World Fastest Electric Vehicle. Franklin County Chapter of the Ohio Society of Professional Engineers in Columbus on April 20, 2017.

66. Connected and Automated Vehicles and Advances in Powertrain Control to Achieve Improved Fuel Economy. Center for Automotive Research Seminar Series at The Ohio State University in Columbus, OH on September 13, 2016.

67. Buckeye Bullet! Powertrain Modeling, Design, and Integration for the World's Fastest Electric Vehicle. Universität Stuttgart in Germany on June 16, 2016.

68. Buckeye Bullet! Powertrain Modeling, Design, and Integration for the World's Fastest Electric Vehicle. Shanghai Jiao Tong University in China on April 20, 2016.

69. The Evolution of Transportation – from Henry Ford to the Apple Car, What Vehicles Will We Drive Tomorrow? Humanitarian Engineering Scholars at The Ohio State University in Columbus on March 9, 2016.

70. The Evolution of Transportation – from Henry Ford to the Apple Car, What Vehicles Will We Drive Tomorrow. Green Engineering Scholars at The Ohio State University in Columbus on March 2, 2016.

71. Fault Diagnosis and Functional Safety in Automotive Systems. Hefei University of Technology in China on February 23, 2016.

72. Electric and Hybrid Vehicle Energy Management – Challenges and Opportunities. Tsinghua University in Beijing, China on February 22, 2016.

73. From Henry Ford to the Apple Car, What Vehicles Will We Drive Tomorrow? A Gearhead's Thoughts on the Future of Transportation. Università di Parma in Italy on Dec. 16, 2015.

74. Aging Propagation Modeling and State of Health Assessment in Battery Systems. Università di Parma in Italy on December 16, 2015.

75. Optimal Control of Electrified Powertrains with the Use of Drive Quality Criteria. Politecnico di Torino in Italy on December 15, 2015.

76. From Henry Ford to the Apple Car, What Vehicles Will We Drive Tomorrow? A Gearhead's Thoughts on the Future of Transportation. Politecnico di Torino in Italy on Dec. 15, 2015.

77. Model-Based Diagnosis of Diesel Engine Exhaust After Treatment Systems. GM Powertrain Europe in Torino, Italy on December 14, 2015.

78. From Henry Ford to the Apple Car, What Vehicles Will We Drive Tomorrow? A Gearhead's Thoughts on the Future of Transportation. Columbus Science Pub in Columbus, OH on November 3, 2015.

79. Industry Engagement at the OSU Center for Automotive Research. OSU Industry Collaboration Group at The Ohio State University in Columbus, OH on November 3, 2015.

80. The Evolution of Transportation, from Henry Ford to the Apple Car, What Vehicles Will We Drive Tomorrow? Scarlet and Gray Ambassadors at The Ohio State University in Columbus, OH on October 16, 2015.

81. Buckeye Bullet! Powertrain Modeling, Design, and Integration for the World's Fastest Electric Vehicle. Linköping University in Sweden on June 3, 2015.

82. Personal Transportation in Sustainable Megacities. OSU Alumni Club in Detroit, MI on June 1, 2015.

83. Reinventing the Automobile – Innovation through Education. China Manufacturing Delegation at The Ohio State University in Columbus, OH on May 26, 2015.

84. Reinventing the Automobile – Innovation through Education. Presented to U.S. Congressmen Tiberi and Simpson at CAR in Columbus, OH on May 22, 2015.

85. Towards Model-Based Functional Safety in Automotive Control Systems. Shanghai Jiao Tong University in China on May 19, 2015.

86. Aging Propagation Modeling and State of Health Assessment in Battery Systems. Hefei University of Technology in China on May 18, 2015.

87. Towards Model-Based Functional Safety in Automotive Control Systems. Hefei University of Technology in China on May 18, 2015.

88. Aging Propagation Modeling and State of Health Assessment in Battery Systems. Wuhan University of Technology in China on May 14, 2015.

89. Towards Model-Based Functional Safety in Automotive Control Systems. Wuhan University of Technology in China on May 14, 2015.

90. Towards Model-Based Functional Safety-Driven Fault Tolerance in Automotive Control Systems Implementation. Ford-OSU Day, Ford Research and Advanced Engineering in Dearborn, MI on April 30, 2015.

91. Overview of the OSU Center for Automotive Research. Ford-OSU Day, Ford Research and Advanced Engineering in Dearborn, MI on April 30, 2015.

92. Reinventing the Automobile – Innovation through Education. OSU College of Engineering Campaign Committee at The Ohio State University in Columbus on April 24, 2015.

93. Reinventing the Automobile – Innovation through Education. OSU Foundation Board at The Ohio State University in Columbus on April 23, 2015.

94. Towards Model-Based Functional Safety-Driven Fault Tolerance in Automotive Control Systems Implementation. dSpace Tech Day in Novi, MI on April 16, 2015.

95. Personal Transportation in Sustainable Megacities. Neil Legacy Society at The Ohio State University in Columbus on April 7, 2015.

96. Aging Propagation Modeling and State of Health Assessment in Battery Systems. Case Western Reserve University in Cleveland, OH on April 1, 2015.

97. Personal Transportation in Sustainable Megacities. Buckeye Smart Northeast Ohio Speaker Series at the Cleveland City Club in Cleveland, OH on April 1, 2015.

98. Towards Model-Based Functional Safety-Driven Fault Tolerance in Automotive Control Systems Implementation. Clemson University ICAR in Greenville, SC on March 25, 2015.

99. Reinventing the Automobile – Innovation through Education. Young Presidents' Organization Regional Meeting at OSU in Columbus on March 11, 2015.

100. Personal Transportation in Sustainable Megacities. Humanitarian Engineering Scholars at The Ohio State University in Columbus, OH on March 10, 2015.

101. Personal Transportation in Sustainable Megacities. Green Engineering Scholars at The Ohio State University in Columbus, OH on March 4, 2015.

102. Optimal Energy Management of Hybrid Vehicles, 20 Years of Development at The Ohio State University. University of Alabama in Tuscaloosa, AL on March 2, 2015.

103. The Future of Transportation – What Vehicles Will Our (Grand)Children Drive? OBOR-Ohio Educational Technology Conference in Columbus on February 11, 2015.

104. Personal Transportation in Sustainable Megacities. Arena Tech Night in Columbus, OH on January 20, 2015.

105. The Future of Transportation - What Vehicles Will Our (Grand)Children Drive? OBOR Fall 2014 Central Ohio STEM Commercialization and Entrepreneurship Forum at Westerville North High School in Westerville, OH on November 8, 2014.

106. Aging Propagation Modeling and State of Health Assessment in Battery Systems. Cummins Technical Center in Columbus, IN on November 7, 2014.

107. Personal Transportation in Sustainable Megacities - What Vehicles Will Our (Grand)Children Drive? Parent & Family Weekend at The Ohio State University in Columbus on Oct. 25, 2014.

108. Personal Transportation in Sustainable Megacities - What Vehicles Will Our (Grand)Children Drive? ScienceWriters 2014 in Columbus, OH on October 19, 2014.

109. Buckeye Bullet! The Story of Three Land Speed Record Cars. NSX Owners Association at Honda Research Americas in Raymond, OH on October 18, 2014.

110. Electrochemical Energy Storage for Automotive Transportation. ElectroChem Ohio Conference in Columbus, OH on September 19, 2014.

111. Sustainable Mobility, Renewable Energy, and the Future of Transportation - What Vehicles Will Our (Grand)Children Drive? Beijing Institute of Technology in China on September 3, 2014.

112. A New Era of Domestic Energy Production: CNG for Automotive Transportation. Presented to Ohio Congressional Staff at CAR in Columbus, OH on August 27, 2014.

113. Aging Propagation Modeling and State of Health Assessment in Battery Systems. Linköping University in Sweden on May 14, 2014.

114. Optimal Energy Management of Hybrid Vehicles: 20 Years of Development at The Ohio State University. Chalmers University of Technology in Gothenburg, Sweden on May 13, 2014.

115. Optimized Engine Development for Alternative Fuels, such as Natural Gas and Ethanol, Horiba Seminar: Integration – the Key to Development Efficiency in Detroit, MI on April 8, 2014.

116. Aging Propagation and Model-Based Prognosis for Interconnected Systems with Application to Battery Packs. Shanghai Jiao Tong University in China on March 30, 2014.

117. Sustainable Mobility, Renewable Energy, and the Future of Transportation - What Vehicles Will Our (Grand)Children Drive? March 5, 2014.

118. Model-Based System Fault Diagnosis and Prognosis. Caterpillar Technical Center in Peoria, IL on February 27, 2014.

119. Sustainable Mobility, Renewable Energy, and the Future of Transportation - What Vehicles Will Our (Grand)Children Drive? 2014 Regional Conference, Engineers for a Sustainable World at The Ohio State University in Columbus on February 19, 2014.

120. Optimal Energy Management of Hybrid Vehicles: 20 Years of Development at The Ohio State University. Department of Mechanical and Nuclear Engineering, Pennsylvania State University in State College, PA on February 11, 2014.

121. Sustainable Mobility, Renewable Energy, and the Future of Transportation - What Vehicles Will Our (Grand)Children Drive? Department of Design, The Ohio State University in Columbus, OH on February 19, 2014.

122. Sustainable Mobility, Renewable Energy, and the Future of Transportation - What Vehicles Will Our (Grand)Children Drive? Rotary Club of Upper Arlington in OH on Jan. 28, 2014.

123. NSF GOALI: Aging Propagation and Model-based Prognosis for Interconnected Systems with Application to Battery Packs. General Motors Global R&D in Warren, MI on January 23, 2014.

124. Opportunities for Innovation in the North American Market. Bosch North America Strategy Board on November 13, 2013.

125. Optimal Energy Management of Hybrid Vehicles – 15 Years of Development at The Ohio State University. Mechanical Engineering Seminar at Purdue University in West Lafayette, IN on November 2, 2013.

126. Multi-Scale Modeling, Characterization and Prediction of Battery Aging. Chevron Department of Mechanical Engineering Centennial Seminar Series at The University of Texas at Austin on October 18, 2013.

127. Tackling Functional Safety – Training the Next Generation of Engineers for the Automotive Industry. IBM Industry Engineering Forum at The Ohio State University in Columbus, OH on October 10, 2013.

128. Sustainable Mobility, Renewable Energy and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? New Developments in Automotive Technology, ASME Webinar on September 18, 2013.

129. Research on Lithium-Ion Batteries at The Ohio State Center for Automotive Research: Characterization, Modeling and Life Prediction. Honda R&D Center in Tochigi, Japan on September 9, 2013.

130. Buckeye Bullet! The Story of Three Land Speed Records, and the Technology Behind the Fastest Electric Vehicles in the World. Hefei University of Technology in China on June 3, 2013.

131. Educating a New Generation of Engineers for the Automotive Industry. Shanghai JiaoTong University in China on May 30, 2013.

132. Optimal Energy Management of Hybrid Vehicles – 15 Years of Development at The Ohio State University. Shanghai JiaoTong University in China on May 30, 2013.

133. Sustainable Mobility, Renewable Energy and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? TedX-OSU in Columbus, OH on April 13, 2013.

134. Batteries and Electrified Vehicles. Electrochemical Society Student Chapter at OSU in Columbus, OH on March 28, 2013.

135. Lo Stato Dell'arte Della Ricerca Sui Veicoli Ibridi all'OhioState University. Strategie di Gestione per la Minimizzazione dei Consumi. Università della Tuscia in Viterbo, Italy on Mar. 21, 2013.

136. Optimal Energy Management of Hybrid Vehicles – 15 years of Development at OSU. Università di Roma La Sapienza, POMOS in Cisterna, Italy on March 19, 2013.

137. Buckeye Bullet! The Story of Three Land Speed Records. Columbus Science Pub in Columbus, OH in February 2013.

138. Optimal Energy Management of Hybrid Vehicles – 15 years of Development at OSU. Mechanical Engineering Department at The Ohio State University in Columbus on January 11, 2013.

139. Public-Private Partnerships: The Ohio State University Center for Automotive Research. TechColumbus Board of Directors in Columbus, OH on December 12, 2012.

140. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? Engineering Learning at OSU's Houck House Residence Hall in Columbus on December 12, 2012.

141. Research in Batteries and Electrified Vehicles at OSU CAR. Electrochemical Society Student Chapter at CAR in Columbus, OH on December 3, 2012.

142. Sustainable Mobility, Fuels, and Energy Feedstocks – a U.S. Perspective. FKFS in Stuttgart, Germany on November 22, 2012.

143. Optimal Energy Management of Hybrid Electric Vehicles: 15 years of Development at OSU. University of Stuttgart in Germany on November 21, 2012.

144. The Future of Automotive Powertrains in the USA. University of Stuttgart in Germany on November 19, 2012.

145. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? OSU Retiree Assn. in Upper Arlington, OH on November 11, 2012.

146. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? OSU Engineering Scholars in Columbus, OH on October 10, 2012.

147. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? Powering Ohio's Economy – Annual Meeting of the Ohio Society of Professional Engineers in Columbus on June 1, 2012.

148. Aging of Lithium-Ion Batteries: Modeling, Characterization and Life Prediction. National Fuel Cell Research Center at the University of California at Irvine on May 23, 2012.

149. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? Ferrari Club of America at CAR in Columbus on April 24, 2012.

150. Future Mobility Challenges, Where Will We Find Fuel Efficiency Solutions? SAE International Congress Seminar in Detroit, MI on April 24, 2012.

151. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? OSU Alumni Club of Detroit's 10th Annual Spring Banquet in Auburn Hills, MI on April 22, 2012.

152. Optimization of Plug-in Hybrid-Electric Vehicle Energy Use through the Use of Geographical and Traffic Information Systems and Cloud Computing. Tsinghua University in Beijing, China on April 11, 2012.

153. Optimization of Plug-in Hybrid-Electric Vehicle Energy Use through the Use of Geographical and Traffic Information Systems and Cloud Computing. Hefei University of Technology in China on April 9, 2012.

154. Hierarchical Fault Diagnosis and Prognosis for Electrified Vehicles. Hefei University of Technology in China on April 9, 2012.

155. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? OSU John Glenn School of Public Affairs Colloquium in Columbus on March 26, 2012.

156. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? Winter College in Naples, FL on February 17, 2012.

157. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? OSU ASC Science Sundays at the Ohio Union US Bank Conference Theatre in Columbus on January 22, 2012.

158. Sustainable Mobility, Renewable Energy, and the Future of Transportation – What Vehicles Will Our (Grand)Children Drive? OSU Dept. of Food, Agricultural and Biological Engineering in Columbus on January 17, 2012.

159. Knowledge Transfer and Technology Commercialization at The Ohio State University Center for Automotive Research. TechColumbus in Columbus, OH on January 12, 2012.

160. Educating a New Generation of Control Engineers for the Automotive Industry. Ford Global Control Conference in Dearborn, MI on December 7, 2011.

161. A US Perspective on Electrification Trends in the Automobile: Implications on Generation and Distribution Network. OSU ISE Department in Columbus on November 16, 2011.

162. Sustainable Mobility: Challenges and Opportunities for the Next 20 Years. Automotive Industry Workshop at the NASA Glenn Research Center in Cleveland, OH on Oct. 27, 2011.

163. Energy Management and Sustainable Mobility – An Overview of Control Challenges and Opportunities. Center of Control Systems Technology, Erik Jonsson School of Engineering and Computer Science at the University of Texas at Dallas on October 3, 2011.

164. Sustainable Mobility: Challenges and Opportunities for the Next 20 Years. Sustainable Mobility College at CAR in Columbus on September 9, 2011.

165. Personal Mobility in 2035: A Challenge for Our Generation. Delaware Rotary Club in Delaware, OH on August 29, 2011.

166. Hierarchical Fault Diagnosis and Prognosis for Electrified Vehicles. Institute of Electrical Engineering at the Chinese Academy of Sciences in Beijing on August 23, 2011.

167. Battery Prognosis: A New Modeling Framework and Preliminary Experimental Data and Analysis. Automotive Engineering Dept. at Tsinghua University in Beijing, China on August 24, 2011.

168. Renewable Energy-Based Eco-Systems and Plug-In Hybrid Electric Vehicles. Women in Engineering at CAR in Columbus, OH on July 27, 2011.

169. The EcoCAR Challenge, Design of an Extended Range Electric Vehicle as part of a Student Competition. Università del Salento, Dip. di Ingegneria dell'Innovazione in Lecce, Italy on July 6, 2011.

170. Plug-In Vehicle: Why, When and How? Università degli Studi di Parma, Dip. di Ingegneria Industriale in Parma, Italy on May 31, 2011.

171. Research in Automotive Systems Engineering at OSU. Jianghuai Automobile Company R&D Center in Hefei, China on April 25, 2011.

172. The EcoCAR Challenge, Design of an Extended Range Electric Vehicle as Part of a Student Competition. Hefei University of Technology in China on April 24, 2011.

173. The EcoCAR Challenge, Design of an Extended Range Electric Vehicle as Part of a Student Competition. Shanghai JiaoTong University in China on April 21, 2011.

174. Battery Aging, Characterization, Modeling, Estimation and Diagnostics. Shanghai JiaoTong University in China on April 21, 2011.

175. Renewable Energy-Based Eco-Systems and Plug-In Hybrid Electric Vehicles. Earthweek Seminar at CAR in Columbus, OH on April 4, 2011.

176. Exhaust Emissions in Internal Combustion Engines. Guest Lecture in CBE 771, Air Pollution course at OSU in Columbus on March 2, 2011.

177. Plug-In Vehicle: Why, When and How? The Columbus Metropolitan Club in Columbus, OH on February 2, 2011.

178. A U.S. Perspective on Vehicle Electrification. Università del Salento in Lecce, Italy on December 3, 2010.

179. Battery Aging, Characterization, Modeling, Estimation and Prognostics. Università del Salento in Lecce, Italy on December 3, 2010.

180. Personal Mobility in 2020: A U.S. Perspective on Vehicle Electrification. Hefei University of Technology in China on November 16, 2010.

181. A U.S. Perspective on Vehicle Electrification: Progress and Challenges Related to Infrastructure and Technology for Vehicle-to-Grid Systems. Shanghai Jiao Tong University in China on November 12, 2010.

182. Battery Aging: Characterization, Modeling, Estimation and Prognostics. Shanghai Jiao Tong University in China on November 12, 2010.

183. Battery Aging: Characterization, Modeling, Estimation and Prognostics. Samsung Research Center in Seoul, Korea on November 11, 2010.

184. A U.S. Perspective on Vehicle Electrification: Progress and Challenges Related to Infrastructure and Technology for Vehicle-to-Grid Systems. Kookmin University in Seoul, Korea on November 10, 2010.

185. A Comparative Analysis of Energy Management Strategies for Hybrid Electric Vehicles. KTH - Royal Institute of Technology in Stockholm, Sweden on September 1, 2010.

186. Research in Battery Aging and Thermal Characterization and Modeling at OSU CAR. Ford Research and Innovation Center in Dearborn, MI on August 17, 2010.

187. Aging of Lithium-Ion Batteries: Modeling, Characterization and Prognosis. FKFS in Stuttgart, Germany on June 22, 2010.

188. A U.S. Perspective on Vehicle Electrification: Progress and Challenges Related to Infrastructure and Technology for Vehicle-to-Grid Systems. Automotive Technology Leaders Present Series at the University of Stuttgart in Germany on June 21, 2010.

189. Modeling, Characterization, Aging and Prognostics of Lithium-Ion Batteries. Dept. of Chemical Engineering at Ohio University in Athens, OH on April 20, 2010.

190. Fuel Cells 101: Fuel Cells – Opportunities for Growth in Ohio Workshop in Dublin, OH on April 9, 2010.

191. Plug-in Vehicles – Why, When, and How? Green Energy Ohio Workshop at the Governor's Mansion in Columbus, OH on April 1, 2010.

192. Progress and Challenges in the Configuration, Control and Battery Management of Vehicle-to-Grid (V2G) Integration Systems: A U.S. Utility Perspective. Automotive Intelligence Center in Bilbao, Spain on December 15, 2009.

193. Hybrid Electric Vehicles. Department of Mechanical Engineering at McMaster University in Hamilton, ON on August 21, 2009.

194. Design and Control of a Renewable Energy-Based Eco-System with Plug-In/V2G Hybrid Electric Vehicles. Department of Mechanical Engineering and International Center for Automotive Research at Clemson University in Greenville, SC on April 3, 2009.

195. Buckeye Bullet! The Story of Two Land Speed Records. Department of Mechanical Engineering, The University of North Carolina in Charlotte, NC on April 2, 2009.

196. Personal Mobility in 2029: Energy, Sustainability and Transportation. The Metro School in Columbus, OH on February 9, 2009.

197. Personal Mobility in 2020: The Changing Face of the Transportation Industry. Dept. of Electrical Engineering at Indiana University/Purdue University in Indianapolis, IN on January 9, 2009.

198. Economic Evaluation of PHEV on the Grid. OSU Center for Energy, Sustainability and the Environment Inaugural Lecture in Columbus, OH on October 17, 2008.

199. Personal Mobility in 2027: Energy and the Vehicles of Tomorrow. Honda North American Technical Festival and Technical Skill Exchange in Marysville, OH on September 25, 2008.

200. Creating a Sustainable Future for Mobility in the U.S.A. – the Great Challenge for the Next Generation of Auto Engineers. FKFS, Universität Stuttgart in Germany on September 8, 2008.

201. World's First Hydrogen Fuel Cell Powered Landspeed Streamliner: The Ohio State University Buckeye Bullet 2. SAE International Salt Lake City Section in Wendover, NV in August 2008.

202. Personal Mobility in 2027: Energy and the Vehicles of Tomorrow. The Columbus Metropolitan Club in Columbus, OH on July 30, 2008.

203. System Fault Diagnosis – A Tutorial Overview and Application to Diagnosis of a Lean NOX Trap. Cummins, Inc. in Columbus, IN on April 23, 2008.

204. Personal Mobility in 2027: Energy and the Vehicles of Tomorrow. Dept. of Mechanical Engineering, University of Minnesota at Minneapolis on March 26, 2008.

205. World's First Hydrogen Fuel Cell Powered Landspeed Streamliner: The Ohio State University Buckeye Bullet 2. SAE International Auto Show in Cleveland, OH on February 25, 2008.

206. Personal Mobility in 2027: Energy and the Vehicles of Tomorrow. OSU Energy and Environmental Series in Columbus, OH on January 18, 2008.

207. Visions of the Future: Energy and the Vehicles of Tomorrow. Kiwanis Club of Columbus in Columbus, OH on September 5, 2007.

208. Energy and Personal Transportation in the 21st Century, Rotary Club of Wooster in Wooster, OH on July 30, 2007.

209. Control of Driveability in Hybrid Electric Vehicles, Dipartimento di Elettronica e Informazione, Politecnico di Milano in Milano, Italy on June 15, 2007.

210. Overview of Hybrid Electric Vehicles, Dipartimento di Elettronica e Informazione, Politecnico di Milano in Milano, Italy on June 11, 2007.

211. Control of Driveability in Hybrid Electric Vehicles, Dept. of Mechanical Engineering, Swiss Federal Polytechnic (ETH) in Zürich, Switzerland on June 8, 2007.

212. Research in Hybrid-Electric Vehicles at OSU CAR. Dipartimenti di Meccanica e Energetica, Politecnico di Torino in Torino, Italy on June 8, 2007.

213. Buckeye Bullet! The Story of a Land Speed Record. Università di Pavia in Italy on May 2, 2007.

214. Research in Hybrid-Electric Vehicles at OSU CAR. Department of Mechanical, Nuclear and Manufacturing Engineering, Università di Pisa in Italy on April 19, 2007.

215. Research in Hybrid-Electric Vehicles at OSU CAR. FKFS, University of Stuttgart in Germany on March 2007.

216. New Development in the Design of Hybrid Electric Vehicles. General Motors Powertrain – Europe in Torino, Italy on May 26, 2006.

217. Diesel HCCI Combustion via External Mixture Formation. Magneti Marelli Powertrain Division in Bologna, Italy on May 25, 2006.

218. New Development in the Design of Hybrid Electric Vehicles. Magneti Marelli Powertrain Division in Bologna, Italy on May 25, 2006.

219. Aging Characterization of NiMH Batteries for Hybrid Electric Vehicles. Swiss Federal Polytechnic (ETH) in Zürich, Switzerland on May 19, 2006.

220. Some Thoughts on the Future of Mobility. Honda PESC in Dublin, OH on April 18, 2006.

221. Hybrid Electric Vehicles – A Solution for Tomorrow's Mobility? Mechanical Engineering Department, Ohio State University at Columbus on January 6, 2006.

222. Diesel HCCI Combustion: Experimental Activities and Modeling. Universidad Politecnica de Valencia in Spain on December 15, 2005.

223. An Overview of Hybrid-Electric Vehicles: Challenges and Opportunities for the Transportation Industry. Universidad Politecnica de Valencia in Spain on Dec. 14, 2005.

224. Modeling and Control Fuel Cell Systems for Automotive Applications. Department of Mechanical Engineering, University of IL at Urbana-Champaign on April 18, 2005.

225. A Control-Oriented Model for an Automotive PEM Fuel Cell System with Imbedded 1+1D Membrane Water Transport. Department of Chemical Engineering Seminar Series, Case Western Reserve University in Cleveland, OH on December 8, 2005.

226. Energy Management and Control for Driveability of Hybrid Electric Vehicles – a Comparison of Different Approaches and Open Problems. Clemson University in Clemson, SC on February 10, 2005.

227. Supervisory Control for NOx Reduction of an HEV with a Mixed Mode HCCI/DI Engine. Dipartimento di Energetica, Politecnico di Milano in Italy on December 16, 2004.

228. Diesel HCCI Combustion – Modeling and Experiments. Dipartimento di Energetica, Politecnico di Milano in Italy on December 16, 2004.

229. Dynamics and Control of Fuel Cell Systems for Automotive Propulsion. Dipartimento di Elettronica e Informazione, Politecnico di Milano in Italy on December 15, 2004.

230. Energy Management and Control for Driveability of Hybrid Electric Vehicles – A Comparison of Different Approaches and Open Problems. Dipartimento di Elettronica e Informazione, Politecnico di Milano in Italy on December 15, 2004.

231. Buckeye Bullet – The Story of a Land Speed Record. Università di Roma in Tor Vergata, Italy on December 14, 2004.

232. Modeling for Model-Based Control. General Motors Advanced Powertrain in Milford, MI on June 22, 2004.

233. Supervisory Control for NOx Reduction of an HEV with a Mixed-Mode HCCI/DI Engine. Ford Research Laboratory in Dearborn, MI on June 17, 2004.

234. Dynamics and Control of Fuel Cell Systems for Automotive Applications. MEEN 681 Graduate Seminar, Mechanical Engineering Department, Texas A&M University in College Station, TX on April 14, 2004.

235. Mixed-Mode Diesel HCCI with External Mixture Formation. Ford Research Laboratory in Dearborn, MI on September 3, 2003.

236. Modeling and Control Fuel Cell Systems for Automotive Applications. Ford Research Laboratory in Dearborn, MI on April 14, 2003.

237. Model-Based Fault Diagnosis for Vehicle Systems. General Motors R&D Center in Warren, MI on January 23, 2003.

238. Personal Transportation in the 21st Century - Energy Use and Exhaust Emissions in the Vehicle of the Future. School of Electrical and Computer Engineering, Purdue University in West Lafayette, IN on November 7, 2002.

239. System Models for Energy Analysis, Design Optimization and Energy Management of Hybrid Electric Vehicles. School of Mechanical Engineering, Purdue University in West Lafayette, IN on November 6, 2002.

240. Sustainable Mobility in the 21st Century. German-American Frontiers of Engineering, The National Academies in Washington, DC on May 16, 2002.

241. The Evolution of the Modern Passenger Car Diesel Engine and Challenges to its Widespread Introduction in the North American Market. Department of Mechanical Engineering, University of Michigan at Ann Arbor on October 26, 2001.

242. Control Development for a Hybrid-Electric Sport-Utility Vehicle: Strategy, Implementation and Field Test Results. College of Engineering Control Seminar, University of Michigan at Ann Arbor on October 26, 2001.

243. Personal Transportation in the 21st Century – Energy Use and Exhaust Emissions in the Vehicle of the Future. Department of Mechanical Engineering, Pennsylvania State University at State College on August 9, 2001.

244. Hybrid Drivetrain Control Research at The Ohio State University. Engine Research Center, University of Wisconsin at Madison in May 2001.

245. Personal Transportation in the 21st Century – Energy Use and Exhaust Emissions in the Vehicle of the Future. Technology and Society Seminar Series, Thayer School of Engineering Science, Dartmouth College in Hanover, NH on May 4, 2001.

246. Energy Analysis, Design Optimization and Energy Management of Hybrid Electric Vehicles - a Case Study: the OSU FutureTruck. Institut für Mess- und RegelTechnik, Eidgenossiche Technische Hochschule (ETH), March 2001, Zürich, Switzerland.

247. Design of Hybrid-Electric Vehicles: the OSU FutureTruck 2000. Department of Mechanical Engineering Seminar, Carnegie Mellon University in Pittsburgh, PA on November 29, 2000.

248. A Power Flow Analysis Method for Hybrid Electric Vehicle Energy Consumption Analysis, Design Optimization and Energy Management. Department of Mechanical and Aerospace Engineering Seminar, University of Tennessee on November 2, 2000.

249. Energy and Pollution and Transportation. OSU Honors Program Fireside Chat in Columbus, OH on October 26, 2000.

250. Modeling, Analysis and Optimization of Hybrid Electric Vehicles. College of Engineering Control Series Seminar, University of Michigan at Ann Arbor on October 29, 1998.

251. Research in Automotive Powertrain Modeling, Control and Diagnosis. Consiglio Nazionale delle Ricerche - Istituto Motori in Napoli, Italy in July 1998.

252. Research in Automotive Powertrain Modeling, Control and Diagnosis. Austauschgruppe, Daimler-Benz Research and Technology in Stuttgart, Germany on May 29, 1998.

253. Research in Automotive Powertrain Modeling, Control and Diagnosis. Delphi Delco Electronics Systems in Kokomo, IN on February 1998.

254. Modeling of Engine Dynamics. DIEM Università di Bologna in Italy on November 3, 1997.

255. Design of Hybrid-Electric Vehicles. DIEM Università di Bologna in Italy on Oct. 23, 1997.

256. On-Board Diagnosis of Auto Engines. Fiat Research Center in Orbassano, Italy on October 27, 1997.

257. The OSU FutureCar. IEEE South-Eastern Michigan Section in Dearborn on April 14, 1997.

258. Modeling, Diagnosis and Control of Intermittent Combustion Engines. Honeywell Technology Center in Minneapolis, MN on July 31, 1997.

259. Combustion and Misfire Diagnostics in Two-Stroke Engines. Outboard Marine Corporation in Milwaukee, WI in February 1997.

260. Fault Detection and Isolation for Nonlinear Dynamic Systems. Joseph C. Wilson Center for Research & Technology at Xerox Corporation in Webster, NY in February 1997.

261. Diagnostics Trends and Needs in the Automotive Industry. ONR-NSF Workshop on Machinery Condition Monitoring on March 13-15, 1996.

262. Application of Time-Frequency Analysis to Machinery Diagnostics. Electrical Engineering Department, University of Pittsburgh in PA on April 1, 1996.

263. Fault Detection and Diagnosis in Engineering Systems: Overview and Application to Automotive Systems. Magnet Marelli Engine Control Division in Bologna, Italy on January 10, 1996.

264. Combustion Analysis in an Internal Combustion Engine Utilizing Ignition Voltage and Current Analysis. Cummins Engine Company in Columbus, IN in November 1995.

265. Research in Powertrain Dynamics, Control and Diagnostics at the OSU Center for Automotive Research. First Annual CAR Forum in Columbus, OH in October 1995.

266. Estimation of Instantaneous Indicated Torque and Misfire Detection in Multi-Cylinder Engines. Cummins Engine Company in Columbus, IN in June 1995.

267. Automotive Diagnostics: Methods, Applications and Future Challenges. IEEE South-Eastern Michigan Section in Detroit, MI in April 1995.

268. Fault Diagnosis in Rotating Machinery. Department of Electrical Engineering SPANN Seminar, The Ohio State University in Columbus, OH on October 25, 1994.

269. Automotive On-Board Diagnostics: State of the Art and New Requirements. Università di Bologna in Italy in September 1995.

270. Unknown Input Estimation and Fault Detection in Dynamic Systems. United Technologies Research Center on May 5, 1994.

271. Nonlinear Parity Equations: A New Approach to System Fault Diagnosis. College of Engineering Control Seminar, University of Michigan at Ann Arbor in October 1993.

272. Sensors Actuators and Microelectronics in Automotive Systems: What is the Future of the Automobile? OSPE Franklin County Chapter in Columbus, OH on March 10, 1993.

273. Sensors Actuators and Microelectronics in Automotive Systems: What is the Future of the Automobile? ISA/IEEE Symposium in Columbus, OH on March 15, 1992.

274. On-Board Diagnosis of Internal Combustion Engines. Cummins Engine Company in Columbus, IN in November 1991.

275. Current Research Issues in Failure Detection and Isolation Theory. Department of Electrical Engineering Colloquium, Ohio State University at Columbus on February 12, 1991.

276. Onboard Diagnosis of Engine Misfire. Mechanical Engineering, Ohio State University at Columbus on November 14, 1990.

277. Recent Results in Fault Detection and Identification Theory. College of Engineering Control, University of Michigan at Ann Arbor on September 14, 1990.

278. Application of Fault Detection and Identification Theory to Automotive Engines. Department of Mechanical Engineering, OSU at Columbus in February 1990.

279. Modeling, Performance Measurement and Diagnosis of Automotive Engines. College of Engineering, University of Napoli in Italy in June 1989.

280. Application of Fault Detection and Identification Theory to Automotive Engines. College of Engineering, University of Salerno in Italy in June 1989.

281. Application of Fault Detection and Identification Theory to Automotive Engines. FIAT Research Laboratory in Torino, Italy in June 1989.

282. Modeling, Performance Measurement and Diagnosis of Automotive Engines. General Motors Research Laboratory in Warren, MI in January 1989.

283. Application of Fault Detection and Identification Theory to Automotive Engines. Mechanical Engineering Department, Michigan State University at E. Lansing in Jan. 1989.

284. Application of Fault Detection and Identification Theory to Automotive Engines. College of Engineering, University of Michigan at Ann Arbor in October 1988.

Patents

1. Yurtsever, E., Giuliani, M., Rizzoni, G. Transforming Intersection Safety Through Emerging Technologies for Vulnerable and Distracted Road Users. Pending with the OSU Technology Commercialization Office, reference number T2024-361.

2. Rizzoni, G., Tang, L. Real-Time Energy Management Strategy for Hybrid Electric Vehicles with Reduced Battery Aging. U.S. Patent 20200198495, June 25, 2020.

3. Cantemir, C.G., Ursescu, G.G., Rizzoni, G. Power Train, Vehicle and Methods. U.S. Patent 8573348, November 5, 2013.

4. Cantemir, C.G., Rizzoni, G., Hubert, C.J., Ursescu, G., Barbarisi, O. All Wheel Drive Electrically-Variable Transmission. U.S. Patent 7921949, April 12, 2011; Japanese Patent 4819878, November 24, 2011.

5. Rizzoni, G., Guezennec, Y., Soliman, A., Lee, B. Engine Control Using Torque Estimation. U.S. Patent 6866024-B2, March 15, 2005.

6. Rizzoni, G., Soliman, A., Pisu, P., Amberkar, S., Murray, B. Model-Based Fault Detection and Isolation System and Method. U.S. Patent 6766230B1, July 20, 2004.

7. Rizzoni, G., Soliman, A., Pisu, P., Amberkar, S., Murray, B. Fault Detection and Isolation System and Method. U.S. Patent 6687585-B1, February 3, 2004.

8. Rizzoni, G., Connolly, F. Estimation of Instantaneous Indicated Torque in Multicylinder Engines. U.S. Patent 5771482, June 23, 1998.

9. Rizzoni, G., Methods and Apparatus for Performing Combustion Analysis in an Internal Combustion Engine Utilizing Ignition Voltage Analysis. U.S. Patent 5687082, November 11, 1997.

10. Ribbens, W.B., Park, J., Rizzoni, G. Method and System for Detecting a Misfire of a Reciprocating Internal Combustion Engine. U.S. Patent 5495415, February 24, 1996.

11. Kadomukai, Y., Ribbens, W.B., Rizzoni, G. Method and System for Detecting the Misfire of an Internal Combustion Engine Utilizing Engine Torque Nonuniformity. U.S. Patent 5278760, January 11, 1994.

12. Ribbens, W.B., Rizzoni, G. Method and System for Detecting the Misfire of an Internal Combustion Engine Utilizing Angular Velocity Fluctuations. U.S. Patent 5239473, August 24, 1993.

13. Ribbens, W.B., Rizzoni, G. Method and System for Detecting the Misfire of an Internal Combustion Engine Utilizing Angular Velocity Fluctuations. U.S. Patent 5200899, April 6, 1993.

Teaching

I. Awards

Mentor of the Next Generation Award, College of Engineering, Ohio State, April 2025.

Distinguished Graduate Faculty Award, Department of Mechanical and Aerospace Engineering, The Ohio State University, April 2024 and April 2016.

Faculty Mentoring Award, College of Engineering, The Ohio State University, May 2021.
Established in 2013, the award is presented each year to an individual faculty member in the College of Engineering for demonstrated excellence in the mentoring of one or more early-career faculty members within the College.

The Clara M. and Peter L. Scott Faculty Award for Excellence in Engineering Education, College of Engineering, The Ohio State University, May 2017.
This award recognizes a senior faculty member who has achieved both national and international status as a leading educator and researcher.

Excellence in Teaching Award, Department of Mechanical Engineering, The Ohio State University, May 2010.
Annual award given to one faculty member from the Department by a committee of alumni. Faculty who have not received the award in the past four years are eligible.

Excellence in Teaching Award, Department of Mechanical Engineering, Ohio State, May 2005.

Harrison Award for Excellence in Engineering Education, College of Engineering, The Ohio State University, May 1996.
Annual award given to one faculty member from the OSU College of Engineering (approximately 250 faculty). One candidate is nominated from each department.

Excellence in Teaching Award, Department of Mechanical Engineering, The Ohio State University, May 1993.

1992 Ralph R. Teetor Educational Award, Society of Automotive Engineers.
This award is given annually to approximately 10 faculty in the early to mid-stages of their careers. There is no limit to the number of applicants.

Tau Beta Pi Outstanding Teaching Award, the University of Michigan College of Engineering, April 1990.
One award given annually based on data and surveys collected by Tau Beta Pi officers.

Special Commendation for Excellence in Teaching, College of Engineering, the University of Michigan, 1988, 1989, 1990.
Commendation given by the Dean to faculty whose student evaluations exceed 3.75/4.

Distinguished Achievement as Teaching Assistant Award, EECS Department, College of Engineering, the University of Michigan, April 1980.
Given to 3 GTAs in the department with the best student evaluations of teaching and other qualitative measures (out of approximately 40).

II. Curriculum Development

Prof. Rizzoni has been involved in curriculum development throughout his career.

At the University of Michigan, he designed the undergraduate electrical engineering laboratory course offered to non-EE majors (EECS 315), and significantly revised the related lecture course (EECS 314). These developments led to the publication of two books (see section 2).

At The Ohio State University, starting in 1991, Prof. Rizzoni significantly revised the course ME 482, *System Dynamics and Electromechanics*, and created original material (on fluid power and electromechanical actuation systems) for approximately 50% of the course. ME 482 was at the time a required course for third year ME majors.

In 1992, Prof. Rizzoni developed the graduate course ME 874, *Fault Diagnosis in Dynamic Systems*, that has been offered in alternate years since 1993. This course attracts students from Mechanical, Electrical, Aerospace, Nuclear and Chemical Engineering and presents a system-theoretic view of fault diagnosis and prognosis in complex systems.

Between 1993 and 1994, Prof. Rizzoni developed a technical elective course, *Introduction to Mechatronics*, ME 674, and subsequently received an NSF curriculum development grant, *Design of Electro-Mechanical (Mechatronic) Systems - An Integrated Inter-Departmental Curriculum* (G. Rizzoni, A. Keyhani co-PIs, 6/94 - 5/96).

In 1994-95, with colleagues Srinivasan (ME) and Yurkovich (ECE), Prof. Rizzoni co-developed a course sequence on Powertrain Dynamics and Control in response to an RFP issued by the General Motors Technical Education Program. The courses ME 781, *Powertrain Dynamics*, and ECE 753.01, *Powertrain Control*, have been offered in alternate years to OSU graduate students and to industry practitioners (not only at GM, but also at Chrysler and Honda) since 1995.

In 1998, in collaboration with colleagues Guezennec (ME), Washington (ME) and Yurkovich (ECE), Prof. Rizzoni participated in the development of a graduate course sequence focusing on hybrid vehicles. The courses ME 784, *Energy Analysis of Hybrid Vehicles*, and ME 785, *Optimization and Control of Hybrid Vehicles*, were offered as a pilot in 1999-2000, and have been offered in alternate years since 2000. These courses are also offered to various industry partners via distance education.

When OSU converted to semesters in 2012, Prof. Rizzoni revised the *Powertrain Dynamics* course into the semester course ME 7236 in collaboration with Prof. K. Srinivasan. He also revised and extended the fault diagnosis course, now listed as ME 7372.

In addition, he re-designed and consolidated the courses ME 784 and 785 into a single semester course on hybrid electric vehicles, ME 7384. He has recently updated this course to include plug-in, fully electric and fuel cell air and land mobility: the title of the course was officially changed to *Principles of Electrified Propulsion System*, and the AU23 offering included material related to the electrification of commercial aviation in addition to ground vehicles (to attract an AE audience in addition to the traditional ME and ECE audience). The modifications included consideration of mission profiles for air vehicles and topics related to the hybridization of propulsion systems based on Brayton cycle engines (aeronautical gas turbines). This is the first course I am aware of that includes these topics.

Finally, Prof. Rizzoni was responsible for revising and creating new material for the first half of the new course ME 3360, *System Integration and Control*, which was based on ME 482 (*System Dynamics and Electromechanics*) and ME 570 (*Automatic Control*).

Today, Prof. Rizzoni teaches ME 7236, ME 7384 and ME 7372 in alternating years (ME 7236 is co-taught with Prof. M. Canova). In addition, he teaches guest lectures annually in the following courses, in addition to other ad hoc lectures:

- ME 5539, *IC Engine Fundamentals* (a lecture on powertrain electrification).

- CBE 5771, *Air Pollution* (two lectures on exhaust emissions in IC engines).

- HST 2710, *History of the Car* (a lecture on the history of electric vehicles).

Prof. Rizzoni has also taught extensively to vehicle mobility professionals in industry and academia through in-person, virtual, hybrid, live and asynchronous offerings. He has created and delivered continuing education courses in the following subject areas:

- Electric Vehicles and Hybrid Vehicles

- Drivetrain and Powertrain Electrification

- Lithium Ion Batteries for Electromobility

- Energy Analysis, Modeling & Optimization of Hybrid Vehicles

- Electrical and Mechanical Measurements and Instrumentation

- State Space Methods for Linear System Analysis and Control

- Digital Signal Analysis of Mechanical Systems

- Electrical Circuits and Analog Electronics

- Automotive Drivetrains

- Powertrain Dynamics

- Fault Diagnosis

During his career, Dr. Rizzoni has educated thousands of engineers and other professionals with courses presented directly to Ford, GM, Honda, Stellantis (Fiat/Chrysler), Schaeffler, Stoneridge, Caterpillar and other OEMs and suppliers. He has also taught researchers through other academic institutions and professional organizations across the globe, including the Research Institute for Automotive Engineering and Powertrain Systems/University of Stuttgart (FKFS), Linköping University, Politecnico di Torino, Università Niccolò Cusano, International Federation of Automatic Control (IFAC), Society of Automotive Engineers (SAE), and Institute of Electrical and Electronics Engineers (IEEE).

III. Graduate Advising

2 Current Post-Doctoral Researchers; 15 Former Post-Docs.
9 Current Ph.D. Students; 47 Graduated.
112 Graduated M.S. Students.

Post-Doctoral Researchers (2 Current; 15 Completed.)

Current:

1. Giuliani, Michele, Ph.D. in Industrial Engineering from University of Niccolò Cusano, M.S. and B.S. in ME from Sapienza University, both in Rome (Italy).

2. Yurtsever, Ekim, ECE, Ph.D. in Information Science from Nagoya University (Japan).

3. Pulvirenti, Luca, Ph.D. in Electromagnetism and Laurea degree in EE from Sapienza University of Rome (Italy).

Former Post-Docs:

1. Villani, Manfredi, Ph.D. in Industrial Engineering from University of Rome Niccolò Cusano, M.S. and B.S. in ME from University of Rome Tor Vergata (Italy). Currently Assistant Professor of Practice, Department of Mechanical Engineering, College of Engineering at The Ohio State University in Columbus, OH.

2. Khodadadi Sadabadi, Kaveh, Ph.D. in ME from OSU, M.S. in ME from Michigan Technological University, B.S. in ME from Iran University of Science and Technology in Tehran. Originally employed by Cummins; currently Battery Management Software Algorithm Developer by Aptiv in Carmel, IN.

3. Jung, Daniel, Ph.D. in Vehicular Systems from Linköping University, M.S. in Applied Physics and EE from Linköping University. Currently Associate Professor of EE at Linköping University (Sweden).

4. Stockar, Stephanie, Ph.D. in ME from The Ohio State University, M.S. and B.S. in ME from the Swiss Federal Institute of Technology (ETH) in Zurich (Switzerland). Formerly Assistant Professor in ME at Penn State University; currently Assistant Professor in MAE at The Ohio State University.

5. Tulpule, Punit, Ph.D. in ME from Iowa State University, M.S. and B.S. from Pune University (India). Currently Assistant Professor in MAE at OSU.

6. D'Arpino, Matilde, Ph.D. and M.S. in EE from University of Cassino (Italy). Currently Assistant Research Professor in MAE and ECE at OSU.

7. Serra, Emmanuele, Ph.D. in ECE from University of L'Aquila, M.S. and B.S. in Information and Automation Engineering from University of L'Aquila (Italy). Currently Data Engineer for Aptar.

8. Ahmed, Qadeer, Ph.D. and M.S. in EE from Mohammad Ali Jinnah University in Islamabad, B.S. in Mechatronics & Control Engineering from University of Engineering and Technology in Lahore (Pakistan). Currently Assistant Professor in MAE at OSU.

9. Scacchioli, Annalisa, Ph.D. and M.S. (Laurea) degrees in EE and Computer Sciences from University of L'Aquila (Italy). Currently Associate Professor in MAE at Rutgers.

10. Chiara, Fabio, Ph.D. in Energy Systems from the Università del Salento and M.S. (Laurea) in ME from Università di Catania (Italy). Currently Senior Engineer II for Honda R&D Americas.

11. Onori, Simona, Ph.D. in Control Engineering from University of Rome Tor Vergata, M.S. in EE from University of New Mexico, and Laurea in ECE from University of Rome Tor Vergata (Italy). Currently Associate Professor in Energy Resources Engineering and Director of the Energy Control Lab at Stanford University.

12. Marano, Vincenzo, Ph.D., M.S. and B.S. in ME from the University of Salerno (Fisciano, Italy). Currently Official Engineer at the Ministry of Infrastructure and Transport (Rome, Italy).

13. Canova, Marcello, Ph.D. and M.S. in ME from the University of Parma (Italy). Currently Professor of MAE and Associate Director of the Center for Automotive Research, OSU.

14. Biancolini, Marco, Ph.D. and M.S. in ME from the University of Rome Tor Vergata. Currently Associate Professor in ME at the University of Rome Tor Vergata (Italy).

15. Donateo, Teresa, Ph.D. in Combustion from the University of Lecce and M.S./Laurea in Materials Engineering from the University of Salento (Italy). Currently Assistant Professor in Innovation Engineering at the University of Salento.

Doctoral Students (9 Current; 47 Completed.)

Current:

1. Singh, Yuvraj, ME, post-candidate (expected completion May 2025).
2. Shiledar, Ankur, ME, post-candidate (expected completion December 2025).
3. Kibalama, Dennis, ECE, post-qualification (expected completion December 2026).
4. Mapunda, David, AE, post-qualification (expected completion December 2026).
5. Akintade, Rebekah, AE, post-qualification (expected completion December 2026).
6. Thammakul, Kontorn, ME, post-qualification (expected completion May 2027).
7. Tambolkar, Pooja, ME, post-qualification (expected completion May 2027)
8. Kalra, Vikhyat, ME, pre-QE (expected completion December 2027).
9. Taylor, Julia, AE, pre-QE (expected completion December 2027, co-advised with Dr. Blake Stringer)

Graduated from The Ohio State University:

1. Zhao, Tong, ME, Limit Handling Vehicle Control for Improving Automated Vehicle Safety, December 2022 (employed by Apple).
2. Cheng, Ye, ECE, Fault Diagnosis for Lithium-Ion Battery System of Hybrid Electric Aircraft, May 2022 (employed by General Motors Global R&D).
3. Hillstrom, David, ME (co-advised with Shawn Midlam-Mohler), Experimental Determination of Inlet Conditions for Dynamically Modelling Fuel Spray, December 2021 (employed by Infinity Labs).

4. Perez, Wilson, ME (co-advised with Shawn Midlam-Mohler), Real-Time Look-Ahead Optimal Energy Management Strategy for Hybrid Electric and Connected Vehicles, December 2021 (employed by Ford Research and Advanced Engineering).

5. Jankord, Gregory, ME (co-advised with Shawn Midlam-Mohler), Multi-Objective Control of Criteria Emissions and Energy Management in HEVs with Consideration of Three-Way Catalyst Dynamics, December 2020 (employed by OSU's SimCenter).

6. Khodadadi Sadabadi, Kaveh, ME, Model-Based State of Health Estimation/ Residual Useful Life Prediction of PbA and Li-Ion Batteries, December 2020 (employed by Aptiv in Carmel, IN).

7. Yang, Ruochen, ECE, Diagnosis of Evaporative Emissions Control System Using Physics-Based and Machine Learning Methods, May 2020 (employed by Ford).

8. Li, Tianpei, ME, Fault Diagnosis for Functional Safety in Electrified and Automated Vehicles, May 2020 (employed by SERES EV in Santa Clara, CA).

9. Rahman, Brian, ME, Sensor Placement for Diagnosis of Large-Scale, Complex Systems: Advancement of Structural Methods, August 2019 (employed by Taylor Made in Carlsbad, CA).

10. Arasu, Mukilan, ME, Energy Optimal Routing of Vehicle Fleet with Heterogeneous Powertrains, August 2019 (employed by The Mathworks in Natick, MA).

11. Jayakumar, Adithya, ECE, Simulation-Based Optimization of Hybrid Systems Using Derivative Free Optimization Techniques, August 2018 (Senior Lecturer, EED, College of Engineering, OSU).

12. Hegde, Bharatkumar, ME, Look-Ahead Energy Management Strategies for Hybrid Vehicles, August 2018 (employed by GM Global Propulsion R&D).

13. Liu, Jianzhe, ECE, On Control and Optimization of Microgrids, December 2017 (holds a joint appointment with Argonne National Laboratory and the University of Chicago).

14. Tang, Li, ME, Optimal Energy Management Strategy for Hybrid Electric Vehicles with Consideration of Battery Life, May 2017 (originally employed by Delphi, currently employed by BorgWarner in Auburn Hills, MI).

15. Zhang, Jiyu, MAE, Model Based Diagnosis for Automotive Functional Safety, December 2016 (employed originally by General Motors Global R&D, Warren, MI then Tesla, Shanghai, China).

16. Bovee, Katherine, MAE, Optimal Control of Electrified Powertrains with the Use of Drive Quality Criteria, December 2015 (employed by GM Powertrain).

17. Bartlett, Alex, MAE, Electrochemical Model-Based State of Charge and State of Health Estimation of Lithium-ion Batteries, May 2015 (originally employed by Ford, Research and Advanced Engineering, currently employed by Apple).

18. Muratori, Matteo, MAE, Dynamic Management of Integrated Residential Energy Systems, May 2014 (currently Program Manager – Transportation & Industry with Pacific Northwest National Lab).

19. Cordoba Arenas, Andrea, MAE, Aging Propagation Modeling and State-of-Health Assessment in Advanced Battery Systems, December 2013 (employed by Ford, Research and Advanced Engineering).

20. Sampathnarayanan, Balaji, ECE, Analysis and Design of Stable and Optimal Energy Management Strategies for Hybrid Electric Vehicles, May 2013 (employed by Cummins in Columbus, IN).

21. Gong, Qiuming, MAE, PEV Charging Control Considering the Distribution Transformer Life, December 2012 (employed by Ford Electrified Powertrain Engineering).

22. Marcicki, James, MAE, Modeling, Parametrization, and Diagnostics for Lithium-Ion Batteries with Automotive Applications, December 2012 (employed by Ford, Research and Advanced Engineering, Dearborn, MI).

23. Tulpule, Pinak, ECE (co-advised by S. Yurkovich), Control and Optimization of Energy Flow in Hybrid Large-scale Systems – a Microgrid for Photovoltaic-based PEV Charging, December 2011 (originally employed by Cummins in Columbus, IN, currently employed by Waymo in Mountain View, CA).

24. Bayar, Kerem, MAE, Development of a Vehicle Stability Control Strategy for a Hybrid Electric Vehicle Equipped with Axle Motors, June 2011 (originally employed by Ford, Research and Advanced Engineering, currently employed by the Department of Mechanical Engineering, Middle East Technical University in Ankara, Turkey).

25. Follen, Kenneth, ME, A System Dynamics Modeling Methodology for Compressible Fluid Flow Systems with Application to IC Engines, August 2010 (employed by Cummins in Columbus, IN).

26. Hillstrom, Edward, MAE, Cathode Pressure Modeling of the Buckeye Bullet II 500kW PEM Fuel Cell System, June 2010 (employed by Apple in Cupertino, CA).

27. Serrao, Lorenzo, ME, A Comparative Analysis of Energy Management Strategies for Hybrid Electric Vehicles, June 2009 (employed by Dana Italia in Trento, Italy).

28. Koprubasi, Kerem, ME, Modeling and Control of a Hybrid Electric Vehicle for Driveability and Fuel Economy Improvements, September 2008 (originally employed by GM Global R&D, currently employed by Ford Otosan in Istanbul, Turkey).

29. Brahma, Avra, ME, Methodologies for Modeling and Feedback Control of the NOx-BSFC Trade-Off in High-Speed, Common-Rail, Direct-Injection Diesel Engines, June 2005 (originally employed by Cummins in Columbus, IN).

30. Wei, Xi, ME (co-advised with V. Utkin), Modeling and Control of a Hybrid Electric Drivetrain for Optimum Fuel Economy, Performance and Driveability, September 2004 (employed by Cummins, currently employed by John Deere).

31. Dunn, Ashley, ME (co-advised with D. Guenther), Jackknife Stability of Articulated Tractor Semitrailer Vehicles with High-output Brakes and Jackknife Detection on Low Coefficient Surfaces, June 2003 (originally employed by NHTSA in East Liberty, OH, currently employed by SEA in Columbus, OH).

32. Yan, Zhang, EE (co-advised with V. Utkin), Control and Observation of Electric Machines by Sliding Modes, December 2002.

33. Pisu, Pierluigi, EE, Hierarchical Fault Diagnosis in Complex Systems, March 2002 (Professor, ME and ECE, Clemson University).

34. Upadhyay, Devesh, ME, Modeling and Control of Advanced CIDI Engines, June 2001 (originally employed by Ford Research and Advanced Engineering, currently a consultant with SimInsights in Irvine, CA).

35. Russell, John, ME, On Exhaust Gas Recirculation Modeling and Flow Control in Internal Combustion Engines, June 2000 (originally employed by Ford, currently a partner with Alleman, Hall, McCoy, Russell and Tuttle, Intellectual Property Law in Portland, OR).

36. Zheng, Quan, ME (co-advised with K. Srinivasan), Modeling and Control of Stepped Automatic Transmissions, December 1999 (employed by Stellantis).

37. Kim, Yong-Wha, ME, Integrated Control and Diagnosis of Automotive Powertrains, June 1999 (retired in 2024 as Chief Technology Officer, Hyundai, Seoul, South Korea).

38. Dawson, Jonathan, ME, An Experimental and Computational Study of Internal Combustion Engine Modeling for Controls Oriented Research, June 1998 (employed by General Motors Powertrain).

39. Soliman, Ahmed, ME, The Application of Fuzzy Logic to the Diagnosis of Automotive Systems, December 1997 (formerly employed by SAE International and UNC Charlotte, currently a consultant with Automotive Measurement Systems in Charlotte, NC).

40. Krishnaswami, Vasanth, ME, Theory of Fault Detection and Identification in Nonlinear Systems, September 1996. (originally employed by Caterpillar, then UM Transportation Research Institute in Ann Arbor, currently a consultant with Fractoceros Consulting).

41. Samimy, Bahman (Ben), ME, Mechanical Signature Analysis by Joint Time-Frequency Analysis, December 1995 (originally employed by Ford Powertrain, currently Director of Business Process Re-Engineering for the Department of Defense and Adjunct Faculty at James Madison University in Harrisonburg, VA).

42. Luh, Guan-Chun, ME, Multi-Input Multi-Output Modeling of Nonlinear Systems with Application to Internal Combustion Engine Modeling, June 1994 (Professor, Mechanical Engineering, Tatung Institute of Technology in Chiayi, Taiwan).

Graduated from the University of Michigan:

43. Riggins, Robert, EE (co-advised with W.B. Ribbens), Detection and Isolation of Plant Failures in Dynamic Systems, December 1990 (Associate Professor of Electrical Engineering - retired, Air Force Institute of Technology in Dayton, OH).

44. Park, Jaehong, EE (co-advised with W.B. Ribbens), A Unified Theory of Fault Detection Filters, June 1991.

45. Yu, Tsung Lun, EE (co-advised with W.B. Ribbens), Hardware Implementation of Fault Detection and Identification, May 1992 (employed by Cascade Design Automation in Bellevue, WA).

46. Connolly, Francis, EE (co-advised with A.E. Yagle), Modeling and Identification of Combustion Pressure Processes in IC Engines, May 1992 (employed by Ford).

47. Peter M. Olin, EE (co-advised with P. Khargonekar), Fault Detection and Identification in the Joint Time-Frequency Domain, May 1992 (originally employed by Delphi, currently Chief Engineer, Advanced Controls and Software for BorgWarner).

Masters Students (112 Completed.)

Graduated from The Ohio State University:

1. Bagri, Keshav, ME, "Quantitative Risk Assessment and Mitigation through Fault Diagnostics for Automated Vehicles," August 2024 (employed by Lucid Motors).
2. Friedmann, Laura, ME, "Design, Manufacturing and Integration of a Sub 150kg Land Speed Electric Motorcycle," August 2024 (employed by Polaris).
3. Fernandez, Javier, ME, The Design and Validation of the Hardware for Buckeye AutoDrive's Sensor Suite, August 2023 (employed by American Honda Motor Co.).
4. Heyer, Gabe, ME, Development of a Model-Based Fault Diagnostics Strategy for a DC Microgrid, August 2023 (employed by Lockheed Martin).
5. Perez, David, ME, Evaluation of Machine Learning Models for Use in Estimating and Predicting Electric Vehicle Capacity Loss, August 2023.
6. Singh, Gurpreet, ME (co-advised with M. D'Arpino), Development and Sizing of the Multi-source DC Fast Charging Station Using Second Life Batteries and Renewables, December 2022 (employed by Stellantis at Auburn Hills, MI).
7. Capito Ruiz, Vicente, ME (co-advised with S. Midlam-Mohler), Implementation of Adaptive Equivalence Consumption Minimization Strategy (a-ECMS) in GM Blazer 2019, August 2022.
8. Leisenring, Griffin, EE, Evaluation of Automated Driving in a Virtual Environment, May 2022.
9. Engelman, Michael, ME, Pre-Commissioning of SDSS-V Focal Plane System Instruments with Optical Measurement and Analysis, December 2021 (currently Research Associate with the OSU Department of Astronomy).
10. Shiledar, Ankur, ME, Hierarchical-Energy Management Strategy for Range Extended Electric Delivery Truck, August 2021 (currently pursuing his Ph.D. at OSU CAR).
11. Ramavajula, Sai Krishna, ECE, Modeling of Lane Change Policy for Lateral IDM focusing on Microscopic Traffic Simulators, December 2020.
12. Singh, Yuvraj, ME, Regression Models to Predict Coastdown Road Load for Various Vehicle Types, August 2020 (currently pursuing his Ph.D. at OSU CAR).
13. Wilkerson, Jaxon, ME, Handoff of Advanced Driver Assistance Systems (ADAS) Using a Driver-in-the-Loop Simulator and Model Predictive Control (MPC), August 2020 (employed by Ford).
14. Ganesh, Sai Vinayak, ME, Critical Analysis of Aging Models for Lithium-Ion Second-Life Battery Applications, August 2020 (originally employed by Mathworks, currently employed by Applied Intuition in Mountain View, CA).

15. Anil, Vijay, ME, Mission-Based Design Space Exploration and Traffic-in-the-Loop Simulation for a Range-Extended Plug-in Hybrid Delivery Vehicle, May 2020 (employed by Accelera by Cummins).

16. Appel, Matthew, EE, Security Control Mechanism for Safety Critical Functions Operating on Automotive Controller Area Network, 2020.

17. Sunil, Anoop, ME, Modeling and Validation of an Automobile Evaporative Emission Carbon Canister, August 2019 (employed at Cummins in Columbus, IN).

18. Vamaraju, Harika, EE, May 2020 (employed by Texas Instruments in Sunnyvale, CA).

19. Jiang, Siyu, ME, A Comparison of PSO, GA and PSO-GA Hybrid Algorithms for Model-based Fuel Economy Optimization of a Hybrid-Electric Vehicle, 2019 (employed by dSPACE in Wixom, MI).

20. Trask, Simon, ME (co-advised with S. Midlam-Mohler), Systems and Safety Engineering in Hybrid-Electric and Semi-Autonomous Vehicles, May 2019 (employed by General Motors).

21. Caicedo Parra, Dina, ME, Mechanism to Quantify Road Surface Degradation and its Impact on Rolling Resistance, May 2019 (employed by Accelera by Cummins).

22. Deosthale, Eeshan, ME, Model-Based Fault Diagnosis of Automatic Transmissions, December 2018 (employed by Motional, Pittsburg, PA).

23. Li, Xuchen, ME, Driving Style Adaptive Electrified Powertrain Control, Dec. 2018.

24. Huster, Andrew, EE (co-advised with S. Midlam-Mohler), Design and Validation of an Active Stereo Vision System for the OSU EcoCAR 3, August 2017 (employed by General Motors).

25. Kibalama, Dennis, EE (co-advised with S. Midlam-Mohler), Design and Implementation of a BAS System for the OSU EcoCAR 3 Vehicle, August 2017 (currently pursuing his Ph.D. at OSU CAR).

26. Vallur Rajendran, Avinash, ME, A Methodology for the Development of Look-ahead Based Energy Management Systems Using Traffic-in-the-loop Simulation, December 2017 (employed by Cummins in Columbus, IN).

27. Shah, Kshitij, ME, Calibration and Validation of a Hybrid-vehicle Model for its Implementation in Optimization Routines for Model Based Fuel Economy Optimization, August 2017 (originally employed by Cummins, currently by Volvo in Sweden).

28. Divecha, Avinash, ME, Modelling of Hybrid Electric Vehicle Components in Modelica and Comparison with Simulink, March 2016 (originally employed at Cummins, currently employed at Nikola Motor Company in Phoenix, AZ).

29. Cooke, David, ME, Powertrain Modeling, Design and Integration for the World's Fastest Electric Vehicle, August 2015 (currently Sr. Associate Director, OSU CAR).

30. Stainislovaitis, Christopher, ME, A Systematic Approach to Hybrid Electric Vehicle Modeling, June 2015 (employed by Ford).

31. Maley, Evan, ME, Design and Analysis of the Venturi Buckeye Bullet 3 Suspension and Its Effects on Vehicle Performance, December 2015 (employed by Apple).

32. Organiscak, Matthew, ME, Model Based Suspension Calibration for Hybrid Vehicle Ride and Handling Recovery, August 2014.

33. Krohn, Austin, EE, Electro-Thermal Dynamics and the Effects of Generalized Discontinuous Pulse Width Modulation Algorithms on High Performance Variable Frequency Drives, May 2014 (employed by Peloton Interactive).

34. Hillstrom, David, ME, Light Duty Natural Gas Engine Characterization, August 2014 (subsequently earned Ph.D. and is employed by OSU's SIMCenter).

35. Wang, Lingchang, ME, Development of a Hardware-in-the-Loop Simulator for Battery Management Systems, May 2014 (employed by Rivian in Irvine, CA).

36. Clark, Casie, AE, Body Modification and Aerodynamic Performance Determination of the Buckeye Bullet 3 Land Speed Race Vehicle, May 2014 (employed by BLUE ORIGIN in Kent, WA).

37. Hyde, Amanda, ME, Development of a Traction Control System for a Parallel-Series PHEV, May 2014 (employed by General Motors).

38. Kromer, Robert, EE, Data Acquisition, Modeling, Simulation, and Control of the Buckeye Bullet – the World's Fastest Electric Vehicle, May 2014 (employed by Ford).

39. Sharma, Prashanth, EE, A Practical Implementation of a Near Optimal Energy Management Strategy Based on the Pontryagin's Minimum Principle in a PHEV, June 2012 (originally employed by Cummins, currently employed by Tesla in Palo Alto, CA).

40. Bork, Carrington, ME, Aerodynamic Development of the Buckeye Bullet 3 Electric Landspeed Vehicle, June 2012 (employed by Boeing in Seattle, WA).

41. Gupta, Abhay, ME (co-advised with S. Midlam-Mohler), Characterization of Engine and Transmission Lubricants for Electric Hybrid and Plug-in Hybrid Vehicles, May 2012.

42. Kumar, Sri Adarsh, ECE, Cloud Computing Based Velocity Profile Generation for Minimum Fuel Consumption, March 2012 (employed by Zalando SE in Germany).

43. Schacht, Eric, ECE, Design and Development of the EcoCAR Vehicle and the Controls Providing Efficiency and Drivability, August 2011 (employed at Precision CNC in Lancaster, OH).

44. Everett, Ryan, ME (co-advised with S. Midlam-Mohler), An Improved Model-Based Methodology for Calibration of an Alternative Fueled Engine, December 2011.

45. Bezaire, Beth, ME (co-advised with S. Midlam-Mohler), Modeling and Control of an Electrically Heated Catalyst, June 2011 (employed by GM).

46. Cooley, Brad, ME (co-advised with S. Midlam-Mohler), June 2010 (employed by GM).

47. Maringanti, Rajaram, ME (co-advised with S. Midlam-Mohler), Kernel-based Methods for Set Point Generation for Closed Loop Combustion of a CIDI Engine, September 2009 (employed by Ford).

48. Fang, Ming, ME (co-advised with S. Midlam-Mohler), Analysis of Variability and Injection Optimization of a Compression Ignition Engine, September 2009 (employed by Cummins).

49. Picciano, Nick, ME, Battery Aging, Diagnosis, and Prognosis of Lead-Acid Batteries for Automotive Application, June 2009 (originally employed by Bosch, currently employed by Climatec in Phoenix, AZ).

50. Suozzo, Christopher, EE, Diagnosis of Electrochemical Batteries, June 2008 (employed by CarmaLink in Albany, NY.

51. Sinsheimer, Ben, EE, Design and Simulation of a Fuel Cell Land Speed Vehicle Propulsion System, June 2008 (originally employed by A123 Systems, currently employed by Our Next Energy in Novi, MI).

52. Ponziani, Kevin, EE, Control System Design And Optimization for the Fuel Cell Powered Buckeye Bullet 2 Land Speed Vehicle, June 2008 (employed by Northrop-Grumman).

53. Li, Weiwu, ME, Model-Based Fault Diagnosis of Automotive Electric Power Generation and Storage System, March 2008 (employed by Cummins).

54. Zou, Zhijun, ME, March 2008 (originally employed by Cummins, currently by Rockwell Automation).

55. Cowgill, Joel, ME, Experimental Characterization of HCCI Engine, August 2007.

56. Sevel, Kris, ME (co-advised with Y. Guezennec), Development of a Start-stop System for a Hybrid-electric Vehicle, June 2007 (employed by GM).

57. Arnett, Mike, ME, Design and Analysis of an All-Wheel Drive Hybrid-Electric Vehicle, August 2007 (employed by Gamma Technologies).

58. Carr, Geoff, EE, Design of a Low-Cost, Reliable, Maintainable Worn Automotive Shock Tester, December 2006 (currently employed by Fork Bison).

59. Coburn, Courtney, ME, Closed-Loop Regeneration Scheduling for a Bifurcated Lean NOx Trap System with Bypass Regeneration, December 2006 (employed by Caterpillar in Peoria, IL).

60. Gu, Bo, ECE, Supervisory Control Strategy Development for a Hybrid-Electric Vehicle, June 2006 (employed by Texas Instruments in Dallas, TX).

61. Chehab, Zakaria, EE, Aging Characterization of NiMH Batteries for Hybrid Electric Vehicles, June 2006 (employed by Caterpillar in Peoria, IL).

62. Guba, Steve, ME, Impact of Worn Shocks on Vehicle Handling, Ride Quality, and Safety, June 2005 (originally employed by Goodyear, currently by Bendix Commercial Vehicle Systems in Avon, OH).

63. Morbitzer, Joseph, ME, High-Level Modeling, Supervisory Control Strategy Development, and Validation for a Proposed Power-Split Hybrid-Electric Vehicle Design, June 2005 (originally employed by Mototron, currently employed by New Eagle in Ann Arbor, MI).

64. Oke, Ameya, ME (co-advised with A. Soliman), December 2005 (employed by Cummins).

65. Snyder, Eric, ME, Characterization of Water Injection and Urea-SCR Systems for NOx Reduction in Diesel Engines, June 2005 (employed by General Motors).

66. Jackson, Prabhu Jacob, ME (co-advised with A. Soliman), A Sensor Array for Engine Exhaust After-Treatment Systems, June 2004.

67. Gilstrap, Mary, ME (co-advised with D. Guenther), Vehicle Dynamics of a Hybrid Electric Ford Explore: A Case Study of the Ohio State University Futuretruck, June 2004 (originally employed by Caterpillar).

68. Verma, Mohit, ME, Modeling, Simulation and Design Space Exploration of a MTV 5.0 Ton Cargo Truck in MSC-ADAMS, June 2004 (employed by Caterpillar).

69. Slone, Larry, ME, Design of a Sub-nanosecond Pulse Amplifier for an Electro-Optic Modulator, June 2004 (originally employed by Caterpillar, currently by Whirlpool).

70. Do, Kevin, ME, Dynamic Electro-Thermal Modeling of Ultracapacitors, June 2004 (originally employed by Caterpillar; currently Principal Engineer at GE Aviation).

71. Narula, Manik, ME, August 2003 (employed by Cummins).

72. Hillstrom, Edward, ME, Investigation of Chassis Rigidity and Vehicle Handling of an Electric Land Speed Vehicle, August 2003 (employed at Chrysler, then returned to CAR to earn his Ph.D.).

73. Sedarous, John, ME (co-advised with A. Soliman), An Aerodynamic Cross-Wind Gust Test Facility Modeling and Calibration, June 2002.

74. Ma, Qi, ME, Mode-Based SI Engine Idle Speed Control with Integrated Starter/ Alternator, June 2002 (went on to pursue a Ph.D. at OSU with Y. Guzennec).

75. Chandrasekaran, Arun Kumar (A.K.), ME, Vehicle Design Optimization Using Multi-Body Dynamics Simulation and Large Design Space Search Methods, June 2002 (employed by Oshkosh Truck Corporation).

76. Layman, Jennifer, ME, Aerodynamic Design and Analysis of a High-Speed Electric Car, June 2002 (employed by Caterpillar).

77. Radwan, Amr, ME (co-advised with A. Soliman), Model-Based On-board Component Fault Detection and Isolation in the Internal Combustion Engine Air Intake System Using the Statistical Local Approach, June 2002 (employed by Detroit Diesel).

78. Kim, Hansung, ME (co-advised with Y. Guezennec), Dynamic Battery Modeling in Hybrid Electric Vehicles, June 2002 (subsequently earned a Ph.D. at OSU and is now Associate Professor, Purdue University Northwest).

79. Hopka, Michael, ME (co-advised with Y. Guezennec), Mean Value Modeling and Validation for Control of a Modern Light Duty Diesel Engine, June 2002 (employed by Ford Motor Company).

80. Sopko, Thomas, ME, Dynamics and Stability Analysis of a Land Speed Record Electric Vehicle, December 2001 (employed by Caterpillar in Peoria, IL).

81. Huseman, Steve, ME, Evaluation and Simulation of an Advanced Diesel Fuel Injection System, August 2001 (employed by Allison Transmission).

82. Tateno, Makoto, ME (co-advised with Y. Guezennec), Emissions Modeling For Enhanced Hybrid Electric Powertrain Control, August 2001.

83. Lee, Byung-Ho, ME (co-advised with Y. Guezennec), On-line Indicated Torque Estimation in Real-Time for Powertrain Diagnostics and Control Applications, March 2001 (subsequently earned his Ph.D., and is currently Director of Electrified Propulsion Development at Hyundai Kia America Technical Center).

84. Pandit, Vikram, ME, Validation and Control Strategy Development for an Individual Cylinder Simulation of a General Aviation Engine (employed by Houlihan Lokey's Technology Group).

85. Holmes, Alan, ME, Modeling and Analysis of Electrically Variable Transmissions, September 2000 (employed by Allison Transmission in Indianapolis, IN).

86. Stella, Steve, ME, A Thermal Model of a High-Performance AC Induction Machine, September 2000 (originally employed by Ford Ecostar, currently leading Technology Innovation at the Electric Power Research Institute in Washington, DC).

87. Funke, Scott, ME, Aerodynamic Design for an Improved Formula Lightning Electric Race Car, September 1999 (originally employed by Ford, currently by Ushers Machine in Greenville, SC).

88. Brahma, Avra, MAE (co-advised with R.K. Yedavalli), A Unified Approach to Optimal Energy Management in Hybrid Vehicles, September 1999 (earned Ph.D. from OSU in 2005, originally employed by Ford, currently Director of Vehicle Integration for Locomation in Indianapolis, IN).

89. Miller, Troy, ME, Development of a Hybrid-Electric Vehicle Simulator, June 1999 (originally employed by Delphi, currently TRYTEK Machine Works in Jacobus, PA).

90. Yoo, Inkwang, ME, Modeling and Diagnosis of Evaporative Emissions Control System in SI Engines, April 1998 (employed by Ford).

91. Narayanan, Vijay, ME, On-Line Fault Diagnosis in Actively Controlled Vehicles, April 1998 (originally employed by i2 Technologies, currently by Confluent in India).

92. Li, Qingyuan, ME, Functional Device Representation of Mechatronic System Components, March 1998 (originally employed by Rockwell Automation, currently employed by Bosch North America in Plymouth, MI).

93. Baumann, Bernd, ME, Intelligent Control of Hybrid-Electric Vehicle Drivetrains, August 1997 (originally employed by DaimlerChrysler AG, currently by Kistler Instrumente in Lorch, Germany).

94. Wasacz, Bryon, ME, Development and Application of a Hybrid-Electric Vehicle Simulator, July 1997 (originally employed by Motorola, currently by Stellantis).

95. Upadhyay, Devesh, ME, Air-Fuel Ratio Control of an IC Engine Using the Spark Plug as an Ionization Probe, July 1997 (subsequently earned his Ph.D.).

96. Parker, Gary, ME, Individual Cylinder Model of IC Engine - Variable Pitch Propeller System for General Aviation Aircraft, June 1997 (currently Technology Planning Leader, Accelera by Cummins in Columbus, IN).

97. An, F, ME, A Study of Ignition System Properties in Spark Ignition Engines, August 1997.

98. Chinwalla, Alifya, EE (co-advised with V. Utkin), IC Engine Air-to-Fuel Ratio Control Using Sliding Mode Observers, June 1997.

99. Grider, Keith, ME, Design of the Ohio State University Electric Race Vehicle, September 1996 (originally employed by Fitch, currently by Milwaukee Tool in Brookfield, WI).

100. Hu, Jun, EE, Design of a Controller for Gaseous Fueled Engines, March 1996.

101. Knopp, James, ME, Development of a Dynamic Model for a Linear Electro-Mechanical Actuator, March 1996 (originally employed by Raytheon, currently by Qorvo in Richardson, TX).

102. Rye, III, Noble, ME, Parameter Identification of a Vehicle Dynamic Control Model, June 1995 (originally employed by Cummins, currently by P&G).

103. Leisenring, Kenneth, ME, IC Engine Air/Fuel Ratio Feedback Control During Cold Start, March 1995 (currently Chief Engineer, Powertrain Calibration at Ford).

104. Kim, Yong-Wha, ME, Internal Combustion Engine Misfire Detection: Model Based and Non Model Based Approaches, March 1995 (earned a Ph.D. from OSU CAR in 1999 and is employed by Ford).

105. Lee, Donghyeon, ME, Detection of Partial Misfire in IC Engines Using Crankshaft Angular Velocity Fluctuations, May 1994 (originally employed by Hyundai, currently CEO of KyungChang Industrial in South Korea).

106. Wang, Chi-Kuo, ME, Fuzzy Control of Internal Combustion Engine, August 1993.

107. Chen, Xing, ME, Engine Knock Detection Based on Joint Time-Frequency Distributions, August 1993.

108. Hsu, Chien, ME, A Nonlinear CFR Engine Model for Control Development, Aug. 1992.

109. Kao, Shenq-Jiunn, ME, Self-Tuning Air-to-Fuel Ratio Feedback Control, August 1992.

110. Engelman, Gerald, ME, Modeling and Control of an Active Suspension System, August 1992 (currently Engineering Manager, ADAS at Ford).

111. Sjafri, Lieanto, ME, Detection of IC Engine Knock Signals in the Joint Time-Frequency Domain, June 1992.

112. Scott, J. Douglas, ME, Empirical Estimation of IC Engine Frequency Response, June 1992 (originally employed by Delphi, currently Systems Engineering Manager for Aptiv in Troy, MI).

IV. Graduate Student Awards and Accomplishments

Finalist, Aerospace Competition on Fault Detection and Fault Tolerance for "Fault Diagnostics for Oscillatory Failure Case in Aircraft Elevator Servos," co-authored by my students **Yuvraj Singh**, **Keshav Bagri**, former student Adithya Jayakumar and myself, and presented at IFAC World Congress 2023.

Best Paper Award for "Fault Diagnosis in Lithium-Ion Batteries of Hybrid Electric Aircraft Based on Structural Analysis," co-authored with my student **Ye Cheng**, M. D'Arpino and G. Rizzoni and presented at the 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium.

Embassy of Italy Award for Research in Sustainability - Young Investigator Award 2021 given by the Italian Scientists and Scholars in North America Foundation (ISSNAF) for **Matteo Muratori**'s research in decarbonizing transportation systems.

2020 U.S. [Clean Energy Education & Empowerment Initiative](),C3E Award in Research for **Simona Onori**'s work on sustainable transportation and automotive energy systems.

Best Paper Award for "PEVs Market Penetration and Impact on Fuel Taxes," co-authored with V. Marano and **Matteo Muratori** and presented at ECOS, 2011.

ASME Dynamic Systems and Control Division Best Student Paper Award for "Analysis and Evaluation of a Two-Engine Configuration in a Series Hybrid Electric Vehicle," co-authored with Ph.D. student **Lorenzo Serrao** and presented at ASME - IMECE, 2006.

SAE 2003 Myers Award for Outstanding Student Paper for "New Model for Simulating the Dynamics of Pneumatic Heavy Truck Brakes with Integrated Anti-Lock Control," co-authored with Ph.D. student **Ashley L. Dunn (***SAE Technical Paper 2003-01-1322***)**.

Best Student Paper Award for "Diagnosis of Automotive Emission Control System Using Fuzzy Inference," co-authored with **A. Soliman** and **Y. W. Kim** and presented at IFAC SAFEPROCESS 1997.

1994 FISITA Conference Best Paper Award for "A New Generation of On-Board and Service Diagnostics for Passenger Vehicles," co-authored with **V. Krishnaswami** and **A. Soliman** and presented at the 1994 FISITA Conference in Beijing, China.

Fifteen former students/post-doctoral fellows are currently serving or have served on the faculty of universities.

1. M. Villani, The Ohio State University at Columbus
2. M. Canova, The Ohio State University at Columbus
3. S. Onori, Stanford University in California
4. P. Pisu, Clemson University in South Carolina
5. A. Soliman, University of North Carolina at Charlotte (retired)
6. K. Bayar, Middle East Technical University in Ankara, Turkey
7. G.C. Luh, Tatung Institute of Technology in Taiwan
8. H. Kim, Purdue University Northwest in Hammond, IN

9. R. Riggins, Air Force Institute of Technology in Dayton, OH (retired)
10. D. Jung, Linköping University in Sweden
11. S. Stockar, The Ohio State University at Columbus (formerly Penn State University)
12. P. Tulpule, The Ohio State University at Columbus
13. M. D'Arpino, Ohio State University at Columbus
14. Q. Ahmed, Ohio State University at Columbus
15. A. Scacchioli, Rutgers University in New Brunswick, NJ

V. Student Group/Organization Advisor

Faculty Advisor to OSU *Buckeye Current* electric land speed record vehicle team, 2022 to present. **The Buckeye Current set multiple national/world speed records, with 4 current world records including 168.712 mph (unfaired) and 180.065 mph (faired).**

Faculty co-Advisor to OSU *Battery Workforce Challenge* team, 2023 to present. The team earned **Second Place** nationally overall in the first and second years of the four-year competition.

Faculty co-Advisor to OSU *EcoCAR EV Challenge* team, 2022 to present. The team earned **First Place** nationally overall in the third year of the four-year competition, including first place in four subcategories. This is the third year in a row the team won the competition.

Faculty co-Advisor to OSU *AutoDrive Challenge* team, 2021 to present.

Faculty co-Advisor to OSU *EcoCAR Mobility Challenge* team, 2019 to 2022.

Faculty co-Advisor to OSU *EcoCAR 3* team, 2015 to 2018.

Faculty co-Advisor to OSU *EcoCAR 2* team, 2012 to 2014.

Faculty co-Advisor to OSU *EcoCAR: the next Challenge* team, 2009 to 2011.

Faculty Advisor to OSU *Buckeye Bullet* electric land speed record vehicle team, 2000 to 2004 and 2010 to present. **The Buckeye Bullet held the U.S. Land Speed Record from 2004 to 2021, first at 315 mph and then at almost 341 mph. We continue to hold multiple FIA Land Speed Records in the electric vehicle category.**

Faculty Advisor to OSU *Buckeye Bullet 2* hydrogen fuel cell land speed record vehicle team, 2005 to 2009. **The Buckeye Bullet 2 currently holds the FIA flying-mile (almost 303 mph) and flying-kilometer (almost 488 kph) world records for fuel-cell and battery powered vehicles.**

Faculty co-Advisor to OSU *ChallengeX* team, 2005 to 2008.

Faculty co-Advisor to OSU *FutureTruck Challenge* team, 2000 to 2004.

Faculty co-Advisor to OSU *FutureCar Challenge* team, 1995 to 1999.

Faculty Advisor to Society of Automotive Engineers, OSU Student Branch, 1994 to present. OSU chapter awarded **1996 Allied Signal "Outstanding Branch" Award**. Received **1999 SAE Faculty Advisor Award**.

Faculty Advisor to OSU *Formula Lightning* Electric Race Car Team, 1993 to 1999. **National Champion, ABB University Spec Series in 1996, 1997, 1998.**

Research Programs

Professor Rizzoni has served as Principal Investigator (PI) on more than $55M in projects funded by government agencies and industry sponsors since joining The Ohio State University, and co-PI on another $40M plus. His total research expenditures are approaching $100M.

The organizations supporting Prof. Rizzoni's research have included:

- National Science Foundation (NSF)
- United States Department of Energy (DOE)
- United States Department Transportation (DOT)
- United States Army (TARDEC)
- National Aeronautics and Astronautics Administration (NASA)
- Ohio Board of Regents
- Ohio Third Frontier Program
- Borg Warner
- Stellantis (Chrysler, DaimlerChrysler, Fiat-Chrysler Automobiles)
- Cummins
- Delphi
- Ford
- General Motors
- Honda
- Hyundai-Kia
- Schaeffler
- Tenneco

A summary of the major research programs he has led follows.

NSF:

Professor Rizzoni has been PI or co-PI on 10 NSF programs, including 3 major programs (S/IUCRC, IGERT, CDI) and 7 single PI programs; he also earned the NSF Presidential Young Investigator award.

- 2013 – PI, Civil, Mechanical and Manufacturing Innovation (CMMI) program
- 2013 – PI, Cyber-Innovation for Sustainability Science and Engineering (CyberSEES) program
- 2010 – Co-PI, Cyber-Enabled Discovery and Innovation (CDI) program
- 2009 – PI, CMMI
- 2008 – PI, CMMI
- 2002 – Co-PI, Integrative Graduate Education and Research Traineeship (IGERT) program
- 2002 – PI, CMMI
- 1998 – Co-PI, State/Industry-University Cooperative Research Center (S/IUCRC) – Sensor Research Center
- 1995 – PI, Design and Manufacturing Innovation (now CMMI) program
- 1994 – PI, Division of Undergraduate Education (DUE) program
- 1991 – Presidential Young Investigator

DOE:

PI for The Ohio State University on each of the following major programs (note: all CERC programs are subcontracts to either the University of Michigan or Argonne National Laboratory).

- ARPA-E NEXTCAR, Fuel Economy Optimization in a Connected and Automated Vehicle – $5M, August 2021 to July 2024.
- ARPA-E NEXTCAR II, Fuel Economy Optimization with Dynamic Skip Fire in a Connected Vehicle – $5M, January 2017 to December 2020.
- Graduate Automotive Technology Education (GATE) Centers of Excellence – $3M, 3 programs between 1999 and 2016. Provided fellowship funding that supported over 100 students in ME/MAE, ECE, MSE, ISE and CBE.
- US-China Clean Energy Research Center (CERC-CVC) – $5M, 2011 to 2016. Provided funding for faculty in MAE, ECE, MSE and ISE; at least 12 students completed Ph.D.s through this program.
- US-China CERC-Truck – $1M, 2016 to 2021. Provided funding for 3 students to complete their Ph.D.s.

DOT – Federal Transit Administration (FTA):

PI for the FTA Bus and Component Research program – $27.5M, October 2017 to September 2027. Includes regulated bus testing, focused research and component evaluation.

Ohio Board of Regents and Ohio Third Frontier:

Professor Rizzoni has been PI on each of the following programs.

– Ohio Third Frontier Wright Centers of Innovation Program Power Partnership for Ohio – $5M to OSU out of the $20M program led by Case Western Reserve University from 2003 to 2007. This equipment program supported faculty fuel cell research in ME, MSE, ECE and CBE.

– CAR Center of Excellence for Electric and Plug-in Hybrid Vehicle Technology – $3M, 2009 to 2012. Provided resources to expand the experimental facilities of the OSU Center for Automotive Research; multiple CAR-affiliated faculty benefited from these facilities.

– CAR Center of Excellence for Energy Storage Technology – $3M, 2010 to 2013. This program led to a spin-off company, CAR Technologies LLC.

– OHIO FUTURECAR: Research in Propulsion Systems for Future Vehicles – $600,000, 2000 to 2002. This major instrumentation grant with Yann Guezennec helped create and modernize CAR facilities.

US Army TARDEC and **Ohio Board of Regents**:

Professor Rizzoni was the PI for the Hybrid Electric Vehicle Modeling, Simulation, Experimental Validation and Concept Design program – 2002 to 2005.

Ford-OSU Alliance:

In 2013, an agreement was signed to add The Ohio State University to a select group of Ford Alliance universities. Professor Rizzoni led the negotiations that resulted in Ohio State being included in the Ford Alliance program, and has continued to act as PI for the Alliance, in addition to being named PI on 12 individual projects funded by the Alliance.

Since fiscal year 2014, Ford has funded more than 37 University Research Projects in the amount of $3.2M and 96 Alliance Projects that total more than $24M (through the end of June 2024) at OSU. In summary, this program has resulted in funding 133+ projects totaling more than $26M, supporting 45 principal investigators (not including co-PIs) in 12 academic departments and 5 colleges across The Ohio State University.

Research Funding Summary (Rizzoni PI)

Calendar Year	Sponsor Direct Charges	Sponsor F&A	Sponsor Total
2009	$1,120,072	$250,850	$1,370,923
2010	$2,298,449	$297,767	$2,596,217
2011	$5,356,187	$390,943	$5,747,130
2012	$2,926,759	$506,422	$3,433,181
2013	$2,236,568	$516,456	$2,753,025
2014	$1,583,495	$549,140	$2,132,635
2015	$1,399,182	$549,903	$1,949,085
2016	$997,478	$386,606	$1,384,083
2017	$1,530,562	$385,361	$1,915,923
2018	$2,261,367	$522,587	$2,783,954
2019	$2,709,865	$646,548	$3,356,413
2020	$1,739,089	$571,101	$2,310,190
2021	$1,305,343	$535,524	$1,840,867
2022	$2,506,607	$685,017	$3,191,624
2023	$3,694,128	$1,303,989	$4,998,117
2024	$2,092,924	$361,060	$2,453,984

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