John W. Sutherland, Ph.D.

Distinguished Professor and Fehsenfeld Family Head
School of Sustainability Engineering and Environmental Engineering (SEE)
Formerly the Division of Environmental and Ecological Engineering (EEE)
Purdue University

Personal Data

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Education

1980 B.S. in Industrial Engineering, University of Illinois at Urbana-Champaign
1982 M.S. in Industrial Engineering, University of Illinois at Urbana-Champaign
1987 Ph.D. in Mechanical Engineering, University of Illinois at Urbana-Champaign, advisor: R. E. DeVor

Experience

2009-present Professor and Head, School of Sustainability Engr and Environmental Engr (SEE), Purdue University

The Division of Environmental and Ecological Engineering (EEE) was formed in 2006 as an independent department within the College of Engineering to serve as a focus for learning, discovery, and engagement with respect to environmental engineering issues. As the first permanent Head, has provided a strategic vision for and leadership in all activities including creation of undergraduate and graduate programs and degrees and nurturing the growth of a robust research enterprise. Oversees all staff and serves as a mentor to all faculty. Coordinated the development, approval, and implementation of the BS EEE degree program, which was approved by the State of Indiana in fall 2012 and is ABET accredited. Played the same role in establishing the MS and PhD degree programs in EEE, which were approved by the State of Indiana in summer 2015. Increased the number of the EEE T/TT faculty to 20 (2024). As of fall 2024 EEE had more than 170 undergraduates (So.-Sr.) and nearly 70 graduate students. Guided the EEE strategies for marketing and communications, recognition programs, alumni/friend/company interactions, and development. In terms of development, helped secure endowments for a headship, rising star professorship, scholarships, as well as other gifts. On July 1, 2025 the Purdue Board of Trustees renamed the unit the School of Sustainability Engineering and Environmental Engineering (SEE).

2015-2018 Co-Executive Director, IN-MaC (Indiana Next Generation Manufacturing Competitiveness Center)

IN-MaC was established at Purdue University in 2013 through seed funding from the State of Indiana ($2.5M annually). IN-MaC serves as the focal point for manufacturing related discovery, learning, and engagement at Purdue University. It has three principal thrusts: i) technology transfer and adoption, ii) education and workforce development, and iii) research innovation. As Co-Executive Director, Prof. Sutherland provided a strategic vision for and leadership in all aspects of IN-MaC. Under his direction, IN-MaC assisted 52 companies throughout Indiana, completing 37 technology adoption projects across the

areas of digital engineering, product lifecycle management, and production systems modeling and design. The total value of these projects was $2.5 million, including nearly $1 million on support from Indiana companies. IN-MaC also spawned five (5) industry-facing research consortia in the areas of materials processing for castings, surface treatment improvements, lyophilization, supply chain systems, and roll-to-roll manufacturing processes. Through IN-MaC financial ($1.65M) and technical support, Purdue faculty also engaged with several Manufacturing USA Institutes (DMDII, IACMI, NextFlex, and five other institutes). IN-MaC also supported 8 education/workforce development initiatives valued at $1.5 million.

2009-present Professor, School of Mechanical Engineering, Purdue University.

2009-2018 Adjunct Professor, Michigan Technological University

2003-2009 Director (2007-2009) and Co-Director (2003-2007), Sustainable Futures Institute (SFI), Michigan Technological University

SFI was established in 2003 to promote and facilitate sustainability activities across the Michigan Tech campus. With respect to education, SFI established courses in support of sustainability and created a Graduate Certificate to recognize breadth in interdisciplinary coursework focused on sustainability. Research initiatives included those within the Institute as well as projects undertaken by entities chartered as part of SFI: Center for Water and Society, Center for Environmentally Benign Functional Materials, Wood-to-Wheels, and Center for Nanostructured and Light Weight Materials. Annual expenditures for the SFI were in excess of $4 million. Supervised all SFI staff and provided direction in terms of strategy and day to day activities.

2004-2017 Adjunct Professor, Southern University-Baton Rouge, LA (SUBR)

2002-2009 Richard and Elizabeth Henes Chair Professor of Mechanical Engineering, Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University

Selected as the inaugural holder of the Henes Chair Professorship, one of the first endowed Chairs created at the University. Provided leadership in terms of research and scholarship, with particular emphasis on topics related to environmentally responsible design and manufacturing.

1997 - 2001 Associate Dept. Chair – Director of Graduate Studies, Dept. of Mechanical Engineering – Engineering Mechanics, Michigan Technological University

Oversaw all aspects of the graduate program for the Dept. of ME-EM (graduate student recruitment, admission, curriculum development, doctoral examinations, thesis/dissertation defenses, etc.). Helped to expand the size of the graduate program by ~50%.

1997 - 2009 Professor, Dept. of Mechanical Engineering – Engineering Mechanics, Michigan Technological University

1995 - 1997 Associate Professor, Dept. of Mechanical Engineering – Engineering Mechanics, Michigan Technological University

1991 - 1995 Assistant Professor, Dept. of Mechanical Engineering – Engineering Mechanics, Michigan Technological University

1989 - 1991 Vice-President, Process Design and Control, Inc., Champaign, IL

Responsibilities: program/personnel management, project engineering, software development and marketing, teaching short courses.

1989 - 1991 Adjunct Assistant Professor, Dept. of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign

1985 - 1989 Visiting Instructor & Visiting Assistant Professor, Dept. of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign

1980 - 1985 Graduate Research/Teaching Assistant, Dept. of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign

Teaching/Research Interests
Design and manufacturing for sustainability, manufacturing processes and systems, and statistical methods for quality and productivity design and improvement.

Honors and Awards
- Association of Environmental Engineers and Science Professors (AEESP) Distinguished Service Award, 2024.
- Elected to the National Academy of Engineering, 2023.
- Association of Environmental Engineers and Science Professors (AEESP) and American Academy of Environmental Engineering and Science (AAEES) Frederick George Pohland Medal, 2022.
- Fellow, American Association for the Advancement of Science (AAAS), 2021.
- Society of Manufacturing Engineers (SME) Gold Medal, recognizing contributions to the manufacturing literature, 2018.
- American Society of Mechanical Engineers (ASME) William T. Ennor Manufacturing Technology Award, 2013.
- Fellow, CIRP – the International Academy for Production Engineering (College International pour la Recherche en Productique), 2011.
- Society of Automotive Engineers (SAE) International John Connor Environmental Award, 2010.
- Outstanding Lifetime Service Award from NAMRI/SME, 2010.
- ASME Dedicated Service Award, 2009.
- SME Education Award, 2009.
- Fellow, American Society of Mechanical Engineers (ASME), 2006.
- Fellow, Society of Manufacturing Engineers (SME), 2005.
- ASME Manufacturing Engineering Division Outstanding Service Award, 2001 and 2004.
- SME Service Award, 2001.
- SAE Ralph R. Teetor Educational Award, 1999.
- Presidential Early Career Award for Scientists and Engineers, 1996.
- National Science Foundation Career Development Award, 1995.
- Outstanding Young Manufacturing Engineer Award (SME), 1992.

Other Professional Recognitions
- Inducted into the Hinsdale Central High School "Hall of Fame," 2024.
- ASME IMECE Best Paper Award, First Runner Up, "Cold Spray-Produced Functional Surfaces for Triboelectric Nanogenerators," Kim, Y.W., S. Akin, M.B.G. Jun, and J. W. Sutherland, 2024.
- List of the 20 Most Influential Professors in Smart Manufacturing, Soc. of Manf. Engrs., 2021
- Recognized as "Recycling Rock Star" by Indiana Recycling Coalition, 2020.
- Outstanding Paper Award, "Manufacturing Scheduling of Collaborative Factories for Energy Cost Reduction," NAMRC 2015, authored by H. Zhang, F. Zhao, and J. W. Sutherland.
- Board Certified Environmental Engineering Member (BCEEM), 2012-present.
- Finalist, Best Paper Award, "Development of a Magnetostrictive-Actuated Tool Holder for Dry Deep Hole Drilling," NAMRC 2005, authored by A. J. Filipovic and J. W. Sutherland.
- Best Paper of Conference Award, "A Proposed LCA Model of Environmental Effects with Markovian Decision Making," SAE 1997 Total Life Cycle Conference - Life Cycle Management and Assessment, Soc. of Automotive Engrs., Technical Paper No. 971174, authored by D. Milacic, H. A. Gowaikar, W. W. Olson, and J. W. Sutherland.

University Honors and Awards
- Appointed as Distinguished Professor, Environmental and Ecological Engineering, 2025.
- Seed for Success Award, Purdue University, 2014, 2018, 2020, 2024.

  - M. Lundstrom, M. Alam, J. Appenzeller, T. Beechem, Z. Chen, J. Howarter, A. Raghunathan, K. Roy, G. Subbarayan-Shastri, J. Sutherland, T. Wei, X. Xu, P. Ye. "IMEC-Purdue Collaboration. Indiana Economic Development Corporation," 2024.
  - A. Fentiman, D. Delaurentis, K. Douglas, J. Camba, and J. W. Sutherland, "Development, Deployment, and Evaluation of Instructional Modules for Current and Future Practitioners of Model-based Systems Engineering," 2020.
  - J. Akridge, M. Cakmak, B. Engel, N. W. Hartman, A. V. Iyer, D. Peroulis, K. I. Plaut, A. Shakouri, J. W. Sutherland, "Wabash Heartland Innovation Network (WHIN)," 2018.
  - C. Handwerker, A. Iyer, J. W. Sutherland, and Fu Zhao, "Research within Critical Materials Inst.," 2014.
- Named one of the "Most Impactful Faculty Inventors," College of Engineering at Purdue University, 2022, 2023, 2024.
- College of Engineering Team Award, Purdue University, Indiana Bicentennial Torch, 2018.
- Named the Fred and Barbara Fehsenfeld Family Head of Environmental and Ecological Engineering, 2010.
- Finalist, Graduate Faculty Mentoring Award at Michigan Technological University, 2005-06 academic year.
- Finalist, Michigan Technological University Distinguished Teaching Award, 2004.
- Appointed the Richard and Elizabeth Henes Chair Professor of Mechanical Engineering, Michigan Technological University, 2002.
- Recipient of the Michigan Technological University Research Award, 2000.
- Inducted into the Academy of Teaching Excellence, Michigan Technological University, 1998.
- Selected as the Teacher of the Year for the Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University, 1993-94.
- Selected as the Teacher of the Year for the Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University, 1992-93.
- Honored by the Michigan Association of Governing Boards of State Universities as a Distinguished Faculty Member, 1993.
- Recipient of the Michigan Technological University Distinguished Teaching Award, 1992.
- Andersen Consulting Award for Excellence in Undergraduate Advising, College of Engineering, UIUC, 1989.
- Eight times named to the "List of Teachers Rated as Excellent" based on the UIUC College of Engineering's Student Evaluation Form, for ME 285, IE 335, and IE 336.
- Teaching Fellow, Department of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign, 1982-83.

Professional and Honorary Societies

- American Society of Mechanical Engineers (ASME), Fellow (2006)
- American Society for Quality (ASQ)
- College International pour la Recherche en Productique (International Academy for Production Engineering) – (CIRP), Associate Member (2003-2011), Fellow (2011)
- Institute of Industrial and Systems Engineers (IISE)
- Society of Manufacturing Engineers (SME), Fellow (2005)
- Association of Environmental Engineering and Science Professors (AEESP)
- American Academy of Environmental Engineers and Scientists (AAEES)
- American Association for the Advancement of Science (AAAS), Fellow (2021)
- Alpha Pi Mu
- Phi Kappa Phi
- Pi Tau Sigma
- Sigma Xi
- Tau Beta Pi

Graduate Student Advising / Mentoring

Major Advisor – Ph.D. Students (37 Ph.D. students)

- Erik J. Salisbury, Ph.D. in Mechanical Engineering-Engineering Mechanics (ME-EM) from Michigan Technological University (MTU), July 1995, "Interferometric Surface Texture Measurement in the Presence of Error Sources."
- Dongming Liu, Ph.D. in ME-EM from MTU, February 1998, "Vibration Abatement in a Turning Process Via Application of an Activity Controlled Tool Holder."
- Steve Batzer, Ph.D. in ME-EM from MTU, April 1998, "An Analytical and Experimental Investigation into Chip Morphology in Orthogonal Machining."
- Cecil Daniel, Ph.D. in ME-EM from MTU, April 1998, "Analysis and Modeling of Angular Errors in Precision Sliding Motion with Application to Machine Tools."
- Yuliu Zheng, Ph.D. in ME-EM from MTU, April 1998, "A Continuum Mechanics Model for Orthogonal Cutting."
- Tengyun Cao, Ph.D. in ME-EM from MTU, August 1998, "Modeling of the Thread Tapping Process: Chip Formation and Cutting Fluid Lubrication."
- Santosh Ranganath, Ph.D. in ME-EM from MTU, January 1999, "A Comprehensive Model for the Dynamic Force System in Peripheral Milling Including the Effects of Flank Face Interference."
- Yan Yue, Ph.D. in ME-EM from MTU, February 2000, "A Comprehensive Model for Cutting Fluid Mist Formation in Machining."
- Aleksandar Filipovic, Ph.D. in ME-EM from MTU, August 2002, "Magnetostrictive Actuations to Achieve Dry Deep Hole Drilling of Aluminum."
- Huanran Xue, Ph.D. in ME-EM from MTU, April 2003, "Application of Input-Output Modeling to the Environmental Characterization and Improvement of Manufacturing Processes."
- Ge Shen, Ph.D. in ME-EM from MTU, May 2003, "Modeling the Effect of Cutting Fluids in Peripheral Milling."
- Kenneth Gunter, Ph.D. in ME-EM from MTU, April 2004, "Inventory and Value Management in Demanufacturing Facilities."
- Jichao Sun, Ph.D. in ME-EM from MTU, April 2004, "Cutting Fluid Mist Formation and Behavior Mechanisms."
- Jun Huang, Ph.D. in ME-EM from MTU, April 2005, "Adiabatic Shear Banding and Shear Localized Chip Formation."
- Chuanxi Ju, Ph.D. in ME-EM from MTU, 2005, "Development of Particulate Imaging Systems and Their Application in the Study of Cutting Fluid Mist Formation and Minimum Quantity Lubrication in Machining."
- Xuefei Hu, Ph.D. in ME-EM from MTU, January 2006, "An Experimental and Analytical Study of the Effect of Material Microstructures on the Machinability of Al-Si Alloys."
- Vishesh Kumar, Ph.D. in ME-EM from MTU, December 2006, "A Material Flow and Economic Exchange Model to Characterize the Impact of Vehicular Changes and Policies on the Automotive Recovery Infrastructure."
- Karl R. Haapala, Ph.D. in ME-EM from MTU, 2008, "Development of Models for Environmental Performance Improvement of Steel Product Manufacturing."
- Abigail R. Clarke-Sather, Ph.D. in ME-EM from MTU, 2009, "Decentralized or Centralized Production: Impacts to the Environment, Industry, and the Economy."
- Margot J. Hutchins, Ph.D. in ME-EM from MTU, 2010, "Framework, Indicators, and Techniques to Support Decision Making Related to Societal Sustainability."
- Julio L. Rivera, Ph.D. in ME-EM from MTU, 2011, "A Sustainability Study of Nanomaterials Including Societal and Occupational Implications."
- Katherine E. Ortegon, Ph.D., Purdue, 2014, "Value Characterization across the Life Cycle: A Model to Support Value Recovery from Used Wind Turbines."
- Tim Jenkins, Ph.D. in ME-EM from MTU, 2014, "Size Optimization of a Biomass to Liquid Fuel Conversion Facility within a Biomass Supply Chain."

- Hongyue Jin, Ph.D. in IE from Purdue, 2018, "Sustainable Value Recovery of Rare Earth Magnets: Economic and Environmental Strategies," with Y. Yih.
- Liang Cong, Ph.D. in ME from Purdue, 2018, "Product Design for Value Recovery in Support of Closing Material Loops," with F. Zhao.
- Enze Jin, Ph.D. in EEE from Purdue, 2019, "Integrated Sustainability Assessment for Bioenergy Systems that Predicts Environmental, Economic, and Social Impacts."
- Justin S. Richter, Ph.D. in EEE from Purdue, 2019, "Development of Scalable Stakeholder-Needs Metrics Applied in Economic Input-Output Social Impact Assessment Models," with L. Nies.
- Wo Jae Lee, Ph.D. in EEE from Purdue, 2021, "AI-Driven Predictive Wellness of Mechanical Systems: Assessment of Technical, Environmental, and Economic Performance."
- Yue Wang, Ph.D. in EEE from Purdue, 2021, "The Relationship between Component and Product Quality in Manufacturing."
- Nehika Mathur, Ph.D. in EEE from Purdue, 2021, "Sustainability of Clean Energy Technologies Via Industrial Ecology Computational Methods," with S. Singh.
- Matthew J. Triebe, Ph.D. in EEE from Purdue, 2021, "Machine Tool Design Via Lightweighting For Reduced Energy Consumption," with F. Zhao
- Sidi Deng, Ph.D. in IE from Purdue, 2023, "Advancing the Circular Economy of Critical Materials," with Y. Yih.
- Haiyue Wu, Ph.D. in EEE from Purdue, 2023, "Enhancing Interpretability and Adaptability of Manufacturing Equipment Health Models and Establishment of Cost Models for Maintenance Decisions."
- Jesús R. Pérez-Cardona, Ph.D. in EEE from Purdue, 2023, "Optimization Strategies of a Parametric Product Design for a Circular Economy with Application to an Electric Traction Motor."
- Thomas Maani, Ph.D. in EEE from Purdue, 2024, "Sustainability Analysis of Critical Materials in Electric Vehicles with Emphasis on Circular Economy Principles."
- Byung Gun Joung, Ph.D. in EEE from Purdue, 2024, "Prognostics and Fault Diagnosis for Manufacturing Equipment using Machine Learning."
- Neha Shakelly, Ph.D. in EEE from Purdue, 2025, "Addressing Uncertainty in Economic and Environmental Assessments of Emerging Energy Technologies."

Major Advisor – M.S. Students – Thesis Option (55 students)

- M. J. Kuhl, MSIE from UIUC, August 1987 (with R. E. DeVor), "The Prediction of Cutting Forces and Surface Accuracy for the Turning Process."
- M. S. Wagner, MSME from UIUC, January 1988 (with R. E. DeVor), "The Prediction and Effects of Flute Breakage on the End Milling Process."
- W. J. Endres, MSME from UIUC, January 1990 (with R. E. DeVor and S. G. Kapoor), "A Dynamic Model of the Cutting Force System in the Turning Process."
- D. G. Mattes, MSIE from UIUC, January 1990 (with R. E. DeVor and S. G. Kapoor), "The Development of a Power/Energy Consumption Model for Multiprocess Machining Operations."
- D. A. Gustafson, MSME from UIUC, May 1990 (with R. E. DeVor and S. G. Kapoor), "The Effect of Tool Geometry and Tool Wear on the Cutting Force System in Turning."
- D. J. O'Brien, MSIE from UIUC, October 1990 (with S. G. Kapoor), "A Force-Based Flute Breakage Detection Algorithm for a Peripheral End Milling Process."
- Tim Sturos, MSME from MTU, August 1994, "An Investigation of an Active Tool Holder Employing Magnetostrictive Actuation with Application to a Turning Process."
- Srikanth Vadrevu, MSME from MTU, October 1994, "Product Value Modeling of Time Varying Quality Measures."
- Sreeram Parameswaran, MSME from MTU, November 1994, "Robust Design of an Automotive Suspension System."
- Kristin Philipps, MSME from MTU, April 1995, "An Investigation on the Shearing of Automotive Grade Polypropylene and Acrylonitrile-Butadiene-Styrene to Facilitate Automotive Recycling."
- Doug Cozzens, MSME from MTU, July 1995, "A Study of Cutting Fluids and Workpiece Surface Error in the Boring of Cast Aluminum Alloys."

- K. V. Domala, MSME from MTU, September 1995, "Geometric Modelling of Wheel and Workpiece Surfaces in Grinding."
- Charles Whitmer, MSME from MTU, September 1995, "Multicriteria Optimization of Environmentally Conscious Mechanical Design Decisions."
- Chris Wentland, MSME from MTU, March 1996, "Environmental Design Decisions for Discrete Product Parts Based on Geometric Attributes."
- William Kanizar, MSME from MTU, May 1996, "Micropositioning in the Turning Process via Magnetostrictive Actuation."
- Deborah Haan, MSME from MTU, October 1996, "Force Prediction in Drilling Incorporating an Asperity Interface Model."
- Kannan Narayanan, MSME from MTU, October 1996, "A Dynamic Model of the Cutting Force System in End Milling Including the Effects of Process Damping."
- Hong Li, MSME from MTU, May 1997, "Prediction of Cylinder Boring Surface Errors With and Without Cutting Fluids."
- Vivek Saxena, MSME from MTU, May 1997, "A Study of Structural Characteristics of a Stewart Platform Based Machine Tool."
- Hrishikesh Gowaikar, MSME from MTU, July 1997, "Characterization of the Dynamic Behavior of a Cutting Fluid System."
- Praveen D. Rao, MSME from MTU, August 1997, "Prediction of Chip Morphology in Orthogonal Machining Processes."
- Amy Wheaton Bergstrom, MSME from MTU, November 1997, "Reducing the Environmental Impact of the Drilling Process."
- Nilesh Soni, MSME from MTU, December 1997, "Application of Goal Programming to Reduce the Environmental Impact of Machining Processes."
- Ching Hung, MSME from MTU, June 1998, "Experimental Investigation of Vibration and Damping of Machine Tool Slideways."
- Aleksandar Filipovic, MSME from MTU, August 1998, "Cutting Fluid System Dynamics: Modeling and Control."
- Kenneth Gunter, MSME from MTU, May 1999, "An Experimental Investigation of Cutting Fluid Mist Formation via Atomization in the Turning Process."
- Ashish Gandhi, MSME from MTU, September 1999, "Role of Cutting Fluids in Workpiece Temperature and Surface Error in Peripheral Milling."
- Yeow Siow, MSME from MTU, January 2000, "A CFD Investigation of Cutting Fluid Mist Formation via Atomization."
- Abhilesh Bhargava, MSME from MTU, February 2000, "A VRML Based Feature Representation and Recognition Technique with Application to Machining Processes."
- Wai Kei Chan, MSME from MTU, December 2000, "Characterization of the Welding Fume Behavior in Shielded Metal Arc Welding (SMAW)."
- Nathan King, MSME from MTU, December 2000, "A Comparison of Economic and Air Quality Issues in Wet vs. Dry Turning."
- Steve Behm, MSME from MTU, February 2001, "An Investigation into the Effect of Processing Conditions on Airborne Emissions from the Lost Foam Casting Process."
- Anup Bandivadekar, MSME from MTU, January 2002, "Development of a Model for Material Flows and Economic Exchanges within the U.S. Automotive Life Cycle Chain."
- Gordon Bekkala, MSME from MTU, January 2002, "Assessing the Environmental Impact of Product Design Decisions across the Life Cycle."
- Sarang Garud, MSME from MTU, January 2002, "An Analysis of Workpiece Thermostructural Distortions in Peripheral Milling by Finite Element Method."
- Lucas Keranen, MSME from MTU, January 2002, "A Model for Multi-stage Machining Economics Including Cutting Fluid Related Costs."
- Kyriaki Kalaitzidou, MSME from MTU, March 2002, "Gradient Theory: Application on Dislocation Dynamics and Adiabatic Shear Bands Formed in Metal Cutting."

- Ram Kuchibhotla, MSME from MTU, May 2002, "An Investigation into the Effects of Lubrication, Surface Finish, and Clearance on Machine Tool Slideway Damping and Friction."
- David Pariseau, MSME from MTU, August 2002 (Ford/MTU M.S. Program), "Development of a Computational Fluid Dynamics Model for Assessment of Lubricant Performance in a Manual Transmission Gear Mesh."
- Eric Barrett, MSME from MTU, September 2002 (Ford/MTU M.S. Program), "A Comparison of Electric Power Assist Steering with Hydraulic Power Assist Steering for Automotive Applications."
- Siddhartha Kinare, MSME from MTU, October 2002, "An Experimental Investigation of Cutting Fluid Mist Removal by an Atomizer System."
- Kiran Khadke, MSME from MTU, January 2003, "An Energy Model for Discrete Product Manufacturing."
- Karl Haapala, MSME from MTU, August 2003, "A Model for Predicting Manufacturing Waste in Product Design and Process Planning."
- Jaime Krull, MSME from MTU, 2004, "A Method to Identify Promising Materials - An Enabling Technology for Sustainable Development."
- Lisa Kukula, MSME from MTU, May 2004, "An Experimental Investigation of Metal Working Fluid Mist Formation during the Wet Turning Process and Mist Reduction Using a Kinematic Coagulation System."
- Prasad Shirodkar, MSME from MTU, September 2006, "Characterization of Value Flow during the Product Life Cycle."
- Daniel P. Adler, MSME from MTU, May 2007, "Comparing Energy and Other Measures of Environmental Performance in the Manufacturing and Remanufacturing of Engine Components."
- David Pauken, MSME from MTU (Ford/MTU M.S. Program), May 2009, "Statistical Modeling of the Ford Superduty Brake Pedal Feel Attribute."
- Cheryl Williams, MSME from MTU (Ford/MTU M.S. Program), May 2009, "Optimization of Conversion of North American Left Hand Drive Vehicles for Importation into Right Hand Drive Markets."
- Vance Murray, MSME from Purdue, Dec. 2011, "Integration of Economic and Environmental Consideration into Process Planning," with F. Zhao.
- Jonathan Ogaldez, MSME from Purdue, 2012, "Quantifying the Indirect/Direct Water Usage of Common Manufacturing Processes," with F. Zhao.
- Julio Navarro, MSME from Purdue, 2015, "Environmental Evaluation of Rare Earth Elements: Processing, Products, and Pathways," with F. Zhao.
- Yongxian Zhu, MSME from Purdue, 2017, "A Rapid Automatic Life Cycle Assessment Tool for Eco-Design," with F. Zhao.
- Yuxin Zhai, MSME from Purdue, 2017, "Real Time Energy Efficient Manufacturing Scheduling for Flow Shops," with F. Zhao.
- Andres Valero, MSEEE from Purdue, 2018, "Embedding Sustainability into the Wine Sector through the Application of Life Cycle Management Tools," with J. Howarter.

Advisor – M.S. Students – Coursework Option (18 students)

- Doug Trudeau, MSME from MTU, May 1993, coursework option.
- Jeffrey P. Webb, MSME from MTU, August 1993, coursework option.
- Abigail R. Clarke, MSME from MTU, 2006, coursework option.
- Margot J. Hutchins, MSME from MTU, August 2007, coursework option.
- Julio L. Rivera, MSME from MTU, August 2008, coursework option.
- Timothy L. Jenkins, MSME from MTU, 2008, coursework option.
- Kari L. Brown, MSME from MTU, December 2008, coursework option.
- Mohit Law, MSME from MTU, December 2008, coursework option.
- Fengli Zhang, MSME from MTU, 2011, coursework option.
- Justin S. Richter, MSEEE from Purdue University, 2016, coursework option.
- Wo Jae Lee, MSEEE from Purdue University, 2018, coursework option.
- Xiaoyu Zhou, MSEEE from Purdue University, 2020, coursework option.
- Matthew J. Triebe, MSEEE from Purdue University, 2020, coursework option.

- Wo Jae Lee, MSME from Purdue University, 2021, coursework option.
- Yue Wang, MSEE from Purdue University, 2021, coursework option.
- Nehika Mathur, MSEEE from Purdue University, 2021, coursework option.
- Jesús R. Pérez-Cardona, MSEEE from Purdue University, 2021, coursework option.
- Ritbik Kumar, MSEEE from Purdue University, 2025, coursework option.

Advisor – Postdoctoral Associates/Visiting Scholars/Visiting Faculty (41)

- Dr. Soumitra Basu (1998-99)
- Prof. Jianfeng Li (2000)
- Dr. Serdar Tumkor (2004-05)
- Dr. Vishesh Kumar (2007)
- Dr. Karl Haapala (2008)
- Haihong Huang (2009-2010)
- Zhigang Jiang (2010-2011)
- Prof. Ruixue Yin (2011-2012)
- Prof. Abhay Sharma (2012)
- Prof. Yingzhong Zhang (2012-2014)
- Chao Wang (2012-2014)
- Prof. Qiong Liu (2013)
- Prof. Yan He (2013-2014)
- Zhongguo Li (2014)
- Lin Li (2014-2015)
- Junkai Wang (2014-2016)
- Konstantin Biel (2015-2016)
- Tianhua Zhang (2015-2017)
- Prof. Haiyan Wang (2015-2016)
- Prof. Yumin Ma (2016-2017)
- Prof. Li Li (2016-2017)
- Lirong Zhou (2016-2017)
- Prof. Tufan Chandra Bera (2017)
- Xiaona Luan (2017-2018)
- Lei Li (2017-2018)
- Qi Lu (2017-2018)
- Yaping Ren (2017-2019)
- Wen Tong (2017-2019)
- Prof. Youji Zhan (2017-2018)
- Dr. Gamini Mendis (2017-2018)
- Prof. Ruixue Yin (2018)
- Geng Wang (2018-2019)
- Dr. Aihua Huang (2019-2022)
- Jan-Peter Seevers (2019)
- Zhen Qin (2020)
- Dr. Zhongtian Li (2021-2022)
- Dr. Matthew J. Triebe (2022-2022)
- Prof. Lin Li (2022-2023)
- Dr. Sidi Deng (2023)
- Dr. Chandra Nath (2023-present)
- Dr. Byung Gun Joung (2024-present)

M.S. Graduate Students Currently Being Advised

Ph.D. Graduate Students Currently Being Advised

- Xiaoyu Zhou, Ph.D. from Purdue
- Jerome Colletti, Ph.D. from Purdue
- Yue Yao, Ph.D. from Purdue, with F. Zhao
- Yong Han Kim, Ph.D. from Purdue
- Albin Prince John, Ph.D. from Purdue
- Laura Almeida Tinjaca, Ph.D. from Purdue, with H. Cai
- Ritbik Kumar, Ph.D. from Purdue
- Chris Copeland, Ph.D. from Purdue
- Camila Catherine de Morais Cassunde, Ph.D. from Purdue
- Jiapei Zhang, Ph.D. from Purdue

Selected Contracts, Grants, and Gifts

- Caterpillar Excellence Fund, "Design for Manufacturing and Assembly Course and Concurrent Engr. Laboratory," 1993-94, with Olson, gifts totaling $18,000.
- State of Michigan Research Excellence Fund, "Development of a Magnetostriction Based Actuation System for the Turning Process," 1993-94, PIs: Sutherland and Moon, $37,734.
- State of Michigan Research Excellence Fund, "A Research Program to Recycle, Remanufacture and Demanufacture Michigan Commercial Products," 1993-96, PIs: Sutherland and Olson, $184,011 (93-94: $67,210; 94-95: $61,801; 95-96: $55,000).
- General Motors, "The Development of Graduate Courses to Support GM North American Operations Technical Strategy to Achieve Energy and Environmental Leadership," 1994-95, PIs: Sutherland, Olson, Hutzler, and Rundman, $50,000.
- PCB, Inc., "Equipment in Support of Active Control of Machining Project," 1995, PIs: Sutherland and Moon, gift of $5,000 in equipment.
- U.S. Army Construction Engineering Research Laboratory, "Assessment of Quality of Jet Fuel Piping System at Ellsworth AFB," 1995, $4,544.
- Center for Clean Industrial and Treatment Technologies (CenCITT), "Environmentally Conscious Design for Construction," 1995-96, PIs: Patty, Sutherland, Baillod, $79,523.
- State of Michigan Research Excellence Fund, "Micro-Actuation in Precision Grinding of Ceramics," 1995-96, PIs: Miller, Moon, and Sutherland, $35,917.
- SME Education Foundation, "Gifts of cash, software, etc.," 1994-99, PIs: Sutherland, Moon, Miller, Gupta, Olson, Majlessi, Parker, Schultze, Weinmann, and Thangaraj, $813,388 (94-95: $182,766; 95-96: $414,538; 96-97: $19,900; 97-98: $142,184; 98-99: $54,000).
- Center for Clean Industrial and Treatment Technologies (CenCITT), "Environmentally Conscious Design and Manufacturing," 1994-97, PIs: Sutherland and Olson, $101,304 (94-95: $35,574; 95-96: $30,000; 96-97: $35,730).
- National Science Foundation, "Faculty Early Career Development: Environmentally Conscious Machine Tool Systems," 1995-97, $100,000 ($50,000/yr).
- Ford Motor Company, "The Use of Cutting Fluids in Machining Aluminum," 1994-97, PIs: Sutherland and Olson, $261,300 (94-95: $76,300; 95-96: $95,000; 96-97: $90,000).
- NSF/ARPA - Machine-Tool / Agile Manufacturing Research Institute (MT-AMRI), 1994-99, DeVor- UIUC, Sutherland: PI from MTU, $5,000,000, MTU share: $455,000 (94-95: $120,000; 95-96: $100,000; 96-97: $95,000; 97-98: $85,000; 98-99: $55,000).
- NSF-EPA, "Environmentally Conscious Design and Manufacturing with Input/Output Analysis and Markovian Decision Making," 1996-99, PIs: Olson, Pandit, and Sutherland, $365,797.
- UM ERC for RMS - NSF, "On-Line Machine Tool Monitoring via Fiber Optic Interferometric Sensing," 1997, PIs: Sutherland and Chandra, $61,000 (97: $21,000; 97-98: $40,000).
- National Science Foundation, "Presidential Early Career Award for Scientists and Engineers," 1997-2000, $300,000 (97-98: $100,000; 98-99: $100,000/yr; 99-00: $100,000).
- National Science Foundation, "REU Supplement - Measurement of Cutting Fluid Properties," 1997-2000, $30,000 (97-98: $10,000; 98-99: $10,000; 99-00: $10,000).
- Ford Motor Company, "Advising Support for Michael Mikula – the Impact of Material Microstructure on Machinability," 1997-2000, $75,000.
- Ford Motor Company, "Global Master of Mechanical Engineering Degree Program in ME-EM Department," 1997, PIs: Predebon, Grimm, Nelson, Sikarskie, Sutherland, and Weinmann, $153,495.
- Caterpillar, "Support for Machining Process Research," 1997-98, $21,000.
- U.S. Department of Education, "GAANN: Graduate Assistance in Areas of National Need – Ph.D. Fellowships in Environmentally Conscious Manufacturing," PIs: Pandit and Sutherland, 1998-2000, $450,918.
- CenCITT, "An Economic Analysis of Dry Machining," PIs: Basu, Sutherland, and Baker, 1998, $19,396.
- A.W. Chesterton, "Modeling the Heat Transfer Behavior of Cutting Fluids Using Computational Fluid Dynamics," PIs: Michalek and Sutherland, 1998-99, $15,000.

- SME PrISM, "A Program in Integrated Sustainable Manufacturing," PIs: McKimpson, Weinmann, Sutherland, et al., 1998-2000, $350,000.
- U.S. Dept. of Energy, "Interdisciplinary Center for Advanced Propulsion (ICAP)," PIs: Abata, Anderson, Burl, Evers, Friedrich, Johnson, Michalek, Milligan, Morrison, Mullins, Rundman, Sutherland, and Yang, 1998-2000, $200,000.
- National Science Foundation, "Aerodynamic Particle Sizer for Industrial Air Quality Sampling," 1999, $40,850.
- NSF Action Agenda Grant, "Course Module on Industrial Health and Safety for COE Enterprise Program," 1999-2000, PIs: Sutherland, Crowl, Friedrich, Young, and Basu, $7,500.
- UAW-GM, "Sampling of Small, Airborne Particles in the Auto Industry," PIs: Sutherland and Johnson, 1999-2001, $350,000.
- National Science Foundation, "Investigation of a Kinematic Coagulation Mechanism to Improve Air Quality in Machining Environments," PIs: Michalek and Sutherland, 2000-03, $365,310.
- Caterpillar Inc., "Support for Machining Process Research," 2000, $12,000.
- UAW-GM, "Sampling of Small, Airborne Particles in the Auto Industry," PIs: Sutherland and Johnson, 2001, $40,000 (funding supplement).
- National Science Foundation, "REU Supplement - Investigation of a Kinematic Coagulation Mechanism to Improve Air Quality in Machining Environments," PIs: Michalek and Sutherland, 2000-01, $12,000.
- Research Excellence Fund, "Infrastructure Enhancement for P2A2," 2003-04, PIs: Predebon, Sutherland, Endres, and Hokanson, $25,000.
- GM-PACE, "Hardware for Demanufacturing Laboratory," PIs: Bettig and Sutherland, 2004, valued at $10,000.
- National Science Foundation, "Defining a Curriculum for Service Sector Engineering," PIs: Sorby, Bohmann, Mattila, Frendeway, and Sutherland, 2004-05, $99,976.
- National Science Foundation, Integrative Graduate Education and Research Traineeship (IGERT): "IGERT: Achieving Environmental, Industrial and Societal Sustainability via the Sustainable Futures Model," Project Director: Sutherland, ~ 20 PIs (from MTU and SUBR), 2004-09, $3.6 million.
- NSF-IGERT-Supplement, 2004, $33,264.
- NSF-IGERT-Supplement, 2005, $36,180.
- Boston Scientific-SciMed, "Improving Manufacturing System Performance via Simulation Optimization," 2004-05, $60,000.
- NSF (MUSES), "Renewable Energy from Forest Resources: A Planning Grant for Investigating the Complex Interrelated Issues Associated with Generating Automotive Fuels from Lignocellulosic Biomass," PIs: Maclean, Halverson, Shonnard, Sutherland, and Webster, 2004-05, $114,498.
- Research Excellence Fund, "Infrastructure Enhancement for the Sustainable Futures Institute," PIs: Sutherland and Hokanson, 2004-05, $25,000.
- NSF (MUSES), "MUSES: Renewable Energy from Forest Resources: An Investigation into the Viability of Large-Scale Production of Sustainable Transportation Fuels From Lignocellulosic Biomass," PIs: Maclean, Flaspohler, Halverson, Shonnard, Solomon, Sutherland, Webster, Hokanson, and Chadde, 2006-10, $1,700,000.
- Caterpillar Inc., "Evaluation of Low Greenhouse Gas Bio-Based Energy Technologies," PIs: Shonnard, Johnson, Froese, Sutherland, and Solomon, 2006, $180,000.
- Caterpillar Inc., "Predicting Environmental Performance of Manufacturing Operations," PIs: Sutherland and Haapala, 2005-07, $141,311.
- Mr. & Mrs. Arthur Heim, Program Support Gift "Heim Quality and Sustainability Laboratory," 2006, $50,000.
- NSF CCLI (Course, Curriculum and Laboratory Improvement Program), "Implementing a Curriculum for Service Systems Engineering," PIs: Sorby, Johnson, Bohmann, Mattila, and Sutherland, 2006-09, $500,000.
- Caterpillar, "Engine Remanufacturing Assessment," PIs: Sutherland and Adler, 2006-07, $23,855.
- Schneider National, "Application of Control Theory Principles to Improve the Performance of a Dynamic Trucking Network," PIs: Camelio and Sutherland, 2007, $41,000.

- Dow Corning, "Reducing the Environmental Impact of Material Conversion Process," PIs: Zhang and Sutherland, 2007-2008, $5,000.
- NSF IUCRC Planning Grant in partnership with University of Michigan, "Assembly Research," MTU PIs: Sutherland, Gershenson, Camelio, 2008, $10,000.
- Colcom Foundation, "Assessing the Carrying Capacity of the Great Lakes Natural Environment of Western Michigan," PIs: Breffle, Mukherjee, Amato-Henderson, and Sutherland, 2008, $115,088.
- Frontier Renewable Resources, "Feedstock Supply Chain Model," PIs: Sutherland, Johnson, Frendewey, Watkins, Solomon, Pickens, Graman, & investigators from MSU, 2009-2011, $550,000.
- U.S. Dept. of Energy, "Forestry Biofuel Statewide Collaboration Center (MI)," PIs: Shonnard, Johnson, Froese, Lautala, Sutherland, others from MTU, & investigators from MSU, 2009-2010, $1,797,578.
- NSF REU Site, "Tackling Some of the Grand Challenges of Engineering," 2011-2013, PIs: Hua & Harris, $282,348.
- NSF Planning Grant: "I/UCRC for Resource Recovery and Recycling," PIs: Handwerker, Zhao, Youngblood, Iyer, & Sutherland, 2010, $13,000.
- Biomet, "Carbon Footprint Reduction," PIs: Zhao and Sutherland, 2010-2011, $34,940.
- NSF, "Integrating Design and Manufacturing Considerations towards Sustainable Decision Making," PIs: Ramani, Zhao, Sutherland, 2011-2014, $418,284.
- Wichita State University / DOE, "Development of a Unit Process Life Cycle Inventory," PIs: Zhao & Sutherland, 2011-12, $10,572.
- Fehsenfeld, Fred, Gift, "Thorium Power," Sutherland and Hassanein, $15,000.
- General Dynamics – Ordnance & Tactical Sys, "Development of a Unit Process Life Cycle Inventory for Forging Processes," Zhao and Sutherland, 2011-13, $5,785.
- PLM Center of Excellence, "Value Characterization across the Product Lifecycle to Support Green PLM and New Business Creation," Ortegon, Nies, and Sutherland, 2012-2013, $30,000.
- National Science Foundation, Integrative Graduate Education and Research Traineeships (IGERT): "IGERT: Global Traineeship in Sustainable Electronics," Project Director: Handwerker, 2012-2017, $3.2 million.
- Fehsenfeld, Fred, Gift, "Carbon Calculator / Indiana Tree Project," Sutherland and Zhao, $20,000.
- NSF OISE-PIRE, "Sustainability, Ecosystem Services, and Bioenergy Development across the Americas," Projector Director: K. Halvorsen, 2012-17, $4,841,735.
- Univ. of Arkansas / The Sustainability Consortium, "Metals Processing," Zhao and Sutherland, 2013, $19,995.
- DOE/Ames Lab, "Critical Materials Institute," Handwerker, Iyer, Zhao, and Sutherland, 2013-2018, Purdue share: $2,595,000 - total award: $120 M.
- Fehsenfeld, Fred, Gift, "An Overview of Carbon Storage and Utility for Various Types of Agricultural Biomass – Indiana," Sutherland and Meilan, $20,000.
- NIST/Oregon State Univ., "A Standard Framework for Composable Information Flow Modeling to Characterize the Sustainability of Product Manufacturing: Sustainable Manufacturing Workshops," Zhao, Shade, and Sutherland, 01/01/2015-05/30/2016, $6,000.
- NSF, "Advancing Environmental Sustainability through Innovative Design and Operation of Digital Manufacturing Equipment," Sutherland, Zhao, and Ramani, 05/01/2015-04/30/2020, $500,000.
- Fehsenfeld, Fred, Gift, "Evaluation of Indiana Tree-Planting Program," Sutherland and Meilan, $25,000, 2016-18.
- Indiana Next Generation Manufacturing Competitiveness Center (IN-MaC), $2M per year with $100,000 annually to Sutherland, 2015-2018.
- NSFC, "Development of a multi-objective optimization redesign method for used machinery equipment based on remanufacturability space," Zhigang Jiang and J.W. Sutherland, 01/01/2017-12/30/2020, ¥620,000 (~$96,000).
- EPA/P3, "Recovering Rare Earth Permanent Magnets for Reuse," Zhao and Sutherland, $14,982, 01/01/2017-08/31/2018.
- Purdue Discovery Park – Big Idea Challenge (BIC), "Realizing Next-Gen Manufacturing," PI: Hartman, Co-PIs: Sutherland and 8 others, $300,000, 2017-2018. Sutherland project – "Tolerance Allocation," with Bosman and Hartman (2018).

- DOE, National Energy Technology Laboratory, Jiao (LLNL), Kim (Duke), Ho (BioReactor Sciences), and Sutherland (Purdue), 2018-2021, Purdue share: $90,000. Sutherland transferred responsibility for this project to Dr. Hongyue Jin (faculty member at U. Arizona beginning fall 2018).
- Lilly Foundation, "WHIN – Creating a Prosperous Economic Ecosystem in the Wabash Heartland (Purdue portion)," Akridge, Engel, Hartman, Plaut, Shakouri, Sutherland, 11/17/2017-8/31/2022, ~$19M to Purdue.
- DOE/Ames Lab – Critical Materials Institute, "Optimizing the Economic Performance of CMI Technologies," Sutherland, 2018-2020, $240,000.
- Purdue-TAP (Nucor), "Reduction of Flexible Coupling Failures," ~$4,400, Sutherland, 2018.
- Purdue – Engineering Faculty Conversations, "Autonomous Manufacturing Process Classification from CAD Design with Data-Driven Deep Learning," Jun, Sutherland, and Aggarwal, $75,000, 6/1/2018-5/31/19.
- Procter & Gamble Foundation, "Sustainable Manufacturing Course Development for Purdue Environmental and Ecological Engineering (EEE)," Sutherland, $10,000, 2019.
- NSF, Planning IUCRC, "Purdue University: Center for Industrial Energy Efficiency (CIEE)," Zhao and Sutherland, $15,000, 05/01/2018-04/30/2019.
- NSF, "Conference Proposal: Student and Junior Faculty Travel Support for the 26th CIRP Conference on Life Cycle Engineering," $49,610, Zhao and Sutherland, 11/01/2018-10/31/2019.
- Optimized Thermal Systems, "Market Analysis of Material Sources for Economic Evaluation of Heat Exchanger Production," $8,000, Sutherland, 01/01/2019-02/28/2019.
- DOE/Ames Lab – Critical Materials Institute, "Optimizing the Economic Performance of CMI Technologies," supplement, Sutherland, 2019, $20,000.
- Purdue-TAP (Biotown AG), "Digester Exhaust Gas Characterization Methods," ~$4,400, Sutherland, 2019.
- Ford, "Value Recovery and Closed-loop Recycling/Reuse of Rare Earth Permanent Magnets in Vehicles," Sutherland, $200,000, 2019-2022.
- Cummins, "Towards Cummins Engine Virtual Validation," Sutherland, $113,836, 2019-2022.
- NSF, "Development, Deployment, and Evaluation of Instructional Modules for Current and Future Practitioners of Model-based Systems Engineering," Fentiman, Delaurentis, Douglas, Camba, and Sutherland, $2,000,000, 2020-2024.
- DOE Bioenergy Technologies, "Higher energy-content jet blending components derived from ethanol," Kilaz, Kenttamaa, Mosier, Trice, and Sutherland, $2,000,000, 2020-2023.
- Ford, "Feasibility analysis of autonomous robots used in additive manufacturing of electrical circuits," Cappelleri and Sutherland, $100,000, 2020-2021.
- Indiana Recycling Coalition, "Identify the recycling infrastructure and demands in Indiana WHIN counties," Cai and Sutherland, $36,250, 2019-2020.
- Purdue-TAP (Timesavers), "Identification of Sensor Technologies for In-Process Monitoring" ~$4,400, Sutherland, 2020.
- DOE/Ames Lab – Critical Materials Institute, "Optimizing the Economic Performance of CMI Technologies," Sutherland, 2020-21, $181,000.
- DOE/Nuclear Engr Univ Prog, "Reinforcement Learning Validation Framework for Quality Assurance of AI-guided Additive Manufacturing Digital Platforms," Hany Abdel Khalik, Xinghang Zhang, Sutherland, 2020-2022, $800,000.
- Denso North America Foundation, "Undergraduate Student 4.0 (US4.0): A Convergent Training Program for Autonomous Connected Mobility Networks," Ajay Malshe, Dongyan Xu, Berkay Celik, Sutherland, 2020-2022, $110,000.
- CHC "Perform Techno-Economic Assessments (TEAs) of Sludge Processing for REE Recovery," Sutherland, Huang, 2020-21, $9,729.80.
- United States Army Research Laboratory, "Advancing Army Modernization Priorities through Collaborative Energetic Materials Research," Project Dir.: Rhoads, "Sustainability, Life Cycle Analysis, and Energetic Materials," Hartman, Singh, Piercy, Sutherland, 2020-2023, $1,108,446.06.
- DOE Cybersecurity Manufacturing Innovation Institution (CyManII), Dongyan Xu and many others, 2020-2024, Sutherland's annual share ~$120,000.

- National Natural Science Foundation of China, “Evolution Mechanism of Global Plastic Circulation System and China's Countermeasures,” Chao Wang and J.W. Sutherland, 01/01/2021-12/30/2024, ¥480,000 (~$72,000).
- Phinix LLC, "Techno-Economic Assessment (TEA) for Industry Technology Process," Sutherland, 2021-2022, $9,995.
- DOE/Ames Lab – Critical Materials Institute, “Optimizing the Economic Performance of CMI Technologies,” Sutherland, 2021-23, $465,000.
- DARPA-EMBER (Environmental Microbes as a BioEngineering Resource), "SynBREE: Synthetic Biology for Biomining of Rare Earth Elements," Yongqin Jiao (LLNL) and many others, 2022-2026, $13,341,000; Purdue portion F. Zhao and J. Sutherland, share: $448,921.
- Argonne National Laboratory, “Materials Life Cycle Analysis,” J.W. Sutherland 9/20/2022 – 8/7/2024, $90,828
- NIST Measurement Science and Engineering Research Grant Programs, Engineering Laboratory (EL) Grants Program, “Development of Manufacturing-relevant Indicators and Preliminary Industry Data for Measuring Progress toward a Circular Economy,” J.W. Sutherland, 10/01/2022 – 09/30/2023, $138,044.
- INDOT, “Agency Wide Sustainability Assessment,” J. Handy, J. Mulrow, J. Sutherland, 04/2023-03/2024, $240,615.
- Plexus Corp., “Materials Selection and Environmental Sustainability Training for Plexus Corporation,” I. Hua, J. Howarter, J. Sutherland, and F. Zhao, 10/2023-9/2024, $50,000.
- NIST Measurement Science and Engineering Research Grant Programs, Engineering Laboratory (EL) Grants Program, “Evaluating the Circularity of Product Life Cycles Using Manufacturing-relevant Indicators and Preliminary Industry Data,” J.W. Sutherland, 10/01/2023 – 09/30/2024, $142,901.
- IMEC-Purdue Collaboration, M. Lundstrom et al., 06/01/2023-05/31/2028, $1,750,000.
- DOE – Critical Materials Innovation (CMI) Hub, Sutherland, Zhao, 01/18/2024-06/30/2025, $970,000.
- Cummins, “Engine Verification Analysis with the Application of Machine Learning,” Sutherland, 03/01/2024-02/28/2026, $138,725.
- DOE Cybersecurity Manufacturing Innovation Institution (CyManII), “Securing: ICS Controllers Over their Life Cycle, Dongyan Xu, Sutherland, and several others, 03/01/2024-07/31/2025, $206,410.
- NIST Measurement Science and Engineering Research Grant Programs, Engineering Laboratory (EL) Grants Program, “Development of Time-Integrated Manufacturing Indicators and Comprehensive Data Collection for Circularity,” Sutherland and Nath, 09/2024-08/2025, $170,167.
- DOE–U. Tenn Knoxville, “Development of Low-Density Fe-Mn-Al Multi-Principal Element Alloys for Lightweighting Automobile Structural Components,” Sutherland-Purdue, 10/01/2024-09/30/2027, Purdue share: $224,000.
- DOE-AMP Robotics, “Demonstrating the technoeconomic viability of automated characterization and sorting of batteries within E-waste,” Sutherland, Zhao and Nath from Purdue, 01/01/2025-12/31/2027, $485,000.
- DOE ARPA-E, “Integrated Technoeconomic, Lifecycle, and Circularity Analyses Tool for EV Batteries,” Zhao, Sutherland, and Nath from Purdue, 01/2025-12/2027, $3,100,000.
- DOE-AMMTO-Ames Lab, “Critical Rare-Earths-Free Cerium Gap Magnets,” Sutherland and Nath from Purdue, 5/15/2025-5/14/2027, $112,049.
- NSF-NRT (Research Traineeships), “Collaborative Research: Next Generation Technology and Talent Driven by Environmental Sustainability,” I. Hua, Howarter, Cai, Ciez, Mulrow, Sutherland & others, Purdue, 01/2025-12/2027, $1,500,000.
- DOE – Critical Materials Innovation (CMI) Hub, Sutherland, Zhao, 07/01/2025-06/30/2027, $1,160,000.

Scholarly Activity

Books and Chapters in Books

1. Oreskovich, D. C., B. P. Klein, and J. W. Sutherland, "Procrustes Analysis and its Applications to Free-Choice and Other Sensory Profiling," Chapter 13 in Sensory Science Theory and Applications in Foods, Eds. H. T. Lawless and B. P. Klein, Marcel Dekker, 1991, p. 353-393.
2. DeVor, R. E., T. H. Chang, and J. W. Sutherland, Statistical Quality Design and Control: Contemporary Concepts and Methods, Macmillan, 1992, 809 pages.
3. DeVor, R. E., T. H. Chang, and J. W. Sutherland, Solutions Manual - Statistical Quality Design and Control: Contemporary Concepts and Methods, Macmillan, 1992, 566 pages
4. Sutherland, J. W., and K. L. Gunter, "Environmental Attributes of Manufacturing Processes," Chapter 13 in Handbook of Environmentally Conscious Manufacturing, Ed. C. N. Madu, Kluwer Acad. Pub., 2001, p. 293-316.
5. DeVor, R. E., T. H. Chang, and J. W. Sutherland, Statistical Quality Design and Control: Contemporary Concepts and Methods, Second Edition, Prentice-Hall, 2006, 942 pages.
6. Electronic version of Solutions Manual is available online at the Prentice-Hall website.
7. Rivera, J. L., D. J. Michalek, and J. W. Sutherland, "Air Quality In Manufacturing," Chapter 7 in Environmentally Conscious Manufacturing Handbook, John Wiley and Sons, 2007, p. 145-178.
8. Jenkins, T. L. and Sutherland, J. W. "An Integrated Supply System for Forest Biomass," Chapter 5 in Renewable Energy From Forest Resources in the United States, Ed.: B. D. Solomon and V. A. Luzadis, Routledge, Oxfordshire, UK, November 2008, p. 92-115.
9. Linke, B.S., and J. W. Sutherland, "Introduction to Energy Efficient Manufacturing," Chapter 1 in Energy Efficient Manufacturing, Ed.: J.W. Sutherland, D.A. Dornfeld, and B.S. Linke, Scrivener Publishing/Wiley, 2018. p. 1-9.
10. Yin, Ruixue, F. Zhao, and J.W. Sutherland, "Energy Efficient Manufacturing Process Planning," Chapter 12 in Energy Efficient Manufacturing, Ed.: J.W. Sutherland, D.A. Dornfeld, and B.S. Linke, Scrivener Publishing/Wiley, 2018. p. 339-358.
11. Shade, S.A., and J.W. Sutherland, "Energy Efficient or Energy Effective Manufacturing?" Chapter 16 in Energy Efficient Manufacturing, Ed.: J.W. Sutherland, D.A. Dornfeld, and B.S. Linke, Scrivener Publishing/Wiley, 2018. p. 421-443.

Volumes Edited

1. Manufacturing Science and Engineering, ASME Bound Volume - PED Vol. 64, Editor: K. F. Ehmann; J. W. Sutherland one of several Contributing Editors, 1993.
2. Industrial Virtual Reality: Manufacturing and Design Tool for the Next Millennium, ASME Bound Volume - MH Vol. 5/MED Vol. 9, Principal Editors: P. Banerjee & T. Kesavadas; J. W. Sutherland one of several Contributing Editors, 1999.
3. Manufacturing Science and Engineering, ASME Bound Volume - MED Vol. 10, Principal Editor: J. W. Sutherland, 1999.
4. Proceedings of the ASME Manufacturing Engineering Division, ASME Bound Volume - MED Vol. 11, Editor: R. J. Furness; J. W. Sutherland one of several Contributing Editors, 2000.
5. Proceedings of the ASME Manufacturing Engineering Division, in association with the ASME IMECE, Editor: L. Yao; J. W. Sutherland one of several Contributing Editors, 2004, appeared on CD-ROM.
6. Two special issues on Educating Students in Sustainable Engineering for the International Journal of Engineering Education, Editors: Lynn Katz and John Sutherland, first issue: Vol. 23/2 – 2007, second issue: Vol. 23/6 – 2007.
7. Energy Efficient Manufacturing, Eds.: J.W. Sutherland, D.A. Dornfeld, and B.S. Linke, Scrivener Publishing/Wiley, 2018.
8. Special Issue "Life Cycle Engineering and Sustainable Manufacturing for Net-Zero Targets and Environmental Sustainability," for Resources, Conservation & Recycling, Editors: W-Q Chen, M.Z. Hauschild, B-J Huang, S. Kara, J. W. Sutherland, and Y. Umeda.

Refereed Journal Articles

1. Sutherland, J. W., and R. E. DeVor, "An Improved Method for Cutting Force and Surface Error Prediction in Flexible End Milling Systems," J. of Engineering for Industry, Trans. ASME, Vol. 108, No. 4, November 1986, p. 269-279.
2. Richardson, S. J., M. P. Steinberg, R. E. DeVor, and J. W. Sutherland, "Characterization of the Oxygen-17 Nuclear Magnetic Resonance Water Mobility Response Surface," J. of Food Science, Vol. 52, No. 1, 1987, p. 189-193.
3. Sutherland, J. W., R. E. DeVor, S. G. Kapoor, and P. M. Ferreira, "Machining Process Models for Product and Process Design," Soc. of Automotive Engrs. Technical Paper No. 880793, also in SAE Trans., Vol. 97, No. 5, 1988, p. 215-226.
4. Sutherland, J. W., D. J. O'Brien, and M. S. Wagner, "An Algorithm for the Detection of Flute Breakage in a Peripheral End Milling Process," Trans. of NAMRI/SME, Vol. 17, May 1989, p. 144-151.
5. Lin, S. C., R. E. DeVor, S. G. Kapoor, and J. W. Sutherland, "A New Approach to Estimating Cutting Process Damping Under Working Conditions," Trans. of NAMRI/SME, Vol. 18, May 1990, p. 154-160.
6. Sutherland, J. W., and K. S. Moon, "Procrustes Analysis and its Application to Sensor Integration," Trans. of NAMRI/SME, Vol. 20, May 1992, p. 347-354.
7. Sutherland, J. W., and W. J. Zdeblick, "Modeling the Thread Chasing Process for Improved Product Quality," Soc. of Automotive Engrs. Technical Paper No. 920919, also in the SAE Trans., J. of Materials and Manufacturing, Vol. 101, No. 5, 1992, p. 711-719.
8. Mistry, A. H., S. J. Schmidt, S. R. Eckhoff, and J. W. Sutherland, "Alkali Extraction of Starch from Corn Flour," Starch/Stärke, Vol. 44, 1992, p. 284-288.
9. Michler, J. R., K. S. Moon, J. W. Sutherland, and A. R. Kashani, "Development of a Cutting Tool Micropositioner," Trans. of NAMRI/SME, Vol. 21, May 1993, p. 421-427.
10. Kashani, A. R., J. W. Sutherland, K. S. Moon, and J. R. Michler, "A Robust Control Scheme for Improved Machined Surface Texture," Trans. of NAMRI/SME, Vol. 21, May 1993, p. 429-434.
11. Olson, W. W. and J. W. Sutherland, "Research Issues in Demanufacturing," Trans. of NAMRI/SME, Vol. 21, May 1993, p. 443-450.
12. Moon, K. S. and J. W. Sutherland, "The Origin and Interpretation of Spatial Frequencies in a Turned Surface Profile," J. of Engineering for Industry, Trans. ASME, Vol. 116, No. 3, August 1994, p. 340-347, also in Contact Problems and Surface Interaction in Manufacturing and Tribological Systems, ASME Bound Volume - PED Vol. 67, December 1993, p. 343-351.
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Published Articles, Abstracts, and Posters

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3. Schlesser, J.E., S.J. Schmidt, J.W. Sutherland, "Characterization of Chemical and Physical Changes in Model Soft Cheese During Ripening," Abstract for the American Dairy Science Association Annual Meeting, Logan, UT, August 1991.
4. Olson, W.W., D.M. Haan, J.W. Sutherland, "The Mechanisms of Metal Cutting Fluids in Machining Aluminum Alloys," Abstract for the American Automobile Manufacturers Association Metalworking Fluid Symposium, Dearborn, MI, November 1995, reprinted in Compoundings (newsletter of the Ind. Lubricant Manufacturers Assoc.), December 1995, No. 92.
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21. Navarro, J., L. Cong, F. Zhao, H. Jin, Y. Yih, and J.W. Sutherland, "Rare Earth Permanent Magnet: Its Environmental Impact, Value Recovery and Product Design" a poster for GE Manufacturing Day, West Lafayette, IN, April 16, 2015.
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25. Jin, E., J.W., Sutherland, "An Integrated Sustainability Model for a Bioenergy System: Forest Biomass for Electricity Generation," a poster for AEESP 2017 Conference, University of Michigan, Ann Arbor, June 20-22, 2017.
26. Jin, H., M. Gupta, V. Thompson, D. Reed, D. Park, Y. Jiao, J.W. Sutherland, "Techno Economic Analysis on Value Recovery of Rare Earth Elements," a poster for CMI Annual Meeting, Livermore, CA, August 30, 2017.
27. Lee, W. J., G.P. Mendis, J.W. Sutherland, "An Integrated Sustainability Model for Early Stage Process Selection Tool for Identifying Tradeoffs in Additive and Subtractive Manufacturing," a poster for Purdue Manufacturing Forum-2017, Purdue University, West Lafayette, IN, October 17-18, 2017.
28. Mathur, N., S. Singh, J.W. Sutherland, "Industrial Symbiosis: Biomimicry in the Photovoltaic Industry," a poster for Purdue Manufacturing Forum-2017, Purdue University, West Lafayette, IN, October 17-18, 2017.
29. Mendis, G.P., S. Shade, J.W. Sutherland, "Smart Manufacturing Testbed: Industry 4.0 Applied at Purdue University," a poster for Purdue Manufacturing Forum-2017, Purdue University, West Lafayette, IN, October 17-18, 2017.
30. Richter, J.S., G.P. Mendis, L.F. Nies, J.W. Sutherland, "Modeling the Social Impacts of Advanced Manufacturing," a poster for Purdue Manufacturing Forum-2017, Purdue University, West Lafayette, IN, October 17-18, 2017.
31. Triebe, M.J., G.P. Mendis, F. Zhao, J.W. Sutherland, "Understanding energy consumption in a machine tool through energy mapping," a poster for Purdue Manufacturing Forum-2017, Purdue University, West Lafayette, IN, October 17-18, 2017.
32. Gupta, M., G. Zheng, H. Jin, J.W. Sutherland, "Development of a Bioenergy System: Forest Biomass Software Tool for Electricity Generation: Techno Economic Analysis on Critical Materials," a poster for CMI Winter Meeting, Denver, CO, January 23, 2018.
33. Lee, W. J., G.P. Mendis, J.W. Sutherland, "Fusion of Multi-Sensor Data to Monitor an Abnormality in a Machining Process Using Machine Learning Techniques," a poster for AEESP Distinguished Lecture Conference, Purdue University, West Lafayette, IN, February 2, 2018.
34. Mathur, N., S. Singh, J.W. Sutherland, "Industrial Symbiosis: Biomimicry in the Photovoltaic Industry," a poster for AEESP Distinguished Lecture Conference, Purdue University, West Lafayette, IN, February 2, 2018.
35. Richter, J.S., G.P. Mendis, L.F. Nies, J.W. Sutherland, "Modeling the Social Impacts of Advanced Manufacturing," a poster for AEESP Distinguished Lecture Conference, Purdue University, West Lafayette, IN, February 2, 2018.

36. Triebe, M.J., F. Zhao, J.W. Sutherland, "Reducing Environmental Impact of Machine Tools through Energy Efficiency," a poster for AEESP Distinguished Lecture Conference, Purdue University, West Lafayette, IN, February 2, 2018.
37. Sutherland, J.W., "Manufacturing for A Sustainable Future," Mechanical Engineering, Oct./Nov. 2020, 142(10).
38. Purwar, T., Shakelly, N., Khatib, M., Sutherland, J., & Castillo, L., "Climate Change, Mass Migration and Gender: A non-linear complexity," Abstract for Bulletin of the American Physical Society, 2022.
39. Joung, B.G., Nath, C., Sutherland, J.W., Poster: Edge Device AI with LSTM-RNN Based Anomaly Detection for Manufacturing, ASME MSEC, Knoxville, Tennessee, Jun 17-21, 2024.

Selected Lectures, Seminars, and Presentations

1. "On the Geometry of End Milled Surfaces," presented at the 14th North Am. Manf. Res. Conf., Univ. of Minnesota, May 1986. See paper above.
2. "An Improved Method for Cutting Force and Surface Error Prediction in Flexible End Milling Systems," presented at the ASME WAM, Anaheim, California, December 1986. See paper above.
3. "Machining Process Models for Product and Process Design," presented at the 39th SAE Earthmoving Industry Conference, Peoria, Illinois, April 1988. See paper above.
4. "The Geometry of Surfaces Generated by the Bottom of an End Mill," presented at the 16th North Am. Manf. Res. Conf., Univ. of Illinois, May 1988. See paper above.
5. "An Integrated Approach to Machine Tool System Analysis, Design, and Control," presented at the 3rd Int. Conf. on Comp-Aid. Prod. Engr., Univ. of Michigan, June 1988. See paper above.
6. "A Dynamic Model of the Cutting Force System in the End Milling Process," presented at the ASME WAM, Chicago, Illinois, November 1988. See paper above.
7. "An Algorithm for the Detection of Flute Breakage in a Peripheral End Milling Process," presented at the 17th North Am. Manf. Res. Conf., Ohio State University, May 1989. See paper above.
8. "A Quality-Engineering-Based Approach to the Simultaneous Engineering of Products and their Manufacturing Processes," presented at the 5th Int. Conf. on Comp.-Aid. Prod. Engr., Univ. of Edinburgh (Scotland), November 1989. See paper above.
9. "A New Approach to Estimating Cutting Process Damping Under Working Conditions," presented at the 18th North Am. Manf. Res. Conf., Penn. State Univ., May 1990. See paper above.
10. "Taguchi's Contributions to Quality Engineering," invited presentation for the Danville, Illinois Section of the American Society for Quality Control, April 1991.
11. "Modeling the Thread Chasing Process for Improved Product Quality," presented at the 43rd SAE Earthmoving Industry Conference, Peoria, Illinois, April 1992. See paper above.
12. "Procrustes Analysis and its Application to Sensor Integration," presented at the 20th North Am. Manf. Res. Conf., Wash. State Univ., May 1992. See paper above.
13. Two-day seminar on Statistical Methods for Quality Design and Improvement through the Office of Continuing Engineering Education and the Institute for Competitive Manufacturing of the University of Illinois, August 3-4, 1992.
14. "Improved Image Information Via Procrustes Analysis," presented at the ASME WAM, Anaheim, California, November 1992. See paper above.
15. "Introduction to Two-Level Factorial Designs," invited seminar for University of Illinois Cooperative Extension Service (FN 420), Oak Brook, Illinois, March 2, 1993.
16. "A Robust Control Scheme for Improved Machined Surface Texture," presented at the 21st North Am. Manf. Res. Conf., Okla. State Univ., May 1993. See paper above.
17. "The Role of Computer-Based Simulation in Manufacturing Laboratories," presented at the ASEE Annual Conference, Univ. of Illinois at Urbana-Champaign, June 1993. See paper above.
18. "Questioning the Traditional Role of Cutting Fluids in Machining," invited presentation at the SME - Advances in Metalworking Fluids Workshop, Fort Mitchell, Kentucky, March 29, 1995.
19. "Programmatic Activities in Manufacturing at MTU - Development of a Magnetostrictive Actuator," invited seminar at the United Technologies Research Center, East Hartford, Connecticut, July 31, 1995.
20. "Programmatic Activities in Manufacturing at MTU - Grinding Research," invited seminar at the Norton Company - World Grinding Technology Center, Worcester, Massachusetts, July 31, 1995.

21. "Activities in Environmentally Conscious Design and Manufacturing at MTU," invited presentation for USCAR's (GM, Ford, Chrysler) Vehicle Recycling Partnership, Detroit, Michigan, September 1, 1995.
22. "Determination of Design Effort Distribution for an Environmentally Conscious Product Using a Pairwise Comparison Approach," presented at the ASME IMECE, San Francisco, California, November 1995. See paper above.
23. "Application of an Actively Controlled Magnetostrictive Actuator for Vibration Abatement in the Turning Process," presented at the ASME IMECE, San Francisco, California, November 1995. See paper above.
24. "An Experimental Investigation into the Effect of Cutting Fluid Conditions on the Boring of Aluminum Alloys," presented at the ASME IMECE, San Francisco, California, November 1995. See paper above.
25. "MT-AMRI and MTU Programs in Environmentally Conscious Machining," presented to the Dry Machining of Aluminum Team Meeting at NCMS, December 4, 1995.
26. "Working with Graduate Students," presented to MTU Chapter of the American Society of Engineering Education, Houghton, Michigan, January 25, 1996.
27. "Environmentally Conscious Machining Activities at Michigan Technological University," presented to the Ford Motor Company, Livonia, Michigan, February 23, 1996.
28. Co-Organizer, MT-AMRI Workshop on Environmentally Conscious Machining, Ford Scientific Research Laboratories, Dearborn, Michigan, May 14, 1996.
29. "Adaptive Feedforward Control for Periodic Disturbance Rejection with Application to Machining Processes," presented at the 24th North Am. Manf. Res. Conf., Univ. of Michigan, May 1996. See paper above.
30. "Development of an Internet-Based Cutting Fluid Evaluation Software Testbed," invited presentation at the SME - Metalworking Fluids Workshop, Troy, Michigan, June 5, 1996.
31. "Effect of Cutting Fluid Properties and Application Variables on Heat Transfer in Turning and Boring Operations," presented at the Japan - U.S.A. Symposium on Flexible Automation, Boston, Massachusetts, July 1996. See paper above.
32. "The Frequency Component Structure of a 3-D Grinding Wheel Surface and its Effect on Ground Surface Texture," presented at the Japan - U.S.A. Symposium on Flexible Automation, Boston, Massachusetts, July 1996. See paper above.
33. "Environmental Issues Associated with Machining Processes," presented at the First Euroconference and U.S. Workshop on Material Instabilities in Deformation and Fracture, Porto Carras, Greece, September 1996.
34. "Environmentally Conscious Manufacturing," presented at the CenCITT SAC meeting, Houghton, Michigan, September 1996.
35. "Environmentally Conscious Machining," presented at Louisiana State University, Baton Rouge, Louisiana, October 1996.
36. "Cutting Fluid Mist Formation in Machining Via Atomization Mechanisms," presented at ASME IMECE, Atlanta, Georgia, November 1996. See paper above.
37. "Machine Tool Research at Michigan Technological University," presented to the Ingersoll Milling Machine Company, Rockford, Illinois, December 9, 1996.
38. "Enhancing EMSIM - Incorporating a Ploughing Model to Achieve Process Damping," presented at the MT- AMRI Process Modeling Workshop, Urbana, Illinois, December 10, 1996.
39. "Research on Environmentally Conscious Machining," a poster for 1997 NSF Design & Mfg. Grantees Conf., Seattle, Washington, January 16-18, 1997.
40. "Research on Environmentally Conscious Machining - Dry Machining," presented to GM (Mark Gillman), Pontiac, Michigan, February 17, 1997.
41. "The Role of Cutting Fluids in Machining Process Performance," presented to Monsanto, Urbana, Illinois, February 21, 1997.
42. "Research on Environmentally Conscious Machining," presented at Iowa State University, Ames, Iowa, February 27, 1997.
43. "An Overview of Environmentally Conscious Machining at Michigan Technological University," presented to the Ford Motor Company, Livonia, Michigan, March 24, 1997.
44. "Characterizing the Role of Cutting Fluids in Machining Processes," invited presentation at the SME - Advances in Metal Working Fluids Workshop, Fort Mitchell, Kentucky, April 9, 1997.

45. "Environmentally Conscious Machining: Recent Developments Relating to Cutting Fluids and Dry Machining," invited presentation at Cooper Industries (Crouse-Hinds), Syracuse, New York, June 6, 1997.
46. "Short Course on Design of Experiments," Corn Products, Argo, Illinois, July 29-30 and August 13-14, 1997.
47. Co-Organizer, MT-AMRI Workshop on Environmentally Conscious Machining, Ford QMP Facility, Dearborn, Michigan, September 19, 1997.
48. "Overview of the Programs and Activities of the Machine Tool Agile Manufacturing Research Institute," invited presentation at the DARPA/NSF Agile Manufacturing Initiative Principal Investigators Meeting, Alexandria, Virginia, September 23, 1997.
49. "Global M.S. Degree in Mechanical Engineering," presented at Ford FTDC, Dearborn, Michigan, September 25, 1997.
50. "Research Issues Associated with Environmentally Conscious Machining," presented at the University of Florida, Gainesville, Florida, October 21, 1997.
51. "Research on the Role of Cutting Fluids in Machining Processes and Technology Transfer via a Software Testbed," presented at the Cincinnati Milacron Consumable Products Division's Annual Engineering and Development Technical Seminar, Cincinnati, Ohio, October 23, 1997.
52. "Dry Machining - Examining the Role of Metalworking Fluids," invited presentation at the SME - Advances in Metal Working Fluids Workshop, Chicago, Illinois, April 29, 1998.
53. "Pollution Prevention in Machining" presented at the National Pollution Prevention Roundtable Spring Conference, Cincinnati, Ohio, April 30, 1998.
54. "A Comprehensive Model for the Flank Face Interference Mechanism in Peripheral Milling," presented at the 26th North Am. Manf. Res. Conf., Georgia Tech., May 1998. See paper above.
55. "Modeling the Effects of Component Level Geometric and Form Deviations on Slideway Errors," presented at the 26th North Am. Manf. Res. Conf., Georgia Tech., May 1998. See paper above.
56. "Environmentally Conscious Manufacturing," presented at the CenCITT SAC Meeting, Chicago, Illinois, September 28, 1998.
57. "Active Vibration Abatement in a Turning Process by Applying a Magnetostrictively Actuated Tool Holder" presented at ASME IMECE, Anaheim, California, November 1998. See paper above.
58. "Waste Reduction in Machining Processes," at U.S. EPA Region 5 Waste Minimization Conference in Chicago, Illinois, December 14-16, 1998.
59. "Research on Environmentally Conscious Machining," a poster for 1999 NSF Design & Mfg. Grantees Conf., January 7-8, 1999.
60. "Application of Gradient Theory in Machining: Localized Chip Formation," presented at Plasticity '99 in Cancun, Mexico, January 12, 1999. See paper above.
61. "Environmentally Conscious Manufacturing," invited presentation at Iowa State University, April 26-27, 1999.
62. Examining the Role of Metal Working Fluids in Machining," at Metalworking Fluids Clinic, Romulus, Michigan, May 11-12, 1999.
63. "Effects of Cutting Fluid Composition on the Dimensional Accuracy of Tapped Threads," presented at the 27th North Am. Manf. Res. Conf., Berkeley, California, May 1999. See paper above.
64. "An Examination of Cutting Fluid Mist Formation in Machining," presented at the 27th North Am. Manf. Res. Conf., Berkeley, California, May 1999. See paper above.
65. "The Role of Cutting Fluids in Machining," invited presentation at 3M, St. Paul, Minnesota, July 19, 1999.
66. "Michigan Tech's Research on Dry Machining and the Role of Cutting Fluids in Machining," invited presentation at NCMS Fall Workshop Series, Dearborn, Michigan, September 27-28, 1999.
67. "An Orthogonal Cutting Model Based on Finite Deformation Analysis Part I: Model Development, and Part II: Constitutive Equations and Experimental Verification," presented at ASME IMECE, Nashville, Tennessee, November 1999. See paper above.
68. "Cutting Fluids in Machining: Heat Transfer and Mist Formation Issues," NSF Grantees Conference, January 5-7, 2000. See paper above.
69. "Environmentally Responsible Manufacturing Research," invited presentation at Notre Dame University, February 28-29, 2000.

70. "Use of a Manufacturing Process Classification System for Improved Environmental Performance," presented at SAE Congress, Detroit, Michigan, March 6-9, 2000. See paper above.
71. Speaker and organizer of panel on "Green Manufacturing," for National Manufacturing Week, Chicago, Illinois, March 15, 2000.
72. "Environmentally Responsible Manufacturing Research," invited presentation at Penn. State University, March 27-28, 2000.
73. "Research on Environmentally Responsible Manufacturing," invited presentation at Georgia Tech, Atlanta, Georgia, May 2-3, 2000.
74. "Mechanistic Prediction of Drilling Forces Incorporating a Minimum Cutting Energy Model for Chip Flow Angle," presented at the 28th North Am. Manf. Res. Conf., Lexington, Kentucky, May 2000. See paper above.
75. "The Role of Cutting Fluids in Machining," invited presentation at Coolants/Lubricants for Metal Cutting & Grinding Conference, Chicago, Illinois, June 5-7, 2000.
76. "Modeling of Cutting Fluid System Dynamics," presented at 2000 Japan - U.S.A. Symposium on Flexible Automation, Ann Arbor, Michigan, July 2000. See paper above.
77. "Input-Output Modeling for Environmental Impact Analysis of Manufacturing Processes," presented at 2000 Japan - U.S.A. Symposium on Flexible Automation, Ann Arbor, Michigan, July 2000. See paper above.
78. "An Experimental Investigation of Air Quality in Wet and Dry Turning," presented at the 50th CIRP General Assembly, Sydney, Australia, August 20-26, 2000. See paper above.
79. "Cutting Fluid Mist Formation in Turning Via Atomization, Part 1: Model Development, and Part 2: Experimental Validation," presented at 2000 ASME IMECE, Orlando, Florida, November 2000. See paper above.
80. "Environmentally Benign Manufacturing," invited presentation at Sigma Xi meeting, MTU, Houghton, Michigan, November 30, 2000.
81. "Characterizing the Role of Cutting Fluids in Machining," invited presentation at annual CIRP meeting, Paris, France, January 2001.
82. "Research on Environmentally Responsible Manufacturing," invited presentation at Virginia Tech, 2001.
83. "Wet Versus Dry Turning: A Comparison of Machining Costs, Product Quality, and Aerosol Formation" presented at SAE, in Detroit, Michigan, March 5, 2001. See paper above.
84. "Research on Environmentally Responsible Manufacturing," invited presentation at Penn State, March 2001.
85. "Industrial Ecology and the Automobile: Assessing the Sustainability of the Automobile Material Life Cycle," presented to GM, Detroit, Michigan, September, 2001.
86. "Industrial Ecology," NSF-STC Site Visit, MTU, Houghton, Michigan, October 28, 2001.
87. "Environmentally Benign Manufacturing (An NSF Sponsored Global Benchmarking Study)," invited speaker at Society for Environmental Engineering, MTU, Houghton, Michigan, November 8, 2001.
88. "Development of a Model for the Prediction of the Energy Partition in a Peripheral Milling Operation," presented at 2001 ASME IMECE, New York, New York, November 2001. See paper above.
89. "Sampling of Small Airborne Particles in the Auto Industry," presented (with J. Dasch, J. D'Arcy, and A. Gundrum) to UAW-GM Natl. Joint Comm. on Health & Safety, Detroit, Michigan, December 2001.
90. "Research Status of MQL in Machining," invited presentation (with S. Liang) at annual CIRP meeting, Paris, France, January 2002.
91. "NSF Workshop on Environmentally Benign Manufacturing," invited presentation at SAE Congress, Detroit, Michigan, March 2002.
92. "A Model for Material Flows and Economic Exchanges Within the U.S. Automotive Life-Cycle Chain and its Sensitivity to Systemic Changes," presented at CIRP Life Cycle Engineering Conference, Erlangen, Germany, April 2002. See paper above.
93. "Sustainable Futures," presented with John Crittenden to Ford, GM, Visteon, Delphi, BASF, Detroit, Michigan, May 2002.
94. "Sustainable Manufacturing Research at Michigan Tech," presented to Steelcase, May 2002.
95. "Automotive Industry – Sustainable Futures," presented to College of Engineering Industrial Advisory Board, Chrysler-Liberty, Detroit, Michigan, May 2002.

96. "Thoughts on Submitting a Career Proposal to the National Science Foundation," presented to untenured faculty, Houghton, Michigan, May 2002.
97. "An Experimental Study of the Fume Particulate Produced by the Shielded Metal Arc Welding Process," presented at 30th North Am. Manf. Res. Conf., West Lafayette, Indiana, May 2002. See paper above.
98. Sutherland's student, Ken Gunter, presented "A Framework for Characterizing the Impact of Product Design Decisions on Environmental Performance," at Japan-USA Symposium on Flexible Automation, Hiroshima Japan, 2002. See paper above.
99. "A Model for Improving Economic Performance of a Demanufacturing System for Reduced Product End-of-Life Environmental Impact," presented at 2002 CIRP General Assembly, San Sebastian Spain. See paper above.
100. "Environmentally Responsible Manufacturing Enterprises – A Key to Sustainable Development," invited presentation at MIM, Milwaukee Wisconsin, 2002.
101. "Manufacturing Research Activities at Michigan Tech," invited presentation at Caterpillar, Mossville, Illinois, October 22, 2002.
102. "Quantifying the Impact of Cutting Fluids on Machining Operations," invited presentation at the UNIST-organized seminar on MQL, Grand Rapids, Michigan, October 24, 2002.
103. Sutherland's student, Chuanxi Ju, presented "Application of an Imaging System to Study Machining Mist Formation via an Atomization Mechanism," at ASME IMECE 2002, New Orleans, Louisiana. See paper above.
104. "An Investigation into the Effect of Process Parameter Settings on Air Emission Characteristics in the Lost Foam Casting Process," presented at the 2003 AFS Conference, Milwaukee Wisconsin. See paper above.
105. "Sustainable Futures – Recent & Planned Initiatives," invited presentation to the Office of Educational Opportunity Board Meeting, April 2003.
106. "The Future of Continued Use of Flood Coolants in Machining Operations," invited presentation at UNIST workshop, Grand Rapids, Michigan, June 4-5, 2003.
107. "An Education Program in Support of a Sustainable Future," presented at ASME-IMECE 2003, Washington D.C. See paper above.
108. "Environmentally Responsible Manufacturing Research at Michigan Technological University," invited presentation at Virginia Tech, Blacksburg, Virginia, February 9-11, 2004.
109. "Reducing the Use of Cutting Fluids in Operations," invited presentation at International Symposium on Ecological Challenge in Manufacturing Systems, Yokohama Japan, February 24-29, 2004. See paper above.
110. "Environmentally Responsible Manufacturing Research at Michigan Technological University," invited presentation at Univ. of Cincinnati, May 12-13, 2004.
111. "A Model for Material Flows and Economic Exchanges Within the U.S. Automotive Life Cycle Chain," presented at NAMRC 2004, Univ. of North Carolina-Charlotte, June 2004. See paper above.
112. Sutherland's student, Vishesh Kumar presented "An Enhanced Input-Output Model for Material Flow Analysis of Manufacturing Processes," presented at Japan-USA Symposium of Flexible Automation, Denver, Colorado, 2004. See paper above.
113. "Predicting Manufacturing Waste and Energy for Sustainable Product Development via WE-Fab Software," presented at the Global Conference on Sustainable Product Development and Life Cycle Engineering, Berlin Germany, September 2004. See paper above.
114. Sutherland's student, Vishesh Kumar presented "Analytical Models for Economic Demanufacturing Inventory Management," at ASME-IMECE, Anaheim, California, 2004. See paper above.
115. "An Update on the Sustainable Futures IGERT," presented at CIRP Paris Meeting, January 2005.
116. "Environmentally Responsible Manufacturing," invited presentation at International Workshop on Manufacturing, Pretoria, South Africa, January 2005.
117. "Research and Collaboration Opportunities with Michigan Tech," invited presentation at International Workshop on Manufacturing, Johannesburg, South Africa, January 2005.
118. "Sustainable Futures Institute: An Overview," presented to MTU COE IAB, Houghton, Michigan, April 2005.

119. "Development of a Magnetostrictive-Actuated Tool Holder for Dry Deep Hole Drilling," presented at NAMRC 2005, Columbia Univ., New York, May 2005. See paper above.
120. "Towards Manufacturing/Mechanical Engineering Curricular Change in Support of a Sustainable Future," 3rd SME International Conference on Manufacturing Education, San Luis Obispo, California, June 2005. See paper above.
121. Invited panelist, "Sustainability in Manufacturing/Mechanical/Industrial Engineering Curricula," 3rd SME International Conference on Manufacturing Education, San Luis Obispo, California, June 2005.
122. "Integrating Societal Considerations into LCA: An Exploratory Discussion," presented at CIRP General Assembly, Antalya, Turkey, August 2005.
123. Sutherland's student, Karl Haapala, presented "Issues Associated with MQL Implementation: Effect on Peripheral Milling Process Performance and Impact on Machining Economics," ASME IMECE, Orlando, Florida, November 2005. See paper above.
124. Invited presentation, "Education – A Key to Sustainability," ASME IMECE, Orlando, Florida, November 2005.
125. Sutherland's student, Vishesh Kumar, presented "Towards Sustainable Product and Material Flow Cycles: Identifying Barriers to Achieving Multi-use and Zero Waste," ASME IMECE, Orlando, Florida, November 2005. See paper above.
126. Invited panelist to BRTD session, "Sustainable Manufacturing," ASME IMECE, Orlando, Florida, November 2005.
127. Sutherland's post-doc, Serdar Tumkor, presented "Electrical and Electronic Equipment Recovery and Recycling in Turkey," ASME IMECE, Orlando, Florida, November 5-11, 2005. See paper above.
128. Sutherland's student, Xuefei Hu, presented the two-part paper "Characterizing the Effect of 319 Aluminum Microstructure on Machinability, Part 1: Model Development and Part 2: Model Validation," ASME IMECE, Orlando, Florida, November 5-11, 2005. See paper above.
129. Invited presentation at the University of Michigan, "Activities of the Sustainable Futures Institute at Michigan Tech," Ann Arbor, Michigan, March 2006.
130. Sutherland's student, Margot Hutchins, presented "The Role of the Social Dimension in Life Cycle Engineering," at the 13th CIRP International Conference on Life Cycle Engineering, Leuven, Belgium, June 2006. See paper above.
131. Sutherland's post-doc, S. Tumkor, presented "New Engineering Design Concepts for the Sustainable Products," at the American Society for Engineering Education - 113th Annual Conference and Exposition, Chicago, Illinois, June 18-21, 2006. See paper above.
132. Sutherland, J. W., presented paper authored by Tim Gutowski (MIT) on "Electrical Energy Requirements for Manufacturing Processes," at the 13th CIRP International Conference on Life Cycle Engineering, Leuven, Belgium, June 2006.
133. "Environmentally Responsible Process Selection via Life Cycle Analysis," at the International Symposium on Flexible Automation, Osaka, Japan, July 10-12, 2006. See paper above.
134. Sutherland's student, L. R. Garcilaso, presented "Conversion of Products to Services (Dematerialization) to Promote Sustainability," at the 16th CIRP International Design Seminar - Design & Innovation for Sustainable Society, Kananaskis, Canada, July 16-19, 2006. See paper above.
135. Sutherland's student, Abigail Clarke, presented "Distributed or Centralized Production: Impacts to the Environment, Industry, and the Economy," National Science Foundation Design, Manufacturing and Innovation Grantees Conference, St. Louis, Missouri, July 24-27, 2006.
136. Sutherland's student, Abigail Clarke, presented "Sustainable Product Realization: The Future Scientific Formalism for Global Manufacturing Enterprises in 2025," American Society of Mechanical Engineers – Design Engineering Technical Conference, Philadelphia, Pennsylvania, September 10-13, 2006.
137. Sutherland's mentee, M. E. Jarvie presented "Exploring Value Flow in the Product Life Cycle to Promote Successful Value Recovery" at Sustainable Manufacturing IV Global Conference on Sustainable Product Development and Life Cycle Engineering, Sao Carlos, Sao Paulo, Brazil, October 3-6, 2006. See paper above.
138. Johnson, D.M. Bohmann, L.J., Mattila, K.G., Sutherland, J.W., Sorby, S.A., and Onder, N., a workshop on "Curriculum Model for Service Systems," Annual Meeting of the Production and Operations Management Society, January 2007. See paper above.

139. Johnson, D. M., L. J. Bohmann, K. G. Mattila, J. W. Sutherland, S. A. Sorby, and N. Onder, "Curriculum Model for Service Systems," Poster for Annual Meeting of Production and Operations Management Society, January 2007.
140. Sutherland's post-doc, V. Kumar, presented "Achieving Higher Material Recovery Rates from End-of-Use Vehicles," NAMRC 35, University of Michigan, May 22-25, 2007. See paper above.
141. "A Life-Cycle Comparison of Clothes Washing Alternatives," 14th CIRP Conference on Life Cycle Engineering, Tokyo, Japan, June 11-13, 2007. See paper above.
142. "Sustainable Manufacturing Trends in the United States & Discussion Topics," invited speaker at 14th CIRP Conference on Life Cycle Engineering, Tokyo, Japan, June 11-13, 2007.
143. "Sustainable Manufacturing: Global Benchmarking Study & NSF Workshop," Ford Motor Company, Dearborn, Michigan, July 13, 2007.
144. "Sustainability at Michigan Tech," invited presentation at Univ. of Nebraska-Lincoln, August 14, 2007.
145. Sutherland's student Karl Haapala presented, "Optimization of Steel Production to Improve Lifecycle Environmental Performance," CIRP General Assembly, Dresden, Germany, August 18-25, 2007. See paper above.
146. Invited speaker, "Potential Economic Impact of a Wood-based Biorefinery," Michigan Bio-Economy Summit, Lansing, Michigan, September 12-13, 2007.
147. Invited Conference Keynote Lecture, with J. Mihelcic, "Sustainable Engineering," 2007 ASEE North Midwest Sectional Conference, Houghton, Michigan, September 20-22, 2007.
148. Sutherland's student, K. Brown, presented "Engineering Design Curricula Review," at the 2007 ASEE North Midwest Sectional Conference, Houghton, Michigan, September 20-22, 2007
149. Sutherland's student, K. R. Haapala, presented "Education, Research, and Training Aspects of the Sustainable Futures NSF IGERT Project," 2007 ASEE North Midwest Sectional Conference, Houghton, Michigan, September 20-22, 2007. See paper above.
150. Hutchins, M. J., C. Walck, and J. W. Sutherland, Workshop on "Addressing the Social Dimension of Sustainability in Engineering Education," 2007 ASEE North Midwest Sectional Conference, Houghton, Michigan, September 20-22, 2007.
151. Bohmann, L. J., D. Johnson, K. Mattila, S. Sorby, and J. Sutherland, "Educating Students for the Service Economy: An Undergraduate Curriculum in Service Systems Engineering," 16th Frontiers in Service Conference, San Francisco, California, October 4-7, 2007. See paper above.
152. Sutherland's student M. J. Hutchins, poster presentation, "Incorporating the Social Dimension of Sustainability into Decision Making," Conference for Sustainability IGERTs: Integrating Sciences to Understand Social-Ecological Systems, University of Alaska, Fairbanks, Alaska, October 11-13, 2007.
153. "Comparing Energy & Other Measures of Environmental Performance in the Original Manufacturing and Remanufacturing of Engine Components," ASME Manufacturing Science and Engineering Conference, Atlanta, Georgia, October 16-18, 2007. See paper above.
154. Invited speaker, presentation on "Quality Activities at MTU," American Supplier Institute (ASI), Inc., Livonia, Michigan, November 9, 2007.
155. Bohmann, L. J., D. M. Johnson, K. G. Mattila, N. Onder, and J. W. Sutherland, "Update on Service Systems Engineering Curriculum - One Year Later," 38th Annual Meeting of Decision Sciences Institute, Phoenix, Arizona, November 2007.
156. Sutherland's student, K. Brown, presented "An Examination of the Barriers and Benefits of Implementing WEEE Recovery and Recycling," King-Chavez Parks Future Faculty Fellowship Conference, Ferris State University, Big Rapids, Michigan, March 3-April 1, 2008.
157. "Climate Change and Manufacturing," invited speaker at the 15th CIRP International Conference on Life Cycle Engineering, Sydney, Australia, March 17-19, 2008.
158. Sutherland's student, A. Clarke, presented "Selection of Remanufacturing Facility Locations to Minimize Cost and Environmental Impact," at the 15th CIRP International Conference on Life Cycle Engineering, Sydney, Australia, March 17-19, 2008. See paper above.
159. Sutherland's colleague M. Gale presented "Carbon Footprint Assessment and Reduction: A Driver of Research Collaborations and Curriculum Innovation at Michigan Tech," Higher Learning Commission, Chicago, Illinois, April 13, 2008.

160. Sutherland's student, K. Haapala, presented "A Life Cycle Environmental and Economic Comparison of Product-Service Systems," 36th Annual North American Manufacturing Research Conference, Monterrey, Mexico, May 20-23, 2008. See paper above.
161. "Challenges for the Manufacturing Enterprise to Achieve Sustainable Development," Invited Keynote for 41st CIRP Conference on Manufacturing Systems, Tokyo, Japan, May 2008. See paper above.
162. Bohmann, L., D. Johnson, K. Mattila, N. Onder, and J. Sutherland, "Designing a First Course in Service Systems Engineering," 2008 ASEE Conference – NSF Grantees' Poster Session, Pittsburgh, Pennsylvania, June 23, 2008, poster.
163. "A Comparison of Manufacturing and Remanufacturing Energy Intensities with Application to Diesel Engine Production," CIRP General Assembly, Manchester, England, August 24-30, 2008. See paper above.
164. "Sustainable Development: What are the Challenges for the Manufacturing Enterprise?" Invited Keynote for International Conference on Sustainable Manufacturing, Hefei, China, September 26-27, 2008.
165. Sutherland's student, J. Rivera, presented "Reducing the Environmental and Social Impacts of E-Waste Recovery in Developing Countries Through Technology and Policy," Global Conference on Sustainable Product Development and Life Cycle Engineering Sustainability and Remanufacturing VI, Busan, Korea, September 29 – October 1, 2008, see paper above.
166. Sutherland's student, J. Rivera, presented "The Role of Nanotechnology in Sustainable Manufacturing," Global Conference on Sustainable Product Development and Life Cycle Engineering Sustainability and Remanufacturing VI, Busan, Korea, September 29 – October 1, 2008, see paper above.
167. "Overview of the Sustainable Futures Institute," invited presentation at IRI 2008 Member Summit, Denver, Colorado, October 14-16, 2008.
168. "Environmentally Responsible Design and Manufacturing and Other Sustainable Development Efforts," presentation at Purdue University, West Lafayette, Indiana, Feb. 23, 2009.
169. Sutherland's student, K. Haapala, presented "Reducing Environmental Impacts of Steel Product Manufacturing," 37th Annual North American Manufacturing Research Conference, Greenville, SC, May 19-22, 2009. See paper above.
170. Sutherland's student, J. Rivera, presented "A Life Cycle Assessment Approach for the Evaluation of Transformational Technologies," at Proceedings of CIRP International Conference on Life Cycle Engineering, Cairo, Egypt, 2009. See paper above.
171. "Developing a Curriculum in Service Systems Engineering," presentation at Industrial Engineering Research Conference, Miami, FL, June 2009. See paper above.
172. "Introduction to the Division of Environmental and Ecological Engineering," lunch speaker for Engineer 2020 Workshop, West Lafayette, Indiana, Sept. 2009.
173. "Sustainability – A Growing Consideration in Engineering Decision Making," invited panelist for ASME MSEC, West Lafayette, Indiana, Oct. 2009.
174. "Future of Manufacturing Research in the U.S. – 'Sustainability' Opportunities," invited panelist for ASME MSEC, West Lafayette, Indiana, Oct. 2009.
175. "Sustainability: Challenges for the Manufacturing Enterprise," invited presentation at NIST Workshop on Sustainable Manufacturing: Metrics, Standards, and Infrastructure, Gaithersburg, Maryland, Oct. 2009.
176. "Sustainability Indicators Used in Industry," two presentations at IRI Member Summit, short talk for plenary session and longer talk for breakout session, Toronto, Canada, Oct. 2009.
177. "Sustainable Manufacturing," invited presentation at NDIA – Manufacturing Division, Washington, D.C., Nov. 2009.
178. "Sustainability Design & Manufacturing Efforts," invited lecture for ME 498: *EcoDesign and Environmentally Conscious Manufacturing* at the University of Illinois, Nov. 2010.
179. "Reducing Energy / CO2 Emissions at the Concept Design Stage," presented in the EREE CWG, CIRP Paris Meeting, January 2010.
180. "Societal Sustainability Indicators: Development of a Framework & Results of a Delphi Survey," presented in the STC-A, CIRP Paris Meeting, January 2010.
181. Sutherland's student, Abigail Clarke-Sather, presented "Utilizing Quality Function Deployment to Evaluate and Redesign Wastewater Treatment Systems," CIRP International Conference on Life Cycle Engineering, May 2010, Hefei, China. See paper above.

182. "Development of a Framework for Sustainable Conceptual Design," CIRP International Conference on Life Cycle Engineering, May 2010, Hefei, China. See paper above.
183. "Design and Manufacturing Approaches for Reduced Energy Consumption and Carbon Emissions," invited keynote for the CIRP International Conference on Life Cycle Engineering, May 2010, Hefei, China.
184. Sutherland's student, Margot Hutchins, presented "Development of a Framework and Indicators for Societal Sustainability in Support of Manufacturing Enterprise Decisions," NAMRC 2010. See paper above.
185. "Addressing Life Cycle Uncertainty in Manufacturing of Nanomaterials," 2010 Intl. Symp. On Flexible Automation, July 2010, Tokyo, Japan. See paper above.
186. "Development of a Cost Model and its Application in Determining Optimal Size of a Diesel Engine Remanufacturing Facility," CIRP General Assembly, Pisa, Italy, August 2010. See paper above.
187. "The Challenges of Manufacturing for a Sustainable World," invited presentation at the 2nd International Forum on Sustainable Manufacturing, U. of Kentucky, Sept. 2010.
188. "Living in a Sustainable World: Environmental and Ecological Manufacturing Solutions," presentation at the President's Council Back to Class meeting, Purdue, Nov. 2010.
189. "Sustainable Manufacturing," presentation at the Defense Manufacturing Conference, Las Vegas, NV, Nov. 2010.
190. "Sustainable Design & Manufacturing: Developments Since WTEC Study," presentation at the NSF Grantees Conference, Atlanta, GA, Jan. 2011.
191. "Manufacturing Scheduling for Power Consumption and Carbon Footprint Reduction," presented in the EREE CWG, CIRP Paris Meeting, January 2011.
192. "Sustainability Initiatives at Purdue," presented at Cummins, Columbus, IN, Feb. 2011.
193. "A New Shop Scheduling Approach in Support of Sustainable Manufacturing," 18th CIRP Intl. Conf. on Life Cycle Engineering, Braunschweig, Germany, May 2011. See paper above.
194. "An Overview of the Wood-to-Wheels Initiative," presented at Frontiers in Bioenergy: United States – Brazil Symposium on Sustainable Bioenergy, Purdue, May 17, 2011.
195. "Sustainable Manufacturing," presented at International Economic Development Council (IEDC) meeting, June 5-7, 2011, Indianapolis, IN.
196. Panelist, "Advice from Chairs and Senior Professors," AEESP Academic Job Search Workshop, Tampa, FL, July 2011.
197. Panelist, "Lean, Six Sigma, and SoPK session," Deming Institute Fall Conference, Purdue University, October 2011.
198. "Sustainable Manufacturing," NACFAM Annual Policy Conference, April 25, 2012.
199. Panelist, session on "Sustainability, Innovation, and the Education of Engineering Methodologies," ASME MSEC, June 2012.
200. "Energy Efficient and Effective Manufacturing," Kentucky Association of Manufacturing (KAM), June 13-14, 2012.
201. "Quantifying the Water Inventory of Machining Processes," CIRP General Assembly, Hong Kong, China, August 2012. See paper above.
202. "Sustainable Manufacturing Programs and Activities in the U.S.," French National Research Agency (ANR), Paris, France, Feb. 2013.
203. "Application of Deming's Principles to the Sustainability Challenge," Deming Institute Fall Conference, West Lafayette, IN, Oct. 19, 2013.
204. "Sustainability-Driven Manufacturing Research," University of Wisconsin, Madison, WI, Feb. 20, 2014.
205. "Sustainability-Driven Manufacturing Research," Wayne State University, Detroit, MI, March 20, 2014.
206. "Purdue University Manufacturing Workforce Education Overview," Wu Symposium, June 2014.
207. "The Impact Of Maintenance and Technology Change on Remanufacturing as a Recovery Alternative for Used Wind Turbines," CIRP Intl. Conf. on Life Cycle Engineering, Trondheim, Norway, June 2014. See paper above.
208. Sutherland, J. W., presented paper authored by K. Walczak, M. Hutchins, and D. Dornfeld on "Sustainable Design Considering Uncertainty in Scale-up: A Case Study in Artificial Photosynthesis," CIRP Intl. Conf. on Life Cycle Engineering, Trondheim, Norway, June 2014.

209. "Value Recovery through Remanufacturing: Disassembly," MERA 2014 Remanufacturing Technology Forum, Detroit, July 2014.
210. "Energy-Conscious Manufacturing Scheduling Under Time-of-Use Electricity Tariffs," CIRP, General Assembly, Nantes, France, August 2014. See paper above.
211. "Value Recovery of Rare Earth Elements for Additional Use," CIRP General Assembly, EERU-CWG, Nantes, France, Aug. 2014.
212. "Sustainable Manufacturing Research at Purdue," Tippecanoe Environmental Council, SIA Plant, Lafayette, IN, Aug. 2014.
213. "Value Recovery of Permanent Magnets," CMI – 2nd US-Japan Bilateral Meeting, Ames, IA, Sept. 2014.
214. "Comparative LCA of NdFeB and Ferrite Motors used in the Microfabrication Industry," 9th International Workshop on Microfactories, Honolulu, HI, October 7, 2014. See paper above.
215. "Remanufacturing and the Automotive Aftermarket," AAPEX Remanufacturing Conference, Las Vegas, Nov. 2014.
216. "Remanufacturing and Sustainability Implications," AkzoNobel Board Meeting, Las Vegas, Nov. 2014.
217. "Environmentally Responsible Manufacturing," Dept. of Mech. Engr., University of Michigan, Ann Arbor, MI, Nov. 2014.
218. "Environmental Engineering: Thoughts on the Evolving Nature of the Discipline," AAEE Breakfast, Indianapolis, IN, Nov. 2014.
219. "Value Recovery of REEs for Additional Use," CMI – CSM Meeting, Golden Colorado, Feb. 2015.
220. "Manufacturing Research in Support of Sustainability," Oregon State Univ., Mar. 2015.
221. "Design and Manufacturing for Sustainability," ASME Mech. Engr. Educ. Leadership Summit, Newport Beach, CA, Mar. 2015.
222. "Modeling the Value Recovery of Rare Earth Permanent Magnets at End-of-Life," CIRP LCE Conf., Sydney, Australia, April 2015. See paper above
223. "Remanufacturing – A Key Component of Sustainable Manufacturing," International Conference on Remanufacturing, Amsterdam, June 15, 2015.
224. "Energy-Efficient Scheduling of Multiple Manufacturing Factories under Real-Time Electricity Pricing," CIRP General Assembly, Cape Town, South Africa, August 2015. See paper above.
225. "Applying Deming's Lessons to the Challenge of Environmental Sustainability," 18th Annual Pollution Prevention Conference and Trade Show (Indiana Partners for Pollution Prevention), Plainfield, IN, Sept. 30, 2015.
226. "Development of an Ecosystem Boundary Concept for Life Cycle Analysis," ASME IMECE, Houston, TX, Nov. 2015.
227. "Manufacturing, Sustainability, and their Integration" presentation for Siemens, Feb 18, 2016
228. Keynote Presentation. "The Role of Manufacturing in Affecting the Social Dimension of Sustainability," CIRP General Assembly, Guimarães, Portugal, August 2016. See paper above.
229. "Sustainability and Collision Repair," invited presentation for NACE/CARS, Anaheim, CA, Aug. 15, 2016.
230. "Applying Deming's Lessons to the Challenge of Environmental Sustainability," invited presentation for IN chapter of National Association for Surface Finishing (NASF), Greenwood, IN, Nov. 3, 2016
231. "Sustainable Manufacturing: Nearly Three Decades of Progress," invited presentation at Case Western Reserve University (CWRU), Cleveland, OH, Oct. 7, 2016.
232. "Filling the Manufacturing Talent Pipeline," invited presentation along with Gary Bertoline at the Manufacturers Alliance for Productivity and Innovation (MAPI) Conference in Rosemont, IL, Oct. 20, 2016
233. "Smart Manufacturing," invited presentation at the Japan America Society of Indiana (JASI) conference, Indianapolis, IN, Feb. 23, 2017.
234. "Product Redesign for Improved Value Recovery via Disassembly Bottleneck Identification and Removal," CIRP LCE Conf., Kamajura, Japan, March 2017. See paper above
235. "Securing the Future: Advanced, Smart, and Sustainable Manufacturing in the United States," invited presentation at Meiji University, Tokyo, Japan, March 2017.

236. "Dynamic Scheduling of a Flow Shop with On-site Wind Generation for Energy Cost Reduction Under Real Time Electricity Pricing," CIRP General Assembly, Lugano, Switzerland, August 2017. See paper above.
237. "Recovering Value of End-of-Use Products in Circular Economy." presentation for the Motor & Equipment Remanufacturer's Association, Sept. 26, 2017.
238. "Green Manufacturing and the Automotive Industry," United States Council for Automotive Research (USCAR) Oct. 19, 2017.
239. "Sustainable Manufacturing," invited presentation at the University of Michigan, Nov. 6, 2017.
240. "Sustainable Manufacturing," invited presentation at the US-Italy Collaborative Research in Advanced Manufacturing Workshop, Washington, D.C. Dec. 5 2017.
241. "Sustainable Manufacturing," invited presentation at the Association of Environmental Engineering & Science Professors (AEESP) Distinguished Lecturer Conference, West Lafayette, IN, Feb. 2, 2018.
242. "Implications of Additive Manufacturing on Life Cycle Engineering and Assembly," Presentation at CIRP CWG on Additive Manufacturing, Feb 21, 2018.
243. "Techno-Economic Assessment and Accelerating the Development of CMI Technologies," presentation at CMI annual meeting, Ames, IA, Sept. 2018
244. "Sustainable Manufacturing," invited presentation at the MERA Sustainable Manufacturing Conference, Detroit MI, Sept 26, 2018
245. "Sustainable Manufacturing: A Three Decade Journey," invited presentation at Arizona St. Univ, Tempe, AZ, Jan. 2019
246. "Sustainable Manufacturing: Historical Perspective and Current Initiatives," invited presentation at Duke University, Durham, NC, Mar. 2019
247. "Sustainable Manufacturing: Historical Perspective and Current Initiatives," invited presentation at North Carolina State University, Raleigh, NC, Mar. 2019
248. "Sustainable Energy Production" Panel Discussion in connection with presentation by J. Haddock (U. Puerto Rico), Ideas Festival as part of Purdue University's Giant Leaps Sesquicentennial Campaign, West Lafayette, IN, Feb 7, 2019.
249. 20th Annual CERIAS Security Symposium, Panel Discussion, "Securing Giant Leaps Toward a Sustainable Economy and Planet". Purdue University, West Lafayette, IN, April 9, 2019.
250. "Recovering Value from End of Use Products: Reuse, Remanufacturing, and Recycling," Workshop on Environmentally-Driven Value Creation, hosted by Purdue Environmental and Ecological Engineering, Indianapolis, IN, June 4, 2019.
251. "Recovering Value from End of Use Products: Reuse, Remanufacturing, and Recycling," Indiana Recycling Coalition, Indianapolis, IN, June 11, 2019.
252. "Environmentally Driven Value Creation in Support of a Circular Economy," International Conference in Remanufacturing (ICoR 2019), Amsterdam, Netherlands, June 23-25, 2019.
253. "Preventive Maintenance in Manufacturing: Introduction and Opportunities," WHIN Workshop. Indiana Manufacturing Institute, West Lafayette, IN, August 28, 2019.
254. Panelist for Purdue Engineering Distinguished Lecture Series (speaker: Tresa Pollock), "How Do New Materials Change the Things Around You," Oct. 24, 2019.
255. "Sensors and Manufacturing Equipment," Nextflex workshop, Purdue University, West Lafayette, IN, October 30, 2019.
256. "Sustainable Manufacturing: Historical Perspective and Current Initiatives," invited presentation at University of Colorado-Boulder, Boulder, Colorado, November 12, 2019.
257. "Sustainable Manufacturing: Historical Perspective and Current Initiatives," invited presentation at Colorado State University, Ft. Collins, CO, November 13, 2019.
258. "Sustainable Manufacturing: Historical Perspective and Current Initiatives," invited presentation at Colorado School of Mines, Golden, CO, November 15, 2019.
259. "Sustainable Manufacturing: Historical Perspective and Current Initiatives," invited presentation at the University of Georgia, Athens, GA, January 22, 2020.
260. "Sustainable Manufacturing: Historical Perspective and Current Initiatives," invited presentation at Georgia Tech, Atlanta, GA, January 24, 2020.

261. "Introduction to Design of Experiments (DOE)," invited presentation at the Critical Materials Institute at Ames Laboratory, Ames, IA, May 13, 2020.
262. "Manufacturing Research Update: Infusing IoT in Manufacturing (Smart Manufacturing)," invited presentation for the Purdue-Wabash Heartland Innovation Network (WHIN) Manufacturing Workshop-Annual Overview and Update, Purdue University, West Lafayette, IN, December 18, 2020.
263. "Sustainable Manufacturing: A Retrospective & Vision for the Future," invited presentation Manufacturing Leadership Seminar, March 12, 2021.
264. "Value Recovery from End-of-Life Products," keynote presentation at the 5th International Conference on Remanufacturing (ICoR), March 24-25, 2021, in conjunction with ReMaTec 2021.
265. "Manufacturing for A Sustainable Future," invited presentation at University of Illinois at Urbana-Champaign, April 13, 2021.
266. "Perspective on Nutrition, Health, Economics, and Sustainability," invited presentation and panel discussion at the Cellular Agriculture: Techno-Socio-Economic Perspectives Virtual Conference, at Purdue University West Lafayette, IN, April 19-21, 2021.
267. "Value Recovery from End-of-Life Products in Support of a Circular Economy," invited presentation at the International Conference on Resource Sustainability (ICRS), Dublin Ireland, July 19-23, 2021.
268. "Design of Experiments: Fractional Factorial Designs," invited presentation at the Critical Materials Institute at Ames Laboratory, Ames, IA, August 18, 2021.
269. "Sustainable Manufacturing: A Retrospective and Vision for the Future," invited presentation, Texas Tech University, Lubbock, TX, April 22, 2022.
270. "Introduction to Purdue EEE & Sustainable Manufacturing: Origins and Current Efforts," invited presentation, Iowa State University, Ames, IA, September 11, 2022.
271. "Introduction to Purdue EEE & Sustainable Manufacturing: Origins and Current Efforts," invited presentation, California State Polytechnic University – Humboldt, Arcata, CA, October 4, 2022.
272. "Sustainable Manufacturing: A Retrospective and Vision for the Future," invited presentation at Argonne National Laboratory, July 22, 2022.
273. "Sustainable Manufacturing: A Retrospective and Vision for the Future," invited presentation at the Lam Research Technical Symposium, Oct. 6-7, 2022.
274. "Applying LCA to Advance Technologies Related to Rare Earth Element Processing/Recycling," 10th Japan-US Bilateral Rare Metals Meeting, Denver, CO, Mar. 3, 2023.
275. "Sustainable Manufacturing," presentation to Hitachi, May 24, 2023.
276. "Sustainable Manufacturing: Origins and Future Directions," invited keynote presentation, NAMRC-MSEC-LEM&P, Rutgers University, NJ, June 14, 2023.
277. "Applications of TEA and LCA within CMI," invited presentation to AMMTO DOE, Sept. 6, 2023.
278. "John Sutherland," presentation to the Purdue University Board of Trustees, Aug. 4, 2023.
279. Workshop on Building Resilient U.S. Infrastructure Through Excellence in Manufacturing and Operations (XMO), Moderator – Session on Retraining, Nov. 7, 2023.
280. "Environmentally Responsible Manufacturing: Origins and Thoughts for the Future," invited presentation at Duke University, Durham, NC, Nov. 2023.
281. "Sustainable Manufacturing: What's Next?" invited presentation at North Carolina State University, Raleigh, NC, Nov. 2023.
282. "Engineering for the Environment-Impacting All Engineering Students," Presentation at Mobilizing Our Universities for Education on Energy Use, Carbon Emissions, and Climate Change Workshop, Chicago, IL, April 11, 2024.
283. "Environmentally Responsible Manufacturing: Origins and Thoughts for the Future Directions," invited presentation at the University of Illinois at Urbana-Champaign, IL, April 2024.
284. "Industrial Ecology and Product Circularity," Gordon Research Conference, Frontiers of Science, Vaud, Switzerland, May 2024.
285. "Forecasting Rare Earth Element Demands for Clean Energy Technologies with the Bass Diffusion Model" Presentation at CIRP LCE Conference, Torino, Italy, June 2024. See paper above.
286. "Sustainable Manufacturing: Origins and Future Directions," invited presentation at the University of Tulsa, OK, Oct. 18, 2024.

287. "Sustainable Manufacturing: Origins and Future Directions," invited presentation at the University of Oklahoma, OK, Oct. 22, 2024.
288. "Introduction to Design of Experiments (DOE)," invited presentation at Critical Materials Innovation Hub, Focus Area 1, online, Mar 5, 2025.
289. ICoR

Reports/Theses

1. Sutherland, J. W., "An Analysis of Factors Contributing to Variability in Machined Aluminum Casting Alloy Surfaces," M.S. Thesis, University of Illinois, 1982.
2. Sutherland, J. W., "A Dynamic Model of the Cutting Force System in the End Milling Process," Ph.D. Thesis, University of Illinois, 1987.
3. Sutherland, J. W., and W. J. Endres, "Analysis of the Cylinder Boring Operation – Report 1," submitted to Outboard Marine Corporation by Process Design and Control, Inc., July 1989.
4. Sutherland, J. W., and W. J. Endres, "Analysis of the Cylinder Boring Operation – Report 2," submitted to Outboard Marine Corporation by Process Design and Control, Inc., December 1989.
5. Sutherland, J. W., and W. J. Endres, "Analysis of the Cylinder Boring Operation – Report 3," submitted to Outboard Marine Corporation by Process Design and Control, Inc., February 1990.
6. Sutherland, J. W., and W. J. Endres, "Analysis of the Cylinder Boring Operation – Final Report," submitted to Outboard Marine Corporation by Process Design and Control, Inc., March 1990.
7. Sutherland, J. W., "Hydrant Fueling System Reliability Assessment," submitted to U.S. Army Construction Engineering Research Laboratory by Process Design and Control, Inc., July 1990.
8. Sutherland, J. W., "Quality of Jet Fuel Piping System at Ellsworth AFB," submitted to U.S. Army Construction Engineering Research Laboratory, October 1995.
9. WTEC Panel Report, Panelists: D. Allen, D. Bauer, B. Bras, T. Gutowski, C. Murphy, T. Piwonka, P. Sheng, J. Sutherland, D. Thurston, and E. Wolff, Environmentally Benign Manufacturing, Loyola College, Baltimore, Maryland, April 2001.
10. Zhang, Q., Johnson, D.M., Sutherland, J.W., Young, M., Helmuth, L.T. "Reducing the Environmental Impact of Material Conversion Process," report to Dow Corning, September 2008.
11. Shonnard, D.R., Q. Zhang, D. M. Johnson, R. E. Froese, J. W. Sutherland, B. D. Solomon, J. H. Whitmarsh, J. R. Waterstraut, A. R. Mártin-Garcia, C. A. Miller, T. L. Jenkins, and G. J. Wright, "Evaluation of Low Greenhouse Gas Bio-Based Energy Technologies," a report prepared for Caterpillar, Peoria, Illinois, November 2006.
12. Gale, M.R., Sutherland, J.W., Wojick, C., Hutchins, M., Bradof, K., Froese, M., Johnson, D., and several graduate and undergraduate students, "Carbon Neutral Academic Quality Improvement Program (AQIP) Project," September 2008.
13. Kannberg, L., J. Elter, R. Bajura, K. Zimmerman, J. W. Sutherland, J. Davidson, R. B. Duffey, "ASME General Position Statement on Technology and Policy Recommendations and Goals for Reducing Carbon Dioxide Emissions in the Energy Sector," April 2009.
14. Murray, V., F. Zhao, and J. W. Sutherland," Carbon Footprint Reduction," a report for Biomet, Aug. 2011.
15. Buis, J. J., F. Zhao, and J. W. Sutherland, "Unit Process Life Cycle Inventory of Billet Heating, Preforming, Reverse Tube Extrusion, and Tube Drawing," GD-OTS, May 2013.
16. Navarro J., R. Meilan, and J.W. Sutherland, "An Overview of Carbon Storage and Utility for Various Types of Agricultural Biomass – Indiana," Dec. 2014.
17. Rodriguez-Gonzalez, M. I., G. N. Clark, G. P. Mendis, B. S. Hardiman, R. Meilan, J. W. Sutherland, "Analysis of the Use of Trees as a Strategy to Mitigate CO2 Emissions from Power Plants in Indiana," Oct. 2018.
18. "Basic Research Needs for Transformative Manufacturing," Report of the Basic Energy Science Workshop on Basic Research Needs for Transformative Manufacturing (Mar. 9-11, 2020), Section on Sustainable Manufacturing led by B. Helms and J. Sutherland, report publ. Aug, 2020.
19. Huang, A., and J. W. Sutherland, "Techno-Economic Assessments (TEAs) for Solvent Extraction and Functionalized Resin Extraction," a technical report for CHC Rare Earths, Sep. 2021.
20. Sutherland, J.W. along with several others prepared the "ASME Technical and Engineering Communities (TEC) Sector: Sector Operation Guide," September 2022.

21. National Academies of Sciences, Engineering, and Medicine, Options for a National Plan for Smart Manufacturing, Washington, DC: The National Academies Press, 2024, https://doi.org/10.17226/27260. Authors: Thomas R. Kurfess, Billy B. Bardin, Richard D. Braatz, Jian Cao, Krystel K. Castillo-Villar, Lili Cheng, James F. Davis, Robert X. Gao, Satyandra K. Gupta, Susan N. Houseman, Jeannine Kunz, Stuart E. Lawrence III, Blake D. Moret, Chinedum E. Okwudire, Melissa Orme, William F. Spriggs, John W. Sutherland, and Karen A. Thole.

Software

1. XRCHRT, software for X-bar and R control charts, R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
2. PROCAP, software for process capability analysis, R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
3. PROSIM, software for use in SPC workshops – "game #1," R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
4. TURNSIM, software for use in SPC workshops – "game #2," R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
5. FACT, software for full factorial design and analysis, R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
6. FFD, software for fractional factorial design and analysis, R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
7. RSM, software for response surface methodology, R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
8. TURN5DOE, software for use in DOE workshops – "game #1," R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
9. TURN9DOE, software for use in DOE workshops – "game #2," R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
10. RSMSIM, software for use in DOE workshops – "game #3," R.E. DeVor and Associates, 1985, Process Design and Control, Inc., 1989.
11. Machining Process Simulation Software, Process Design and Control, Inc., 1989. Software includes:
    - EMSIM, software for end milling cutting force and surface error prediction.
    - FMSIM, software for face milling cutting force prediction.
    - BORSIM, software for cylinder boring cutting force prediction.
    - Special purpose machining software developed for ring broaching (Ford Motor Co.), scroll compressors (Copeland Corp.), and thread chasing (Ridge Tool Co.).
12. CFEST: Cutting Fluid Evaluation Software testbed, an internet-based software tool to evaluate the effect of a cutting fluid on machining process performance, J.W. Sutherland, T. Cao, C.M. Daniel, Y. Yue, Y. Zheng, P. Sheng, D. Bauer, M. Srinivasan, R.E. DeVor, S.G. Kapoor, and S.J. Skerlos, 1997.
13. LSM TEA XL, Excel-based software for techno-economic assessment, Laboratory for Sustainable Manufacturing, Purdue Research Foundation, 2020.
14. LSM TEA Full, Python-based software for techno-economic assessment, Laboratory for Sustainable Manufacturing, Purdue Research Foundation, 2021.
15. LSM TEA CE, Python-based software for proof-of-concept evaluation, Laboratory for Sustainable Manufacturing, Purdue Research Foundation, 2021.

Teaching

Courses Taught
Analysis of Manufacturing Processes – UIUC
Industrial Quality Control – UIUC
Statistical Design of Experiments – UIUC
Accuracy, Modeling, and Control of Machining Processes – UIUC
Quality Engineering – MTU
Experimental Design in Engineering – MTU
Introduction to Manufacturing Processes – MTU
Machining Processes – MTU
Numerical Control of Manufacturing Processes – MTU
Production Planning – MTU
Seminar in Manufacturing Systems Engineering – MTU
Advanced Topics in Machining – MTU
Concurrent Engineering – MTU
Design and Manufacturing for the Environment – MTU
Engineering for the Environment – MTU
Introduction to Engineering for the Environment – MTU
Introduction to Manufacturing Systems – MTU
Process Design and Optimization – MTU
Service Processes and Systems – MTU
Service System Dynamics and Design – MTU
Industrial Ecology and Life Cycle Analysis – Purdue
EEE Professional Preparation Seminar – Purdue
EEE Laboratory for Industrial Sustainability – Purdue
Comprehensive Coverage: Environmental Impacts of Automotive Systems (a module for EEE 560) – Purdue
Design for Global Sustainability: Electronics – Purdue
Statistics for Industrial Sustainability – Purdue
Design of Sustainable Plastics (a module for EEE 560) – Purdue
Design of Experiments for EEE (a module for EEE 360) – Purdue
Quantitative Statistical Methods Supporting MBSE, a Module for NSF MBSE project – Purdue
Production Engineering and MBSE Applications, a Module for NSF MBSE project – Purdue
Sustainable Manufacturing (EEE 695 and EEE 560) – Purdue

Purdue University
Teaching Evaluations (Fall 2020-present)
Students' responses to questions on Evaluation Form (Rated 1 – 5, with 5 being excellent or strongly agree).
Q1. "The class activities are well prepared and organized:"
Q2. "The instructor created a welcoming and inclusive classroom environment:"

Term	Course	# students	Q1	Q2
F20	EEE 69000	22	4.87	4.87
S21	EEE 39000	57	4.70	4.83
S21	EEE 69000	17	4.88	4.88
S21	EEE 36000 – one credit module	24	3.86	4.57
F21	EEE 69000	26	3.65	4.20
S22	EEE 39000	58	4.48	4.28
S22	EEE 69000	17	4.33	4.42
S23	EEE 39000	59	4.40	4.36
S23	EEE 69500	10	4.33	5.00
F23	EEE 69000	19	4.50	4.70

F24	EEE 56000 – Sust Manf	32	3.53	4.18

Teaching Evaluations (Fall 2009-Spring 2020)

Students' responses to questions on Evaluation Form (Rated 1 – 5, with 5 being excellent or strongly agree).

Q1. "Overall, I would rate this course as:"
Q2. "Overall, I would rate this instructor as:"
Q3. "My instructor is knowledgeable about the course topics."
Q4 "My instructor explains difficult material clearly."

Term	Course	# students	Q1	Q2	Q3	Q4
S11	EEE 43000	10	4.1	4.7	5.0	4.3
S12	EEE 39000	16	4.5	4.5	4.6	4.6
S13	EEE 39000	18	4.9	4.8	4.9	4.5
S14	EEE 39000	28	4.1	4.4	4.7	4.3
S15	EEE 39000	29	4.0	4.4	4.8*	4.1†
S16	EEE 39000	42	4.2	4.5	4.4*	4.0†
S17	EEE 39000	39	4.0	4.3	4.6*	4.2†
F17	EEE 56000 – one credit module	22	4.3	4.6		
S18	EEE 39000	48	3.3	3.2	4.1*	3.6†
F18	EEE 69000	~20	4.9	5.0	5.0*	
S19	EEE 39000	49	4.0	4.0	4.7*	4.1†
S19	EEE 69000	22	4.4	4.7	4.5*	
F19	EEE 56000	32				
F19	EEE 69000	28	4.2	4.8	4.8*	
S20	EEE 39000	50	Standard questions not used – COVID			
S20	EEE 69000	~28	Standard questions not used – COVID			

* Alternative to Q3: The guest speakers contributed significantly to this course.
† Alternative to Q4: I learned a great deal in this course.

Michigan Technological University

Teaching Evaluations at MTU (Fall 1999-Spring 2009)

Students' responses to questions on Evaluation Form (Rated 1 - 5, with 5 being excellent or strongly agree). University Average approximately 4.0.

Q8. "The instructor communicated the course materials clearly."
Q19. "Given the opportunity, I would take another course from this instructor."
Q20. "Taking everything into account, I would consider this instructor to be an excellent teacher."

Term	Course	# students	Q8	Q19	Q20
F99	ME 464 ME 590 ME 590 (Ford)	46 6	4.62	4.82	4.82
	ME 505	15			
W99-00	ME505	18			
	asst. w/ ME591B (Ford) ME 591B (GM)	6 51	4.50	4.50	4.50
	MEEM 4650 MEEM 5650, 5650 (Ford)	44 5, 4	4.59	4.79	4.83
F00	MEEM 4650 MEEM 5650	29 6	4.24 4.83	4.31 4.67	4.41 4.67
S01	MEEM 5990 MEEM 5990 (Ford)	5 10	4.50 4.33	4.75 4.67	4.75 4.67

F01	MEEM 4650	29	4.59	4.79	4.83
S02	MEEM 4685	28	3.84	3.79	3.89
	MEEM 5685, 5685 (Ford)	(6, 6)	4.50	4.50	4.67
F02	MEEM 4650	39	4.38	4.29	4.32
	MEEM 5650, 5650 (Ford)	(6, 3)			
S03	MEEM 5990 – DOE	8	4.88	4.88	4.88
F03	MEEM 4650	42	4.70	4.81	4.85
	MEEM 5650	11	4.63	4.63	4.63
S04	MEEM 4685	18	4.33	5.00	5.00
	MEEM 5685	15	4.33	4.42	4.42
F04	MEEM 4650	33	4.31	4.48	4.48
	MEEM 5650	9	4.33	4.56	4.22
S05	MEEM 5990 – DOE	10	4.50	4.78	4.78
F05	MEEM 4650	37	4.19	3.92	3.89
	MEEM 5650	19	4.47	4.32	4.42
S06	MEEM 4990	10	4.11	4.67	4.70
	MEEM 5990 - Serv. Proc. & Sys.	10			
	ENG 5530 – Grad Colloq in Sust	7	4.40	4.50	4.40
F06	System Dynamics	5			
	MEEM 4650	37	4.49	4.41	4.35
	MEEM 5650	4	4.50	4.25	4.50
S07	MEEM 4990 – DOE	8	4.50	4.38	4.50
	MEEM 5990 – DOE	10	4.80	4.30	4.40
F07	ENG 5530 – Grad Colloq in Sustainability	4+12			
	MEEM 4650	52	4.28	4.18	4.28
	MEEM 5650	11	4.83	5.00	5.00
	MEEM 5990 – Networks	5			
S08	SSE 2300	~5			
	MEEM 4990	~10	4.00	4.25	4.50
	ENG 5530 – Grad Colloq in Sust	1+15			
F08	MEEM 4650	32	4.22	4.13	4.31
	MEEM 5650	12	4.82	4.91	4.91
	MEEM 5685	13	4.15	4.15	4.31
	ENG 5530	17			

Teaching Evaluations at MTU (1991-1999)

Students' responses to first 5 questions on Michigan Technological University - Faculty Evaluation Form, (Rated 1 - 5, with 5 being excellent or strongly agree) - University Average is approximately 4.0.

Q1. "How would you characterize the instructor's ability to explain ..."
Q2. "This course was well organized ..."
Q3. "Did the instructor treat you with respect ..."
Q4. "The instructor encourages students' enthusiasm for continued learning ..."
Q5. "Taking everything into account, I consider this instructor ..."

Term	Course	# students	Q1	Q2	Q3	Q4	Q5
F 91	ME 303	32	4.42	4.42	4.77	4.42	4.65
	ME 303	33	4.76	4.40	4.76	4.56	4.72
W 91-92	ME 303	21	4.61	4.28	4.78	4.28	4.67
	ME 406	31	4.44	4.00	4.74	4.52	4.56
S 92	ME 464	92	4.80	4.70	4.83	4.67	4.81
F 92	ME 303	40	4.67	4.55	4.67	4.61	4.64

	ME 505	14	5.00	4.15	4.85	4.77	5.00
W 92-93	ME 303	26	4.80	4.60	4.80	4.87	4.80
	ME 303	57	4.56	4.64	4.74	4.62	4.72
S 93	ME 464	129	4.72	4.57	4.64	4.73	4.69
F 93	ME 490 (Conc. Engr)	43	4.39	3.92	4.58	4.69	4.44
	ME 569	19	4.71	4.59	5.00	4.75	4.88
W 93-94	ME 303	17	4.62	4.77	4.69	4.46	4.69
	ME 406	36	4.44	4.38	4.81	4.41	4.53
S 94	ME 464	115	4.55	4.40	4.63	4.50	4.62
F 94	ME 464	47	4.73	4.52	4.79	4.58	4.78
	ME 442	39	4.18	3.04	4.56	4.32	3.96
W 94-95	ME 491 (Engr Env)	9	4.43	4.17	5.00	5.00	4.57
	ME 403	38	4.81	4.31	4.81	4.78	4.77
S 95	ME 464	91	4.59	4.53	4.65	4.56	4.58
F 95	ME 590 (Machining)	12	5.00	5.00	5.00	5.00	5.00
	ME 464	49	4.82	4.71	4.88	4.71	4.85
W 95-96	ME 491 (Mfg Sys)	20	4.69	4.13	4.75	4.63	4.69
	ME 491 / ME 591 (GM - Engr Env)	5 / 7 30+					
S 96	ME 464	75	4.68	4.56	4.73	4.71	4.75
	ME 592 (GM - ECDM)	8 20+					
	ME 303 (GM)	40+					
F 96	ME 464	30	4.60	4.30	4.60	4.60	4.65
	ME 590 / EM 590	5					
W 96-97	ME 468	53	4.44	4.12	4.65	4.44	4.35
	ME 491 / CE 490 / GN 350	28					
S 97	ME 464	81	4.53	4.62	4.73	4.59	4.56
F 97	ME 464	31	4.8	4.5	4.8	4.5	4.7
W 97-98	ME 491 / ME 591 (GM - Engr Env)	6 / 8 50					
S 98	ME592 (GM - Engr Env)	6 42					
	ME464	43	4.9	4.6	4.7	4.7	4.9
F98	ME464 ME590A ME490A (Ford)	31 5 4	4.82 4.6	4.86 4.5	4.77 4.6	4.64 4.5	4.91 4.5
	ME505	14					
W98-99	ME505	14					
	ME491A (DOE) ME591A ME 591[a] (Ford)	2 9 13	4.67	4.33	4.50	4.50	4.50
	ME591B(asst. w/Eng. Env.)	20					
S99	ME505	14					

Other Teaching Activities at MTU

- Served as advisor for student group entered in the PADNOS design competition (11/93 - 5/94). The team consisted of Srikanth Vadrevu, Robert Wade, Chris Essenburg, Tiam-Hock Eng, and C. K. Dakshinamurthy. The PADNOS competition seeks to recognize innovative senior engineering design projects which are environmentally responsible.

- Instructor for GN 350 (Engineering for the Environment) sponsored by the Westinghouse Foundation (Project Directors: C. R. Baillod and N. J. Hutzler). Effort was aimed at developing an environmental engineering course for all engineering disciplines.
- Guest Lecturer for MA 299 (Continuing Mathematics) - "Concepts from Calculus used to Study Properties of Different Surfaces."
- Guest Lecturer for MA 580, Spring 1996.
- Guest Speaker for ME 101, Winter 1997-98.
- Guest Speaker, MTU Summer Institute, Summer 1999.
- Guest Speaker for ME 101, Winter 1999-00.
- Guest lecturer for FW 5850, Fall 2005 "Proposal Advice"
- Special lecture to Perspectives on Sustainability Class, "Perspectives on Sustainability," Michigan Tech, September 9, 2008.

University of Illinois at Urbana-Champaign

Teaching Evaluations at UIUC (1984-1991)

Students' responses to questions 1 and 2 on UIUC Instructor and Course Evaluation Form (ICES form), (Rated 1 - 5, with 5 being the highest) - Dept. average was approximately 3.8 - 3.9.

Q1. "Rate the instructor's overall teaching effectiveness ..."

Q2. "Rate the overall quality of this course ..."

Sem.	Course	Title	# stds.	Q1	Q2
F 84	ME 285	Analysis of Manf. Processes	133	4.1	*
S 85	ME 285	Analysis of Manf. Processes	86	4.5	*
F 85	ME 285	Analysis of Manf. Processes	125	4.6	*
S 86	ME 285	Analysis of Manf. Processes	45	4.7	*
	ME 285	Analysis of Manf. Processes	42	4.6	*
F 86	ME 285	Analysis of Manf. Processes	79	4.4	3.8
S 87	ME 285	Analysis of Manf. Processes	42	4.4	4.0
	ME 285	Analysis of Manf. Processes	51	4.2	3.6
F 87	ME 285	Analysis of Manf. Processes	113	3.9	3.5
S 88	ME 285	Analysis of Manf. Processes	57	4.4	3.8
F 88	ME 285	Analysis of Manf. Processes	110	4.3	3.8
S 89	IE 336	Industrial Design of Experiments	62	4.4	4.1
F 89	IE 335	Industrial Quality Control	90	4.0	4.1
S 90	IE 336	Industrial Design of Experiments	43	4.6	4.6
F 90	IE 335	Industrial Quality Control	76	4.5	4.3
S 91	IE 336	Industrial Design of Experiments	62	4.4	4.1

* This question did not appear on the ICES form during these semesters.

Other Education Activities at UIUC

- Member of instruction team for course on "Statistical Methods for Quality and Productivity Design and Improvement" through the Office of Continuing Education and Public Service - Division of Conferences and Institutes, Univ. of Illinois, 1981-86, taught once/year.
- Member of instruction team for course on *Computer Aided Manufacturing* through the Office of Advanced Engineering Studies, Univ. of Illinois, Spring 1984.
- Development of computer-based games to teach the principles of statistical process control and statistical experimental design for courses on those subjects at the UIUC.
- Instructor, Industrial Quality Control (IE 335), for the Office of Continuing Education at UIUC, Fall 1990.
- Development of software for the simulation of machining processes for use in introductory manufacturing processes course.

- Faculty advisor for Alpha Pi Mu, the Industrial Engineering Honor Society, Fall 1987.
- Coordinator for the Junior Engineering Technical Society (JETS) and Minority Introduction to Engineering (MITE) programs for the Dept. of Mech. and Ind. Engr., Summer 1987 and 1988.

Undergraduate Student Project Advising Across All University Positions

- Lisa Crosby, ME 492, Spring 1992, "Multivariate Statistical Process Control."
- Kevin Wittrup, Spring 1992, "Characterization of Machining Dynamics."
- Ronda Reister, ME490, Summer/Fall 1992, "Procrustes Analysis."
- Scott Reynolds, ME 491, Winter 1993, "Integration of Finite Element and Cutting Process Models."
- Bill Frederick, ME 492, Spring 1993, "Design and Manufacture of Plastic Fatigue Specimens" - with J. Williams (Chem. Engr.).
- Mark Rodaer, ME 492, Spring 1993, "Design and Manufacture of Plastic Fatigue Specimens" - with J. Williams (Chem. Engr.).
- Matt Eyre, ME 492, Spring 1993, "Design and Manufacture of Plastic Tensile and Flexure Bars" - with J. Williams (Chem. Engr.).
- Chris Korson, ME 492, Spring 1993, "Design and Manufacture of Plastic Tensile and Flexure Bars" - with J. Williams (Chem. Engr.).
- Jeff Vlahos, ME 492, Spring 1993, "Design and Manufacture of Plastic Tensile and Flexure Bars" - with J. Williams (Chem. Engr.).
- Mike Reiter, ME 492, Spring 1993, "Design and Manufacture of Plastic Hexbloks" - with J. Williams (Chem. Engr.).
- Paul Hildebrand, ME 492, Spring 1993, "Design and Manufacture of a Plastic Mixing Cup" - with J. Williams (Chem. Engr.).
- Ken Shear, ME 492, Spring 1993, "Design and Manufacture of a Plastic Mixing Cup" - with J. Williams (Chem. Engr.).
- Brad Mullen, ME 490, Fall 1993, "Robust Design."
- Scott Sodini, ME 492, Spring 1994, "Surface Texture and the Grinding Process."
- Oliver Kirchhof, German intern, Summer 1994, "Disassembly - The First Step in Demanufacturing Discarded Products" - with W. Olson.
- Udo Berthold, German intern, Summer 1994, "Design for Recycling and Reuse" - with W. Olson.
- Leah Soules, ME 490, Fall 1994, "Modal Analysis of a Machine Tool Spindle."
- Alex Unger, German Intern, Summer 1995 - with W. Olson.
- Felix Santana, ME 490, Summer-Fall 1995.
- Dale Harris, ME 490, Summer-Fall 1995.
- Shawn Powers, ME 490, Fall 1995.
- Yiqiao Chang, ME 492, Spring 1996.
- Ryan Adragna, ME 492, Spring 1996.
- Lawrence Mahaffy, ME 492, Spring 1996.
- Bert Mueller, German Intern, Summer 1996 - with W. Olson.
- Erik Weber, undergraduate researcher - supported under NSF/REU program, Summer 1997-Summer 1998.
- Joe Eppert, undergraduate researcher - supported under NSF/REU program, Summer 1997-Fall 1999.
- Angela Caligiuri, ME492, Spring 1998.
- Daniel Vannest, ME492, Spring 1998.
- Jeremy Willett, ME492, Spring 1998.
- Steve Behm, undergraduate researcher - supported under NSF/REU program, Spring 1998.
- Kevin Zuidema, undergraduate researcher - supported under NSF/REU program, Spring 1998-Spring 1999.
- Marc Greca, undergraduate researcher - supported under NSF/REU program, Spring 1998-Fall 1999.
- Luke Keranen, undergraduate researcher - supported under NSF/REU program, Spring 1999-Winter 2000.
- Mike Behm, undergraduate researcher - supported under NSF/REU program, Spring 1999-Winter 2000.
- Pat Ellison, undergraduate researcher - supported under NSF/REU program, beginning Spring 1999.
- Mary Ann Parr, undergraduate researcher - supported under NSF/REU program, beginning Fall 1999.

- Eric Brust, undergraduate researcher - supported under NSF/REU program, beginning Winter 1999/2000.
- Zack Sionakides, undergraduate researcher-supported under NSF/REU program, beginning Winter 2000.
- Paul Vagts, undergraduate researcher-supported under NSF/REU program, started Winter 2000.
- Robert Hamel, undergraduate researcher - supported under NSF/REU program, beginning Winter 2000.
- Mark Haen, ME447, Winter 1999/2000.
- Vincent Skalski, ME447, Winter 1999/2000.
- Kyle VanderWall, ME447, Winter 1999/2000.
- Jason Verboomen, ME447, Winter 1999/2000.
- Justin Kendig, undergraduate researcher - supported under NSF/REU program, started Spring 2000.
- Donnie Wilson, undergraduate researcher - supported under NSF/REU program, started Spring 2000.
- Kevin Herrera, undergraduate researcher - supported under NSF/REU program, Spring 2000-Fall 2000.
- Paul Miller, undergraduate researcher - supported under NSF/REU program, started Spring 2000.
- Marlena Santti, undergraduate researcher - supported under NSF/REU program, started Spring 2000.
- Nicholas Mehl, undergraduate researcher - supported under NSF/REU program, Spring 2000-Summer 2000.
- Deepankar Bodapati, undergraduate researcher - supported under NSF/REU program, Fall 2000-Spring 2001.
- Jessica Apel-Milsud, undergraduate researcher - supported under NSF/REU program, Spring 2001-Spring 2001.
- John Oommen, undergraduate web-designer, started Spring 2001.
- Karl Haapala, undergraduate researcher - supported under NSF/REU program, Summer 2001.
- Blake Fecteau, undergraduate researcher - supported under NSF/REU program, started Fall 2001.
- Daniel Moore, undergraduate research - supported under NSF/REU program, Spring 2001.
- Scott Krahn, undergraduate researcher - supported under NSF/REU program, started Spring 2001.
- John Thompsen, undergraduate researcher, started Spring 2003.
- Ian Kowalczyk, undergraduate researcher, started Spring 2003.
- Mike Svendsen, undergraduate researcher, 2003-04
- Chris Anton, undergraduate researcher, 2003-04
- Dan Adler, undergraduate researcher, 2004
- Frederick Rickert, undergraduate researcher, 2004
- Ryan Fox, undergraduate researcher, 2004
- David Bell, undergraduate researcher, 2005
- Chris Davis, undergraduate researcher, 2006
- Joe Studinger, undergraduate researcher, 2006
- Daniel Graham, 2007- present – Michigan Tech Carbon Footprint Project
- Kaari Nevanen, 2007- present – Michigan Tech Carbon Footprint Project
- Jillian Schubert, 2007- present – Michigan Tech Carbon Footprint Project
- Kyle D. Franks, undergraduate researcher, 2007.
- Andre Gomez, undergraduate researcher, 2008.
- Joshua Johnson, undergraduate researcher, 2008.
- Kyle Larson, undergraduate researcher, 2008.
- Noah Schuster, undergraduate researcher, 2008.
- Matthew Trombley, undergraduate researcher, 2008.
- Brandon Quig, undergraduate web-designer, 2008.
- Garrett Hoffman, undergraduate web-designer, 2008.
- Chuck Workman, independent study, 2009.
- Ashley Barker, REU student, 2011.
- Ed Kluender, REU student, 2012.
- Jennifer J. Buis, undergraduate researcher, 2012-13.
- Rachel Levine, undergraduate researcher, 2013-2014.
- Kaley Alcock, undergraduate researcher, 2014-2016.

- Lindsey Frey, undergraduate researcher, 2014-2015.
- Katharine Hughes, undergraduate researcher, 2015.
- Marisa Henry, undergraduate researcher, 2015.
- Joe Littiken (FNR), undergraduate researcher, 2016.
- Jessica Yaputri, undergraduate researcher, 2016.
- RJ Yoder, undergraduate researcher, 2016.
- Gillian Clark, undergraduate research (Mayra I. Rodriguez-Gonzalez, graduate student researcher), Indiana forestry project, 2017.
- Geyan Zheng, undergraduate researcher, 2017-2019.
- Magaly Mendoza, undergraduate researcher, 2018.
- Elizabeth Eboli, undergraduate researcher, 2018.
- Sydney Calhoun, undergraduate researcher, 2018.
- Alex Roberts, undergraduate researcher, 2019.
- Kayla Reiser, undergraduate researcher, 2019.
- Adrienne Farr, undergraduate researcher, 2020.
- Adriana M. Muñoz Soto, summer undergraduate researcher, 2020.
- Kayley Uy, undergraduate researcher, 2021-present
- Beth Kelley, undergraduate researcher, 2021-present
- Olivia Shields, undergraduate researcher, 2021-present
- Jessica Herron, undergraduate researcher, 2021-present
- Madeline Schmehling, undergraduate researcher, 2021-present
- Jessi Kniesly, undergraduate researcher, 2021-present
- Andy Zhang, undergraduate researcher, 2021-present
- Dead landfill project (sequestering carbon via a dry landfill) – Adrienne Farr, Anne Murray, Jesus Perez-Cardona, Rocky Ramsey, Madeleine Skipworth (co-advisors: Evan Nyer and Larry Nies)
- Adam Spieth, undergraduate researcher, summer 2022

Service

Purdue University

- Environmental and Ecological Engineering
  - Various committees, 2009-present
- Mechanical Engineering
  - Search Committee for Donald W. Feddersen Professorship in Mechanical Engineering and Information Technology, 2009-2010
  - Faculty Search Committee, Mechanical Engineering, Convergent Manufacturing, 2020-2021
- College of Engineering
  - Engineering Leadership Team, 2009-present
  - Finance Committee, 2010-2017
  - Committee on Committees, 2010
  - Center for Advanced Manufacturing (2012-2015)
  - Editor-in-Chief, Purdue Open Bytes (2018-2023)
  - Purdue Center for Intelligent Energy System (CiENS), Advisory Board (2022-present).
- Campus
  - ESE Governance Committee, 2009-present
  - IN-MaC Leadership (Executive Comm. 2012-15; Co-Executive Director 2015-2018)
  - Review Committee for Director, Center for the Environment, 2011
  - Search Committee, Director, Center for the Environment, 2012.
  - Next Generation Manufacturing Faculty Cluster Hire Committee, 2014-2018; Chair (2016-2018)

Michigan Technological University

- Department of Mechanical Engineering - Engineering Mechanics
  - Member, Faculty Development (Promotion & Tenure) Committee, 1991-92, 1996-97, 2006-2008.
  - Member, ME-EM Department Chair Search Committee, 1992-93.
  - Member, Laboratory Committee, 1992-2001.
  - Member, GM Fellowship Committee, 1993-95.
  - Faculty Advisor, Michigan Technological University Student Chapter of the Society of Manufacturing Engineers, 1995-97.
  - Ford Global MSME degree ("Bradford") Committee, 1996-98.
  - ME-EM Manufacturing Initiative Committee, 1996-98.
  - Ad hoc Committee on Workload and Merit, 1997-98, 2002-04.
  - ME-EM Director of Graduate Studies, 1997-2001.
    - Chair, ME-EM Graduate Committee, 1997-2001.
    - ME-EM Executive Committee, 1997-2001.
    - Coordinated review of ME-EM Dept. Graduate Program, April 14-15, 1999 by W. Winer & G. P. (Bud) Peterson.
  - ME-EM Honors & Awards Committee, as needed.
  - Faculty Recruiting Committee, 2001-2007.
  - Selection Committee, Michigan Technological University's Presidential Council of Alumnae (PCA), 2004.
  - Faculty mentor for the following junior faculty: Gordon Parker, John Gershenson, Donna Michalek, William Endres, Roshan D'Souza, Bernhard Bettig, Jeffrey Naber, Jaime Camelio, Spandan Maiti.
  - Graduate Committee, 2006-07
  - Member, ME-EM Academy Nomination Committee, 2006-present
- College of Engineering
  - Member, Department Chair Search Committee, Department of Metallurgical and Materials Engineering, 1996.
  - College of Engineering Promotion and Tenure Committee, 2003-04, 2005-06.
  - Service Systems Engineering Program, 2006-present.
- University

- Member, Total Quality Education Steering Committee, 1992-93.
- Technical Advisor to Total Quality Education Coordinator, 1993.
- Graduate Faculty Council, 1997-2001.
- Served on the Merit Award Selection Committee, 1999.
- Participant in Michigan Tech Board of Control and Administration Retreat, March 9-10, 2000.
- UGR Scholarship Selection Committee for Off. of Ed. Op., 2002, 2003.
- Co-Director, Sustainable Futures Institute, 2004-07.
- Graduate Faculty of Southern University-Baton Rouge with Adjunct Doctoral Faculty status, 2004-present.
- University Campus Campaign Committee, 2004-present.
- Graduate School Dean Search Committee, 2005.
- Search Committee, position within the Office of Vice President for Research, 2005.
- Blue Ribbon Panel, Improving University Rankings, 2005-06.
- University Provost Search Committee, 2006-07.
- Carbon Footprint Initiative – Campus AQIP project, 2007-present.
  - Proposal to establish a Green Campus Enterprise.
- Director, Sustainable Futures Institute, 2007-2009.
- Chair, Strategic Faculty Hiring Initiative Search Committee, 2007-2008.
- Associate Member, Energy Advisory Group, 2008-2009.
- Advance Committee, 2008-2009
- Grievance Committee, 2009

- Sustainable Futures Institute (SFI)
  - Served as SFI Director (2007-2009) and Co-Director (2003-2007) – numerous activities
- Wood-to-Wheels (W2W)
  - Provided leadership for the W2W activity from 2003-2009

Professional Activities

Society of Manufacturing Engineers

- Senior member in the North American Manufacturing Research Institution of the Society of Manufacturing Engineers (NAMRI/SME), elected May 1986.
- Member, Organizing Committee for the 16th North Am. Manf. Res. Conf., held at the University of Illinois at Urbana-Champaign, 1988.
- Member of Proposal Review Committee for the Manufacturing Engineering Education Foundation of the Society of Manufacturing Engineers, March 1993.
- Co-chair of Organizing Committee for the 23rd North Am. Manf. Res. Conf., held at Michigan Technological University, 1995.
- Member, NAMRI/SME Program Committee, 1993-95.
- Member, Organizing Committee for the 25th North Am. Manf. Res. Conf., held at the University of Nebraska-Lincoln, 1997.
- Member, Board of Directors, NAMRI/SME, 1998-2004.
- Member, Scientific Committee of NAMRI/SME, 1991-2018.
- Member, International Awards & Recognition Committee, 2013-2017.

American Society of Mechanical Engineers

- Co-Organizer (with S. Smith, R. J. Stango, P. FitzPatrick, and L. Chen), symposium for the 1993 ASME Winter Annual Meeting, "Modeling, Monitoring and Control Issues in Machining Processes," ASME Bound Volume, PED Vol. 64.
- Elected to the Executive Committee of the Manufacturing Engineering Division of the American Society of Mechanical Engineers. Served on the Committee from 1996-2001.
- Organizer, ASME Student Manufacturing Design Competition in conjunction with the 1997 International Mechanical Engineering Congress and Exposition (IMECE).
- Secretary, ASME Manufacturing Engineering Division, 1997-98.

- Program Chair for 1999 IMECE, ASME Manufacturing Engineering Division, 1998-99.
- Vice Chair, ASME Manufacturing Engineering Division, 1999-2000.
- Chair, ASME Manufacturing Engineering Division, 2000-01.
- Co-Organizer (with J. Pratt), symposium for the 2000 ASME IMECE, "Environmentally Responsible Design and Manufacturing," ASME Bound Volume, MED Vol. 11.
- Advisory Committee for ASME MED, 2001-03.
- Long-range Planning Committee for ASME MED, 2001-03.
- At large member, ASME Manufacturing Technical Group, 2001-02.
- Vice Chair, ASME Manufacturing Group, 2002-05.
- Co-Organizer (with H. C. Zhang), symposium for the 2004 ASME IMECE, "Environmental Issues in the Product Life-Cycle," appeared on CD-ROM.
- M. Eugene Merchant Manufacturing Medal of ASME/SME Board of Award Committee, member: 2004-06, 2009-2015; 2017-2023 (committee chair).
- Climate Change Task Force (CCTF), ASME, 2007-2009.
- ASME Manufacturing Technology Group (MTG), Divisions Operations Chair, 2008-2011.
- ASME/CRTD Research Committee on Sustainable Products and Processes, 2006-2010. Committee Chair, 2011-2017.
- Member, ASME Technical & Engineering Communities (TEC) Operations, 2020.

CIRP
- Associate (Corresponding) Member, 2003-2011.
- Vice Chair of CIRP Working Group (WG) on Engineering as Collaborative Negotiation, 2006-2008.
- Chair, CIRP Collaborative Working Group (CWG) on "Energy and Resource Efficiency and Effectiveness," 2009-2012.
- Secretary, STC-A (Life Cycle Engineering and Assembly), 2010-2013.
- Vice Chair, STC-A (Life Cycle Engineering and Assembly), 2013-2016.
- Chair, STC-A (Life Cycle Engineering and Assembly), 2016-2019.
- Conference Chair, 26th CIRP Conference on Life Cycle Engineering, May 2019, held at Purdue University (Fu Zhao – Chair of Organizing Committee, Steve Skerlos (U. of Mich) – Scientific Comm. Chair).
- Credentials Committee, 2019-2024.
- Chair, U.S. Fellows of CIRP, 2024-present.
- CIRP Collaborative Working Group (CWG) on "Manufacturing Ethics," 2023-present.
- Member, CIRP Council (2024-present)

Association of Environmental Engineering and Science Professors (AEESP)
- Chair, Environmental Engineering Program Leaders Committee, 2019-2024.
- Past Chair, Environmental Engineering Program Leaders Committee, 2024-2025.

Other
- Program Committee for the 1994 S. M. Wu Symposium.
- Program Committee for the 1996 S. M. Wu Symposium.
- Session Organizer, Japan-U.S.A. Symposium on Flexible Automation, Boston, Massachusetts, 1996.
- Program Committee for Japan-U.S.A. Symposium on Flexible Automation - 1998, Ohtsu, Japan, July 1998.
- Program Committee for CIRP International Workshop on Modeling of Machining Operations, Atlanta, Georgia, 1998.
- Program Committee for Japan-U.S.A. Symposium on Flexible Automation, Univ. of Michigan, Ann Arbor, Michigan, 2000.
- Program Committee for 7th Mechatronics Forum International Conference, Atlanta, Georgia, September 2000.
- Organizer, Panel Session on Green Manufacturing at National Manufacturing Week, Chicago, Illinois, March 2000.

- Program Committee for 7th Mechatronics Forum International Conference, Atlanta, Georgia, September 2000.
- Program Committee, Third International Conference on Metal Cutting and High Speed Machining, Metz, France, June 2001.
- Organizing Committee, NSF Workshop on Environmentally Benign Manufacturing, September 2001.
- Program Committee for Japan-U.S.A. Symposium on Flexible Automation - 2002, Hiroshima, Japan, 2002.
- Scientific Committee, 4th International Conference on Metal Cutting and High Speed Machining, Darmstadt, Germany, March 19-21, 2003.
- Program Committee for Japan-U.S.A. Symposium on Flexible Automation - 2004, Denver, Colorado, 2004.
- Scientific Committee, Fifth International Conference on High Speed Machining, Metz, France, March 2006.
- Program Committee for International Symposium on Flexible Automation, Osaka, Japan, July 2006.
- Scientific Committee for CIRP International Conference on Life Cycle Engineering, Leuven, Belgium, May 31-June 2, 2006.
- Program Committee for CIRP High Performance Machining Conference, Vancouver, British Columbia, June 10-13, 2006.
- Program Committee for International Symposium on Flexible Automation, Osaka, Japan, July 9-14, 2006.
- International Scientific Committee, CIRP International Design Seminar, Kananaskis, Canada, July 16-19, 2006.
- Scientific Committee for CIRP High Speed Machining Conference, San Sebastian, Spain, March 21-22, 2007.
- Scientific Committee for CIRP International Conference on Life Cycle Engineering, Tokyo, Japan, June 10-13, 2007.
- Scientific Committee, International Conference on Agile Manufacturing (ICAM), Durham University, U.K., July 9-11, 2007.
- Scientific Committee, 15th CIRP International Conference on Life Cycle Engineering, Sydney, Australia, March 17-19, 2008.
- Scientific Committee, 7th International High Speed Machining Conference, Darmstadt, Germany, May 28-29, 2008.
- Chair, Organizing Committee for DeVor-Kapoor Symposium, Urbana, Illinois, October 24-25, 2008.
- Scientific Committee, 16th CIRP International Conference on Life Cycle Engineering, 2009.
- Subject Matter Expert to the Sustainability in R&D Group for the Industrial Research Institute (IRI), 2008-2009.
- Board of Directors, National Council for Advanced Manufacturing (NACFAM), 2010-present.
- Participant, NSF Workshop - Engineering the Operations of Future Manufacturing Systems, April 2010.
- Scientific Committee, 17th CIRP International Conference on Life Cycle Engineering, 2010.
- Member, Alumni Advisory Board for the Dept. of Mechanical Science and Engineering at UIUC, 2011-present.
- Site Visitor and Reviewer, DFG-Collaborative Research Centre, "Sustainable Manufacturing - Shaping Global Value Creation," TU-Berlin, Germany, June 2011.
- Scientific Committee, 18th CIRP International Conference on Life Cycle Engineering, 2011.
- International Steering Committee for 9th Global Conference on Sustainable Manufacturing, 2011.
- International Program Committee for the 7th International Conference on Digital Enterprise Technology, Athens, September 2011.
- International Scientific Committee for the 23rd International Computer Aided Production Engineering (CAPE) Conference, University of Hong Kong, August 2012.
- Organizing Committee for International Symposium on Flexible Automation (IFSA), June 18-20, 2012.
- Scientific Committee for the IEEE-International Symposium on Sustainable Systems and Technology (ISSST), Boston, MA, 2012.
- Scientific Committee, 19th CIRP International Conference on Life Cycle Engineering, 2012.
- International Scientific Committee for the 22nd International Conference on Flexible Automation and Intelligent Manufacturing (FAIM), 2012.

- Intl. Scientific Committee, 5th CIRP Conference on High Performance Cutting, June 4-7, 2012.
- International Steering Committee for 10th Global Conference on Sustainable Manufacturing, October 2012.
- Scientific Committee for the 4th International and 25th all India Manufacturing Technology, Design and Research (AIMTDR) December 14-16 2012
- Scientific Committee of the 46th Conference on Manufacturing Systems (CIRP CMS 2013)
- Scientific Committee for the 6th International Conference on Design and Manufacture for Sustainable Development, April 15-16 2013
- Scientific Committee, 20th CIRP International Conference on Life Cycle Engineering, 2013
- Program Committee AND Advisory Committee for International Symposium on Flexible Automation (IFSA), Awaji-Island, Hyogo, Japan, July 2014,
- Scientific Committee, 8th International Conference on Digital Enterprise Technology, 2014
- Scientific Committee, 21st CIRP International Conference on Life Cycle Engineering, 2014
- Scientific Committee, 3rd CIRP Global Web Conference, 2014.
- Scientific Committee, 24th CIRP Design Conference, 2014
- Scientific Advisory Committee, 5th International and 26th All India Manufacturing Technology, Design and Research Conference AIMTDR 2014, December 12-14, 2014
- Scientific Committee, 22nd CIRP International Conference on Life Cycle Engineering, 2015
- Scientific Committee, IPSS International Conference, 2015
- Scientific Committee, 25th CIRP Design Conference, 2015
- Scientific Committee, 13th Global Conference on Sustainable Manufacturing, 2015.
- Scientific Committee, 4th CIRP Global Web Conference, 2015.
- Scientific Committee, International Conference of Remanufacturing (ICoR2015), 2015
- International Advisory Committee, International Forum on Sustainable Manufacturing, 2015
- Scientific Committee, 7th CIRP Conference on High Performance Cutting HPC, 2016.
- Scientific Committee, CIRP CATS 2016.
- Scientific Committee, 23rd CIRP International Conference on Life Cycle Engineering, 2016,
- Scientific Committee, 15th Global Conference on Sustainable Manufacturing, 2017, Haifa, Israel.
- Scientific Committee, 24th CIRP International Conference on Life Cycle Engineering, 2017,
- Awards Committee, Indiana Governor's Award for Environmental Excellence (IGAEE), 2016-2018.
- Scientific Committee, 25th CIRP International Conference on Life Cycle Engineering, 2018,
- Scientific Committee, 16th Global Conference on Sustainable Manufacturing, 2018, U. of Kentucky.
- International Advisory Committee, International Congress on Sustainability Science & Engineering (ICOSSE), 2018.
- 8th CIRP Conference on High Performance Cutting, 2018, Budapest, Hungary.
- Scientific Committee, 6th CIRP Global Web Conference, CIRPe 2018.
- Scientific Committee, 26th CIRP International Conference on Life Cycle Engineering, 2019.
- Scientific Committee, 17th Global Conference on Sustainable Manufacturing. 2019.
- International Scientific Committee Member 18th Global Conference on Sustainable Manufacturing (GCSM), 2020 & 2022.
- International Scientific Committee Member, 8th CIRPe Global Web Conference, Oct. 2020.
- International Scientific Committee Member, 28th CIRP Conference on Life Cycle Engineering (LCE), 2020-2021
- Program Committee Member I-4M 2022 (2nd International Conference on Industry 4.0 and Advanced Manufacturing), January 10-11, 2022, Centre for Product Design and Manufacturing (CPDM), Indian Institute of Science (IISC) Bangalore, India
- International Scientific Committee Member, 29th CIRP Conference on Life Cycle Engineering (LCE), April 4-6, 2022, held at KU Leuven Belgium.
- International Scientific Committee Member, 9th CIRP CATS Conference on Assembly Technology and Systems, April 4-6, 2022, held at KU Leuven Belgium.
- International Program Committee, 55th CIRP Conference on Manufacturing Systems (CMS 2022), June 29-July 1, 2022, Lugano Switzerland.

- Scientific Advisory Board, DOE-EFRC, "Artificially Intelligent Manufacturing Paradigm for Composites (AIM for Composites)," 2022-2026
- International Advisory Committee, TransFIRe Independent International Advisory Council, February 2022-present.
- Scientific Advisory Board, Department of Energy (DOE), Energy Frontier Research Center (EFRC), September 2022-present.
- Scientific Committee, 33rd CIRP Design Conference, held in Sydney Australia, May 2024.
- Scientific Committee, NSF Workshop on AM for Decarbonization, Aug. 2023 in Arlington, VA
- Scientific Committee, 56th CIRP Conference on Manufacturing Systems (CMS), held in Cape Town, South Africa, Oct. 2023.
- Scientific Committee, 19th Global Conference on Sustainable Manufacturing (GCSM), held in Buenos Aires, Argentina, Dec. 2023.
- Scientific Committee, 10th CIRP Conference on Assembly Technology and Systems (CATS), held in Karlsruhe, Germany, April 2024.
- International Scientific Committee Member, 31st CIRP Conference on Life Cycle Engineering (LCE), April 19-21, 2024, held in Turin, Italy.
- Scientific Committee, 57th CIRP Conference on Manufacturing Systems (CMS), held in Povoa de Varzim, Portugal, May 2024.
- International Scientific Committee, 6th CIRP Conference on Biomanufacturing, June 11-13, 2024 in Dresden, Germany.
- Scientific Committee, Manufacturing Science and Engineering Conference (MSEC), June 17-21, 2024, in Knoxville, TN at University of Tennessee.
- International Scientific Committee, 20th Global Conference on Sustainable Manufacturing (GCSM), held in Ho Chi Minh City and Binh Duong, Vietnam, Oct. 2024.
- Member, NAE Section 8 Search Committee, 2024-present

Journal Editorships Held

- Associate Technical Editor, Transactions of the American Society of Mechanical Engineers, Journal of Manufacturing Science and Engineering (formerly Journal of Engineering for Industry), 1991-97.
- Guest Editor, International Journal of Engineering Education, 2005-07, two special issues on Educating Students in Sustainable Engineering, Lynn Katz and John Sutherland, editors.
- Editor, International Journal of Precision Engineering and Manufacturing: Green Technology, 2013-2019
- Subject Editor, Sustainable Production and Consumption, 2021-2023.
- Regional Editor – International Journal of Sustainable Manufacturing, 2007-present.
- Regional Editor – Journal of Remanufacturing, 2010-present.
- Editorial Board, Robotics and Computer-Integrated Manufacturing, 2017-present.
- Editorial Board, Advances in Manufacturing, 2019-present.
- Editorial Board, Journal of Manufacturing and Materials Processing (JMMP), 2020-present
- Editorial Board, Advances in Industrial and Manufacturing Engineering, 2020-present
- Advisory Board, Resources, Conservation & Recycling, 2022-present.
- Advisory Board, Clean Technologies & Recycling, 2021-present.
- Editorial Review Board, CIRP Journal of Manufacturing Science and Technology, 2022-present.
- Guest Editor, Special issue on "Life cycle engineering and sustainable manufacturing for net-zero targets and environmental sustainability" for Resources, Conservation and Recycling, W-Q Chen, MZ Hauschild, B-J Huang, S Kara, JW Sutherland, Y Umeda, 2022-2025.

Journals, Proceedings, and Organizations Reviewed for

ACS Sustainable Chemistry & Engineering; ASME Journal of Manufacturing Science and Engineering; Addison Wesley Longman; Access-2019; Applied Computing and Informatics; Applied Mathematical Modelling; Batteries; Business Strategy and the Environment; CSAE 2020; CIRP Journal of Manufacturing Science and Technology; Carbon Management; Complexity; Computers and Operations Research; EEEP 2018 Conference;

Ecological Indicators; Energies; Energy Saving Manufacturing System Optimization, Special Issue; Energy Reports, Society of Manufacturing Engineers Foundation; Engineering Optimization; Environmental Science and Technology; Environmental Quality Management; Environmental Science and Pollution Research; Environmental Science and Technology; Expert Systems with Applications; Frontiers Psychology; Frontiers in Psychology Section Organizational Psychology; Green Supply Chain and Sustainable Operation Management; GCSM; ICEEEE 2018; IEEE; IEEE Access Control Systems Magazine; IEEE Transactions on Automation Science and Engineering; IEEE Transactions on Cybernetics; IEEE Transactions on Industrial Informatics; iNEER (International Network for Engineering Education & Research); Informatic; International Conference on Agile Manufacturing (ICAM); Insight; International Journal of Advanced Manufacturing; International Journal of Machine Tools and Manufacture; International Journal of Precision Technology (IJPTECH); International Journal of Production Research (IJPR); Institute of Industrial Engineers Transactions; The Israel Science Foundation (ISF); Logistics and Supply Chain Management Challenges Joule; Journal of Ambient Intelligence and Humanized Computing; Journal of Cleaner Production; Journal of Carbon Footprints; Journal of Engineering Design; Journal of Dynamic Systems, Measurement, and Control - Transactions of the American Society of Mechanical Engineers Journal of Engineering for Industry - Transactions of the American Society of Mechanical Engineers; Journal of Engineering Materials and Technology - Transactions of the American Society of Mechanical Engineers; Journal of Experimental Techniques; Journal of Green Manufacturing; Journal of Industrial Ecology; Journal of Manufacturing Processes; Journal of Manufacturing Science and Engineering - Transactions of the American Society of Mechanical Engineers; Journal of Manufacturing Systems; Journal of Manufacturing Technology Management; Journal of Rare Earths, Journal of Remanufacturing, Journal of Smart Environments and Green Computing; MDPI: International Journal of Environmental Research and Public Health; MDPI: Sustainability; Machining Innovations Conference for Aerospace Industry 2018; MIC 2019; Machining Science and Technology; Manufacturing Review Mechatronics; Mathematical Problems in Engineering; Measurement; Motorola Six Sigma Research Institute; MTU - State of Michigan Research Excellence Fund Program; National Institute of Standards and Technology; National Science Foundation; Operations Research Perspectives; Quality Prediction and Control Technology for Intelligent Manufacturing; RCE; RCIM (Research Centre for Integrated Microsystems); Recycling Journal; Renewable and Sustainable Energy Reviews; Resources, Conservation and Recycling; Robotics and Computer-Integrated Manufacturing; SME Manufacturing Letters Journal, Environmental Science and Technology; SME NAMRC 47 and 52; The Scientific World Journal; Structural Change and Economic Dynamics; Sustainability: Optimization in Logistics for Sustainable Supply Chain Management; Sustainable Earth; Sustainable Management; Sustainable Materials and Technologies; Sustainable Production and Consumption; Transactions of the North American Manufacturing Research Institution of the Society of Manufacturing Engineers (NAMRI/SME); Society of Automotive Engineers (SAE) Transactions; Trends in Food Science and Technology; Waste Management; West Educational Publishing Co.; World Electric Vehicle Journal.

Public Service

- Instructor on Statistical Methods for number of organizations, including Ford, Caterpillar, Borg Warner, GM, Dayco, Stewart-Warner, Sci-Med Life Systems, Hyster, Central Data, and Pioneer Laboratories.
- Instructor, one-day course on Statistical Methods for the Central Illinois Section of ASQC, October 27, 1984.
- Coordinator for the Junior Engineering Technical Society (JETS) and Minority Introduction to Engineering (MITE) programs for the Dept. of Mech. and Ind. Engr., Summer 1987 and 1988.
- Instructor, preparatory course for the ASQC Certified Quality Technologist (CQT) Exam, Spring 1991.
- Instructor for course on Statistical Methods for Quality Design and Improvement through the Office of Continuing Engineering Education and the Institute for Competitive Manufacturing of the University of Illinois, August 3-4, 1992.
- Participant in the MTU Career Center's Corporate Advisory Board Discussion Group Meeting, April 1994.
- Participant in the Michigan State Board of Education Summer Institute for the Arts, Sciences, and Technology Career Roundtable, June 29, 1994.
- Participant in MTU Workshop on Diversity, March 16, 1995.
- Participant in the MTU Career Center's Corporate Advisory Board Discussion Group Meeting, April 27, 1995.
- 2-day visit with participants in GM - B.S. in Engineering (Mechanical Engineering Concentration) program.

- Participant in NSF sponsored WTEC Study of Environmentally Benign Manufacturing, Arlington, VA, October 4-5, 1999; Site Visits in Japan, October 15-25, 1999; Site Visits in Europe, April 1-9, 2000; Site Visits in U.S., June 6-7, 2000; Arlington, Virginia, July 11-14, 2000.
- NSF IGERT Workshop on Interdisciplinary Research, Arlington, VA, May 2008.
- Co-Chair of the panel on Sustainable Manufacturing for the Department of Energy Workshop on "Basic Research Needs for Transformative Manufacturing," Mar. 2020.
- Appointed member, National Academies of Sciences, Engineering, and Medicine “Committee for National Plan for Smart Manufacturing Technology Development and Deployment,” 2022-23.

Consulting Experience

- Sci-Med Life Systems (1989-90)
- Hyster (1990-91)
- Central Data (1990-91)
- Pioneer Laboratories (1992-93)
- Cooper Industries (1997)
- Winsert (EMI) (2006)
- Industrial Research Institute (IRI) (2008-10)