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Summary/Highlights

Vehicle Experience

- Have worked 25 years in the area of vehicles (HEVs, PHEVs, EVs, fuel cell, ICE), powertrain, control, and optimization
- Have built extensive hybrid electric powertrain test and calibration setup, and supervised research in the area of hybrid electric vehicles (HEVs) since 2012
- Have taught courses in the area of vehicle propulsion systems, hybrid electric vehicles, and internal combustion engines since 2008 in different academic institutions in US and Canada. Regularly teaching a course on HEV powertrains.
- Have supervised more 50 undergraduate and graduate students for the research in the area of vehicles (HEVs, EVs, conventional), powertrain, and controls
- Have tested and analyzed HEVs ranging from light-duty (sedan, SUVs) to heavy-duty (transit bus, class 8 trucks) vehicles. These include more \$30M research programs for alternative vehicle technology testing and assessment programs. Currently testing EVs against HEVs and diesel commercial vehicles for federally funded and provincially funded programs. These include activities for testing vehicles close to 500,000 km.
- Have tested and analyzed various engines for different applications. These include small (< 2 liter) to large scale engines (e.g. 15 liter). These include single fuel (gasoline, diesel, natural gas), and dual fuel engines.
- Have led national level HEV, powertrain, and engine research programs in the US and Canada in the past 12 years
- Served on a review panel for US Department of Energy for engine, fuel, and vehicle technology programs
- One of the leading academic experts in the world in the area of Automotive AI (artificial intelligence, machine learning) for vehicle diagnostics, prognostics, optimization, and control
- Have worked with many automotive industry companies in the past 15 years via research programs. These include but not limited to Toyota, Ford, GM, Hyundai, Cummins, Westport, IAV, NewFlyers, Denso, Hitachi,.... These also include testing varieties of vehicles including Ford, GM, Toyota, Volvo, Cummins,....
- Have been director of Energy Mechatronics Laboratory at Michigan Tech and University of Alberta for design and control of HEVs and powertrains

Litigation Experience

- IPR/Patents: 12 cases in different areas of mechanical/electrical engineering systems including vehicles (HEVs, conventional), combustion engines, vehicle communication, heating ventilation air conditioning (HVAC) systems, buildings, powertrains
- ITC: Two cases in the Mechanical Engineering areas
- Depositions: 9 including serving plaintiff/complainant (3), defense/respondent (6)
- Expert Report/Declaration: 14 reports

Professional Work

- Registered Professional Engineer (PEng)
- Academic: Professor, Associate Professor, Assistant Professor of Mechanical Engineering, 2012 – now
- Industry: Automotive (3.5 years), Robotics (1 year) industries, HVAC (2.5 years)

Professional Recognition

- Publications: 263 peer-reviewed publications including 125 journal papers, 138 peer-reviewed conference proceeding papers, and 4 book chapters. These publications center on mechanical engineering systems. Many of these publications are in the field of vehicles and powertrains.
- Citations: Google Scholar shows total citations of 6930 from more than 90 different countries in Europe, Australia, Africa, Asia, North America, and South America; h-index: 42, i10-index: 156 (as of 2025-12-13).
- Reviews: Served on the United States NSF and DOE grant proposal review panels in the areas of mechanical engineering systems; Reviewer for international grant proposals from Canada, Croatia, France, Germany, and Netherlands; Reviewer for 24 international journals in the area of mechanical and automotive engineering systems.
- Editorship:
 - Technical Editor, ASME/IEEE Transactions on "Mechatronics", 2025 -
 - Associate editor, American Society of Mechanical Engineers (ASME) Journal of Dynamic Systems, Measurement, and Controls, 2017 – 2023
 - Guest Editor for Special Issue on "Optimal Design and Operation of Energy Systems", *Int. Journal of Optimal Control Applications and Methods* (Wiley Publisher), 2020 – 2022
 - Associate Editor, *Int. Journal of Powertrains* (Inderscience Publishers), 2014 – 2020
 - Guest Editor for two Special Issues on Advanced Powertrain Engineering, *Int. Journal of Powertrains*, 2016 – 2020
- Technical Committees (TC): Chair of Automotive and Transportation Systems TC in ASME Dynamic Systems Control Division (DSCD), 2020-2022; Chair of Energy Systems TC in ASME-DSCD, 2018-2020; The Automotive TC and Energy Systems TC have over 210 and 180 members respectively from academia, and industry from countries North America, Europe, Asia, and Australia. Secretary of ASME – DSCD Executive Committee, 2023 – now
- Funding/Grants: PI of over \$7M USD, co-PI of over \$8M USD, and \$591K USD equipment support from federal, provincial, industry, and international funding sources for proposals in the area of mechanical systems. These include highly competitive (success rate $\leq 15\%$) grants from US National Science Foundation, and US Department of Energy.
- Organizing International Technical Sessions: Organized/co-organized 78 invited technical sessions, special sessions, industry sessions in the area of modeling, estimation, optimization, and control of mechanical systems in ASME-DSCC, MECC, AIM, ACC, IEEE-CCTA, SAE and IFAC international conferences during 2012-2024.
- Chairing International Technical Sessions: Chaired/co-chaired 47 technical sessions in the area of modeling, diagnosis and control of mechanical systems in ASME-DSCC, ACC, MECC, SAE international conferences during 2012-2024.

Teaching

- Teaching Experience: Taught in mechanical engineering departments at three academic institutions from 2004 to 2024 as a primary instructor for more than 25 academic semesters and as a teaching assistant for eight academic semesters. The size of the classes ranged from 5 to 196 students for undergraduate and graduate level courses. These courses include vehicle propulsion systems, hybrid electric vehicles, Combustion Engines and Alternative Fuels, Thermodynamics, Fluid Mechanics, Energy Thermo-Fluids (ETF), Feedback Control Design, Model Predictive Control.

Misc.

- Citizenship: US, Canada
- Membership: Society of Automotive Engineers (SAE) since 2004, ASME since 2011