

Karl R. Haapala, Ph.D.

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EDUCATION AND EMPLOYMENT INFORMATION

Degrees Awarded

Ph.D., Mechanical Eng.-Eng. Mechanics, Michigan Technological University, 2008
M.S., Mechanical Engineering, Michigan Technological University, 2003
B.S., Mechanical Engineering, Michigan Technological University, 2001

Certifications and Other Academic Preparation

Graduate Certificate in Sustainability, Michigan Technological University, 2006
NSF IGERT Exchange, Public Policy Ph.D. program, Southern University - Baton Rouge, Sp. 2005
Certificate in International Business, Michigan Technological University, 2001
International Studies, University of Oulu (Finland) Open Campus Program, 1996-1997

Positions Held

12/08-present	<i>Assistant Professor</i> , School of Mechanical, Industrial, and Manufacturing Engineering, Oregon State University Performing research, teaching, and service activities in Industrial and Manufacturing Engineering program, focused on sustainable manufacturing.
08/08-12/08	<i>Research Engineer/Instructor</i> , Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University Assisted with proposal development for funded research of sustainability-related issues. Responsible for introductory Service Systems Engineering course.
01/04-08/08	<i>Graduate Research Assistant</i> , Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University, Advisor: John W. Sutherland Conducting research into sustainable manufacturing. Developing environmental performance models of steelmaking, sand casting, and heat treatment processes.
05/06-08/06	<i>Visiting Researcher</i> , Laboratory of Process Metallurgy, Dept. of Process and Environmental Engineering, University of Oulu, Finland Performed debugging, model development, and editing of user manual for manufacturing process flow software. Developed software tutorial for new users.
05/05-08/05	<i>Summer Intern</i> , Advanced Materials Technology, Caterpillar Inc., Peoria, IL Developed models of resource use, energy consumption, and waste streams for electric arc furnace steelmaking and sand casting. Reported initial modeling results for two steel chemical compositions.

- 09/03-12/03 *Research Assistant*, Dept. of Mechanical Engineering - Engineering Mechanics, Sustainable Futures Institute, Michigan Technological University
Participated in industry consortium and institute start-up activities including editing proposals and marketing materials. Edited technical publications.
- 08/01-08/03 *Graduate Research Assistant*, Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University, **Advisor:** John W. Sutherland
Developed models to quantify the raw materials and wastes for the production of heavy equipment components made of steel. Edited technical papers/proposals.
- 05/02-08/02 *Summer Intern*, Flex-N-Gate Forming Technologies, LLC, Warren, MI
Participated in the development and implementation of an Environmental Management System toward an unconditional recommendation for ISO14000 registration. Recommended facility energy and waste reduction opportunities.
- 06/01-08/01 *Undergraduate Research Assistant* (NSF-REU), Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University
Conducted research into minimum quantity lubrication and properties affecting metal cutting fluid life.
- 05/00-12/00 *Undergraduate Research Assistant* (Norsk Hydro), Dept. of Mechanical Engineering - Engineering Mechanics, Michigan Technological University
Prepared specimens, performed experiments, and made strain measurements in support of research into the hydroforming limits of extruded aluminum tubing.

Teaching and Research Interests

Life cycle engineering, manufacturing process modeling for environmental performance, production engineering, sustainable engineering education, novel sustainability approaches, e.g., micro-/nano-manufacturing processes and product-service systems.

TEACHING, ADVISING, AND OTHER ASSIGNMENTS

Oregon State University

- Winter 2012 *Instructor*, Production Engineering, IE 336
- Fall 2011 *Instructor*, ST/Sustainable Engineering Analysis, IE 591/491
Instructor, Computer Aided Design and Manufacturing, ME 413
- Spring 2011 *Course Development*, Computer Aided Design and Manufacturing, ME 413
Course Development, ST/Sustainable Engineering Analysis, IE 591/491
Curriculum Innovation: New course development (IE 591/491).
Expansion of programmable logic control laboratory capacity through TRF award (ME 413).
- Winter 2011 *Instructor*, Production Engineering, IE 336
- Fall 2010 *Instructor*, Computer Aided Design and Manufacturing, ME 413
Instructor, MECOP/CECOP Seminar, ENGR 407
- Spring 2010 *Course Development*, Computer Aided Design and Manufacturing, ME 413
Curriculum Innovation: Expansion of programmable logic control laboratory capacity through TRF award (ME 413).

- Winter 2010 *Instructor*, Production Engineering, IE 336
Curriculum Innovation: New course developed as part of revised undergraduate Manufacturing Engineering curriculum. Instructional responsibility for course on production engineering fundamentals, including development and delivery of lectures, homework, project, and exams (IE 336).
- Fall 2009 *Guest Speaker*, Introduction to Industrial and Manufacturing Engineering, IE 285
 Lecture on manufacturing engineering.
Guest Speaker, Engineering Orientation I, ENGR 111
 Lecture on sustainable engineering.
Instructor, MECOP/CECOP Seminar, ENGR 407
Co-Instructor, Computer Aided Design and Manufacturing, ME 413
Curriculum Innovation: Developed/delivered new two-week module on industrial control systems, including a PLC lab exercise, as part of revised undergraduate Manufacturing Engineering curriculum (ME413).
- Spring 2009 & Fall 2009 *Course Development*, Production Engineering, IE 336
 Development of course materials; coordinated with teaching assistant and lab technician in development of hands-on student labs to support lectures.
- Spring 2009 *Guest Speaker*, Entrepreneurship, Innovation, and Supply Chain in Environmental Management, BA 567
 Lecture on life cycle analysis and its use by companies.
- Winter 2009 *Co-Instructor*, Computer Aided Mechanical Design, ME 413
Curriculum Innovation: Developed/delivered two-week module on sustainable design and manufacturing, including a lab-based project (ME 413).

Michigan Technological University

- Fall 2008 *Instructor*, Introduction to Service Systems Engineering, SSE 2100
 Instructional responsibility for course on service management and systems engineering fundamentals, including lectures, homework, project, and exams.
Guest Speaker, Environmentally Responsible Design and Mfg., MEEM 4685
 Presented modeling of manufacturing processes for environmental performance.
- Fall 2007 & Spring 2008 *Teaching Assistant*, Graduate Colloquium in Sustainability, ENG 5530
 Co-organized interdisciplinary, interuniversity seminar series. Graded proposals, reports, and presentations for project teams. Maintained course website.
- Spring 2006 *Guest Speaker*, Social Inequality, SS 3750
 Discussed doctoral exchange at Southern University, an HBCU.
- Fall 2004 & Fall 2005 *Guest Lecturer*, Quality Engineering, MEEM 4650/5650
 Prepared and delivered four lectures.
- Spring 2004 *Teaching Assistant*, Environmentally Responsible Design and Mfg., MEEM 4685
 Developed/graded assignments, project, and exams for on-campus and distance learning students. Prepared lectures; delivered one lecture. Maintained website.

4. Advising

M.S. Student Advisees – Major Advisor

- Malcolm Brown, IE (OSU), June 2011, “A Process Based Modeling Approach for Economic and Environmental Assessment of Nano-Assisted Manufacturing”
- Misha Sahakian, IE (OSU), exp. 2011, Environmental and Process Performance of Nanofluids
- Hao Zhang, IE (OSU), exp. 2011, Sustainable Machining
- Ahmed Alsaffar, IE (OSU), exp. 2011, Manufacturing Process Modeling for Environmental Performance
- Dane Eastlick, ME (OSU), exp. 2012, Sustainable Design for Manufacture
- Preedanood (Mim) Prempreeda, IE (OSU), exp. 2012, Sustainable Energy Systems
- Walter (Clint) Clow, IE (OSU), exp. 2013, Sustainable Manufacturing

Honors B.S. Thesis Advisees – Major Advisor

- Mary Elizabeth (Mary Beth) Vanlue, IE (OSU), December 2010, “A Method to Effectively Measure Sustainability in Non-Profit Organizations”

Ph.D. Dissertation Committee Service

- Santosh Tiwari, IE (OSU, Advisor: B.K. Paul), March 2010, “Nickel Nanoparticle-Assisted Diffusion Brazing of Stainless Steel for Microfluidic Applications”
- Robert Nagel, ME (OSU, Advisor: R.B. Stone), June 2010, “A Design Framework for Identifying Automation Opportunities”
- Valmikanathan Onbattuvelli, IE (OSU, Advisor: S.A. Atre), December 2010, “The Effects of Nanoparticle Addition on the Powder Injection Molding of SiC and AlN”
- Prawin Paulraj, IE (OSU, Advisor: B.K. Paul), exp. 2011
- Ravindrath Tagore Eluri, IE (OSU, Advisor: B.K. Paul), exp. 2011
- Diane Van Scoter, IE (OSU, Advisor: T.L. Doolen), exp. 2011
- Kerry Poppa, ME (OSU, Advisor: R.B. Stone), exp. 2011
- Wei-Tau (Mike) Lee, IE (OSU, Advisor: K.L. Funk), exp. 2011
- Takeaki Toma, IE (OSU, Advisor: J.D. Porter), exp. 2012
- Barath Palanisamy, IE (OSU, Advisor: B.K. Paul), exp. 2013
- Woraruthai (Aom) Choothian, IE (OSU, Advisor: T.L. Doolen), exp. 2013
- Yasaman Mehravaran, IE (OSU, Advisor: R.L. Logendran), exp. 2014
- Daniel Peterson, IE (OSU, Advisor: B.K. Paul), exp. 2014
- Mir Abbas Bozorgirad, IE (OSU, Advisor: R.L. Logendran), exp. 2014

M.S. Thesis Committee Service

- James Vlieg, IE (OSU, Advisor: B.K. Paul), June 2010, “Development of a Radial Microlamination Architecture for the Fabrication of Cylindrical Microchannel Arrays”
- Luke Fisher, ME (OSU, Advisor: R.B. Peterson), June 2010, “Single- and Multi-functional Arrayed Microchannel Fluidic Devices”
- Gopi Lingam, IE (OSU, Advisor: B.K. Paul), September 2010, “Cooling Rate Limitations in the Diffusion Bonding of Large Microchannel Arrays”
- Clayton Hires, IE (OSU, Advisor: B.K. Paul), December 2010, “Uniform Residence Time in Micro-Assisted Solution Deposition of CdS Thin-Films for CIGS Photovoltaic Cells”

- Ji Ling, IE (OSU, Advisor: T.L. Doolen), April 2011, “An Investigation of Chinese Quality Circle Effectiveness: Critical Success Factors and Outcomes”
- Lindsay Wiseman, IE (OSU, Advisor: T.L. Doolen), May 2011, “Evaluating the Effectiveness and Efficiency of Continuous Improvement Training”
- Trenton Carpenter, IE (OSU, Advisor: R.K. Paasch), June 2011, “Global Distributed Design of a Formula SAE Race Car”
- Vaibhav Pandya, IE (OSU, Advisor: R.L. Logendran), June 2012, “A Methodology for Scheduling Jobs in a Flexible Flowshop with Sequence Dependent Setup Times and the Possibility of Machine Skipping”

Senior Project Advising

- Brent Hughes, Derek Sugiyama, and Mary Beth Vanlue, Furniture Recycling Process and Measures, **Sponsor:** Benton Furniture Share, 2009-2010.
Resulting Paper: Hughes, B., D. Sugiyama, and M.B. Vanlue, 2010, “Process Improvement in a Non-Profit Organization,” *Proc. 2010 Capstone Design Conference*, July 7-9, Boulder, CO.
- Sam Brannon, Brandon Johnsen, and Michael Visser, Wireless Tool Monitoring System, **Sponsor:** School of Mech/Ind/Mfg Engineering (OSU), 2009-2010.
- Jonathan Glazner, Arthur Muñoz, Bryan Williams, Development of a Process for Testing the Machining Performance of Nanofluids, **Sponsor:** OSU Industrial Sustainability Laboratory, **Partners:** OSU Nanotoxicology Laboratory, Microproducts Breakthrough Institute, Master Chemical, Boeing, 2010-2011.
- Bryan Hudspeth, Simon Manso, Alexander Skrydlak, Development of a Knife Testing Device, **Sponsor:** Benchmade Knife Company, 2010-2011.

Graduate Teaching Assistant Supervision

- Srikar Vallury, IE (OSU), Spring 2009, GTA, ME 413 lab development
- Misha Sahakian, IE (OSU), Fall 2009-Spring 2010, GTA, ME 413 and IE 336
- Hao Zhang, IE (OSU), Fall 2010-Spring 2011, GTA, ME 413 and IE 336
- Walter Clow, IE (OSU), Spring 2012, GTA, ME 413 and IE 336 lab development

Student Supervision and Mentoring

- Kyle Franks, ME (MTU), 2007, web page designer for J.W. Sutherland
- Brandon Quig, ME (MTU), 2008, web page designer for J.W. Sutherland
- Garrett Hoofman, CS (MTU), 2008, web page designer for J.W. Sutherland
- Vikas Malpani, ME (MTU), 2007, paper contributor
- Hannes Hapke, EE (OSU), 2009, paper contributor
- Misha Sahakian, IE (OSU), Summer 2009, undergraduate researcher, nano-metalworking fluids
- Babak Lajevardi, IE (OSU), Spring 2010, graduate researcher, environmental optimization of manufacturing systems
- Gorka Rodrigo Asensio, IE (Universidad Politécnica de Valencia), October 2010 – April 2011, Research Intern, Sustainable Wind Energy Research
- Claire Oshatz, IE (OSU), Summer 2011, undergraduate researcher, manufacturing cost models
- Nathan Klammer, ME (California Polytechnic State University, San Luis Obispo), Summer 2011, undergraduate researcher, alternative energy analysis and nano-assisted metal cutting
- Steven Hatstrup, MfgE (OSU), Summer 2011, undergraduate assistant, product disassembly

SCHOLARSHIP AND CREATIVE ACTIVITY

Peer-Reviewed Journal Articles (* Graduate Student; † Corresponding Author)

1. Sutherland, J. W.†, K. L. Gunter, **K. R. Haapala**, K. Khadke, S. J. Skerlos, J. B. Zimmerman, W. W. Olson, and R. Sadasivuni, 2003, “Environmentally Benign Manufacturing: Status and Vision for the Future,” *Transactions of NAMRI/SME*, Vol. 31, p. 345-352, also appeared as SME Paper MR03-188.
2. Kumar, V., **K. R. Haapala**, J. L. Rivera, M. J. Hutchins, W. J. Endres, J. K. Gershenson, D. J. Michalek, and J. W. Sutherland†, 2006, “Infusing Sustainability Principles into Manufacturing/Mechanical Engineering Curricula,” *SME Journal of Manufacturing Systems*, Vol. 24, No. 3, p. 215-225.
3. Sutherland, J. W.† and **K. R. Haapala**, 2007, “Optimization of Steel Production to Improve Lifecycle Environmental Performance,” *CIRP Annals*, Vol. 56, No. 1, p. 5-8.
4. **Haapala, K. R.**, J. L. Rivera, and J. W. Sutherland†, 2008, “Application of Life Cycle Assessment Methods to Sustainable Product Design and Manufacturing,” *International Journal of Innovative Computing, Information and Control: Special Issue on Recent Advances in Flexible Automation*, Vol. 4, No. 3, p. 575-589.
5. **Haapala, K. R.**, K. L. Brown, and J. W. Sutherland†, 2008, “A Life Cycle Environmental and Economic Comparison of Product-Service Systems,” *Transactions of NAMRI/SME*, Vol. 36, p. 333-340.
6. Sutherland, J. W.†, D. P. Adler, **K. R. Haapala**, and V. Kumar, 2008, “A Comparison of Manufacturing and Remanufacturing Energy Intensities with Application to Diesel Engine Production,” *CIRP Annals*, Vol. 57, No. 1, pp. 5-8.
7. **Haapala, K. R.**†, J. L. Rivera*, and J. W. Sutherland, 2009, “Reducing Environmental Impacts of Steel Product Manufacturing,” *Transactions of NAMRI/SME*, Vol. 37, pp. 419-426.
8. Sutherland, J. W., T. L. Jenkins*, and **K. R. Haapala**†, 2010, “Development of a Cost Model and its Application in Determining Optimal Size of a Diesel Engine Remanufacturing Facility,” *CIRP Annals*, Vol. 59, No. 1, pp. 49-52.
9. Bohm, M. R.†, **K. R. Haapala**, K. Poppa*, A. Nix*, R. B. Stone, I. Y. Tumer, 2010, “Integrating Life Cycle Assessment into the Conceptual Phase of Design to Aid Decision Making,” *Journal of Mechanical Design: Special Issue on Sustainable Design*, Vol. 132, No. 9, pp. 091005-1 – 091005-12.
10. Chiu, M.-C.†, A. J. Alsaffar*, G. E. Okudan, and **K. R. Haapala**, in review, “Reducing Supply Chain Costs and Carbon Footprint during Product Design,” *Journal of Cleaner Production*.
11. **Haapala, K.R.**†, A.V. Catalina, M.L. Johnson, J.W. Sutherland, in review, “Development and Application of Models for Steelmaking and Casting Environmental Performance,” MANU-11-1165, *Journal of Manufacturing Science and Engineering*.

Peer-Reviewed Articles from Proceedings

(* Graduate Student; ** Undergraduate Student; † Corresponding Author)

1. Muehlfeld, C. M., R. T. Nesbitt, B. Bloss, S. J. Andrasko, A. P. Thul, **K. Haapala**, and J. E. Beard, 2002, “Design and Development of the 2001 Michigan Tech FutureTruck, a Power Split Hybrid Electric Vehicle,” *SAE 2002 World Congress & Exhibition*, March 4-7, Detroit, MI, p. 2115-2122.

2. **Haapala, K. R.**, K. N. Khadke, and J. W. Sutherland†, 2004, “Predicting Manufacturing Waste and Energy for Sustainable Product Development via WE-Fab Software,” *Proc. of the Global Conference on Sustainable Product Development and Life Cycle Engineering*, Sept. 29-Oct. 1, Berlin, Germany, p. 243-250.
3. Kumar, V., **K. R. Haapala**, J. L. Rivera, M. J. Hutchins, W. J. Endres, J. K. Gershenson, D. J. Michalek, and J. W. Sutherland†, 2005, “Towards Manufacturing/Mechanical Engineering Curricular Change in Support of a Sustainable Future,” *Looking Forward: Innovations in Manufacturing Engineering Education, CIMEC (CIRP International Manufacturing Engineering Education Conference) and 3rd SME International Conference on Manufacturing Education*, San Luis Obispo, CA, p. 50-58.
4. Ju, C., L. P. Keranen, **K. R. Haapala**, D. J. Michalek, and J. W. Sutherland†, 2005, “Issues Associated with MQL Implementation: Effect on Peripheral Milling Process Performance and Impact on Machining Economics,” *Proc. of the 2005 ASME/IMECE*, IMECE2005-79259, November 5-11, Orlando, FL, on CD ROM.
5. Tumkor, S.†, V. Kumar, **K. R. Haapala**, and J. W. Sutherland, 2006, “New Engineering Design Concepts for Sustainable Products,” *Proc. of ASEE Annual Conference*, June 18-21, Chicago, IL, on CD ROM.
6. **Haapala, K. R.**, J. L. Rivera, and J. W. Sutherland†, 2006, “Environmentally Responsible Process Selection via Life Cycle Analysis,” *Proc. of International Symposium on Flexible Automation*, July 10-12, Osaka, Japan, on CD ROM.
7. **Haapala, K. R.**†, M. J. Hutchins, J. L. Rivera, V. Kumar, A. R. Clarke, T. D. Eatmon, R. A. Harris, M. H. Durfee, J. R. Mihelcic, D. R. Shonnard, and J. W. Sutherland, 2007, “Education, Research, and Training Aspects of the Sustainable Futures NSF IGERT Project,” *Proc. of the 2007 ASEE North Midwest Sectional Conf.*, September 20-22, Houghton, MI, on CD-ROM.
8. Sutherland, J. W.†, J. L. Rivera, K. L. Brown, M. Law, M. J. Hutchins, T. L. Jenkins, and **K. R. Haapala**, 2008, “Challenges for the Manufacturing Enterprise to Achieve Sustainable Development,” *Manufacturing Systems and Technologies for the New Frontier: The 41st CIRP Conf. on Manufacturing Systems*, Keynote Paper, May 26-28, Tokyo, Japan, M. Mitsubishi, K. Ueda, and F. Kimura, eds., pp. 15-18.
9. Rickli, J. R., A. R. Clarke, **K. R. Haapala**, M. Addo, J. A. Camelio, and J. W. Sutherland†, 2008, “Reducing the Environmental and Social Impacts of E-waste Recovery through Technology and Policy,” *Proc. Global Conf. on Sustainable Product Development and Life Cycle Engineering: Sustainability and Remanufacturing IV*, September 29-October 1, Busan, Korea, pp. 201-206.
10. **Haapala, K. R.**†, S. K., Tiwari*, and B. K. Paul, 2009, “An Environmental Analysis of Nanoparticle-Assisted Diffusion Brazing,” *Proc. 2009 ASME International Manufacturing Science & Engineering Conference (MSEC)*, Paper MSEC2009-84308, October 4-7, West Lafayette, IN, 8 pp., on CD-ROM.
11. Brown, M. O.* and **K. R. Haapala**†, 2010, “Challenges Facing Engineers in Evaluating Life Cycle Impacts of Emerging Technologies,” *Proc. 17th CIRP International Conference on Life Cycle Engineering (LCE2010)*, Hefei, China, May 19-21, pp. 17-22.

12. Lee, W.-T.*†, **K. R. Haapala**, and, K. H. Funk II, 2010, “Defining the Dimensions of Human Work for Industrial Sustainability Assessment,” *Proc. 17th CIRP International Conference on Life Cycle Engineering (LCE2010)*, Hefei, China, May 19-21, pp. 384-389.
13. Chiu, M.-C.*, A. J. Alsaffar*, G. E. Okudan, and **K. R. Haapala**†, 2010, “Reducing Supply Chain Costs and Carbon Footprint during Product Design,” *Proc. 2010 IEEE International Symposium on Sustainable Systems and Technology*, May 16-19, Washington, DC, 6 pp., on CD-ROM.
14. Hapke, H.*, **K. R. Haapala**†, Z. Wu, T. K. A. Brekken, 2010, “Life Cycle Assessment of Modern Wind Power Plants,” *Proc. 2010 ASME IDETC/CIE: 15th Design for Manufacturing and the Lifecycle Conference (DFMLC)*, DETC2010-28749, August 15-18, Montreal, Canada, 8 pp., on CD-ROM.
15. Bohm, M. R.†, **K. R. Haapala**, K. Poppa*, R. B. Stone, and I. Y. Tumer, 2010, “Environmental Analysis of Consumer Products During the Conceptual Phase of Product Design,” *Proc. 2010 ASME IDETC/CIE: 15th Design for Manufacturing and the Lifecycle Conference (DFMLC)*, Paper DETC2010-28265, August 15-18, Montreal, Canada, 12 pp., on CD-ROM.
16. Brown, M.O.*, **K. R. Haapala**†, B. K. Paul, R. D. Glover*, and J. E. Hutchison, 2010, “Addressing Uncertainty in the Environmental Analysis of Nickel Nanoparticle Production,” *Proc. 2010 ASME International Manufacturing Science & Engineering Conference (MSEC)*, Paper MSEC2009-34251, October 12-15, Erie, PA, 8 pp., on CD-ROM.
17. **Haapala, K.R.**†, K. Poppa*, R. B. Stone, and I. Y. Tumer, 2011, “Automating Environmental Impact Assessment during the Conceptual Phase of Product Design,” *AAAI 2011 Spring Symposium: Artificial Intelligence and Sustainable Design*, Association for the Advancement of Artificial Intelligence, March 21-23, Stanford University, Stanford, CA, Paper SS11-02-011, pp. 53-59.
18. Olson, E.C.*, **K.R. Haapala**†, G.E. Okudan, 2011, “Integration of Sustainability Issues during Early Design Stages in a Global Supply Chain Context,” *AAAI 2011 Spring Symposium: Artificial Intelligence and Sustainable Design*, Association for the Advancement of Artificial Intelligence, March 21-23, Stanford University, Stanford, CA, Paper SS11-02-016, pp. 84-90.
19. Brown, M. O.* †, **K.R. Haapala**, R. T. Eluri, B. K. Paul, S. D. Leith, and D. A. King, 2011, “Environmental Impacts of Microchannel Air Preheater Manufacturing under Different Scenarios,” *Proceedings of the IIE Annual Conference and Expo 2011 (IERC 2011)*, May 21-25, Reno, NV.
20. Olson, E.* †, G. Okudan, M.-C. Chuan, **K. R. Haapala**, 2011, “Positioning Product Architecture as the Driver for Carbon Footprint & Efficiency Trade-offs in A Global Supply Chain,” *International Conference on Industrial Engineering and Systems Management (IESM 2011)*, May 25 - 27, 2011, Metz, France.
21. Sahakian, M.V.*†, Brown, M.O.*, S.V. Atre, and **K. R. Haapala**, 2011, “Environmental and Cost Assessment of Several Injection Molded Materials,” *Proc. 2011 ASME International Manufacturing Science & Engineering Conference (MSEC)*, MSEC2011-50057, June 13-17, Corvallis, OR.

22. Alsaffar, A.J.* †, **K. R. Haapala**, and Z. Wu, 2011, “Consideration of Manufacturing Processes and the Supply Chain in Product Design,” *Proc. 2011 ASME International Manufacturing Science & Engineering Conference (MSEC)*, MSEC2011-50232, June 13-17, Corvallis, OR.
23. **Haapala, K.R.** †, F. Zhao, J. Camelio, J. W. Sutherland, S. J. Skerlos, D. A. Dornfeld, I. S. Jawahir, H. C. Zhang, and A. F. Clarens, 2011, “A Review of Engineering Research in Sustainable Manufacturing,” *Proc. 2011 ASME International Manufacturing Science & Engineering Conference (MSEC)*, MSEC2011-50300, June 13-17, Corvallis, OR.
24. Zhang, H.*, **Haapala, K. R.** †, M. E. Vanlue**, and K. H. Funk II, 2011, “Environmental Impact and Cost Assessment of Product Service Systems using IDEF0 Modeling,” *Proceedings of NAMRI/SME*, Vol. 39, June 13-17, Corvallis, OR.
25. Kim, K.-Y. †, **K. R. Haapala**, G. E. Okudan Kremer, E. A. Murat, R. B. Chinnam, and L. F. Monplaisir, 2011, “A Conceptual Framework for a Sustainable Product Development Collaboratory to Support Integrated Sustainable Design and Manufacturing,” *Proc. 2011 ASME IDETC/CIE: 16th Design for Manufacturing and the Lifecycle Conference (DFMLC)*, Paper DETC2011-48922, August 28-31, Washington, D.C.
26. Eastlick, D. D.* †, M. V. Sahakian*, and **K. R. Haapala**, 2011, “Sustainable Manufacturing Analysis for Titanium Components,” *Proc. 2011 ASME IDETC/CIE: 16th Design for Manufacturing and the Lifecycle Conference (DFMLC)*, Paper DETC2011-48854, August 28-31, Washington, D.C.

Book Chapters and Contributions to Other Volumes

(* Graduate Student; ** Undergraduate Student; † Corresponding Author)

1. Chiu, M-C. †, Alsaffar, A. J.*, **Haapala, K. R.**, and Okudan, G.E., 2011, “Reducing Supply Chain Costs and Carbon Footprint during Product Design”, *Supply Chain*, INTECH, Vienna, Austria, ISBN: 978-953-307-250-0.
2. Hapke, H.M.* †, Wu, Z., **K.R. Haapala**, and T.K.A. Brekken, forthcoming 2011, “Wind Power Technology and Environmental Impact Assessment,” in *The Business of Sustainability: Trends, Policies, Practices, and Stories of Success*, S. G. McNall, J. Hershauer, and G. Basile, eds., Praeger Press. (Invited)
3. Clarke-Sather, A. R.* †, T. L. Jenkins*, **K. R. Haapala**, and J. W. Sutherland, 2010, “Sustainable Production,” *Encyclopedia of Geography*, B. Warf, Ed., SAGE Publications, Thousand Oaks, CA, pp. 2763-2767. (Invited)
4. Eatmon, T. D. † and **K. R. Haapala**, 2010, “Climate Solutions from Nanoscience to Geoenvironment: Risk, Scale, and Scientific Uncertainty in Public Policymaking,” 2010 AESS (Association for Environmental Studies and Sciences) Conference, June 17-20, Portland, OR.

Other Publications and Posters

1. Poster: **Haapala, K. R.**, 2006, “Predicting Environmental Performance of Manufacturing Operations for Steel Products,” Graduate Research Poster Session, Oct. 13-14, Michigan Technological University, Houghton, MI.
2. Poster: Okudan Kremer, G. E., Chiu, M.-C., **K. R. Haapala**, and A. J. Alsaffar, 2010, “Cost and Sustainability Trade-off Analysis for Product Design, Manufacturing, and Supply Chain

Management Dependencies,” *Building Partnerships and Pathways to Address Engineering Grand Challenges Conference*, February 8-10, El Paso, TX, presented by Dr. Okudan Kremer.

3. Poster: Brown, M. O., **K. R. Haapala**, B. K. Paul, R. D. Glover, and J. E. Hutchison, 2010, “Application of Life Cycle Assessment for Greener Synthesis of Nickel Nanoparticles,” Greener Nano 2010 (GN 10): Reducing Principles to Practice, June 16-18, Portland, OR.
4. Poster: Brown, M. O., **K. R. Haapala**, B. K. Paul, R. D. Glover, and J. E. Hutchison, 2010, “Application of Life Cycle Assessment for Greener Synthesis of Nickel Nanoparticles,” Oregon Nanoscience and Microtechnologies Institute (ONAMI) MegaMixer, August 27, Corvallis, OR.
5. Sahakian, M.V., **K.R. Haapala**, J.W. Marr, E.C. Eide, E.Y. Lenger, and M.D. Carter, 2010, “Sustainability Assessment of Titanium Aircraft Component Manufacturing,” 4th International Conference on Business & Sustainability, November 4-5, 2010, Portland, OR (abstract).

Thesis and Dissertation

1. Haapala, K. R., 2003, *A Model for Predicting Manufacturing Waste in Product Design and Process Planning*, **M.S. Thesis**, Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University, Houghton, MI. (Advisor: John W. Sutherland)
2. Haapala, K. R., 2008, *The Development of Models for Environmental Performance Improvement of Steel Product Manufacturing*, **Ph.D. Dissertation**, Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University, Houghton, MI. (Advisor: John W. Sutherland)

Reports and Paper Contributions

1. Haapala, K. R., S. J. Pavnaskar, S. S. Kinare, and K. N. Khadke, 2001, “Study of Environmental Issues Related to the Manufacture, Use and Post-Use of Off-Highway Trucks,” Course Project Report, Engineering for the Environment (ENG4500).
2. Haapala, K. R., 2002, “Implementation of an Environmental Management System and Associated Pollution Prevention Opportunities,” RETAP P2 Internship Program Report.
3. Haapala, K. R., J. Miller, and A. Zobenica, 2002, “Piston Sub-Assembly Analysis,” Course Project Report, Environmentally Responsible Design and Manufacturing (MEEM4685).
4. Bekkala, G., S. Pandit, and J. Sutherland, 2002, “A Framework for Characterizing the Impact of Product Design Decisions on Environmental Performance,” *Proc. of Japan-USA Symposium on Flexible Automation*, pp. 1369-1376 (assisted with research and manuscript preparation).
5. Haapala, K. R., 2005, “Modeling Energy, Resources, and Wastes for Electric Arc Furnace Melting and Sand Casting of Steel,” Summer Internship Report, Caterpillar Inc., Peoria, IL.
6. Haapala, K. R., 2005, “Implementation of the European Union End-of-Life Vehicles Directive and Implications for the Automotive Industry,” Course Project Report, Foundations of Public Policy (PPOL714, SUBR).
7. Haapala, K. R. and J. L. Rivera, 2005, “Role of the Manufacturing Industry in a Sustainable Society,” Course Project Report, Sustainable Futures II (PPOL625, SUBR).
8. Haapala, K. R., 2005, “Using SimaPro 6.0 Software: Life Cycle Analysis and Environmental Impacts of Ground Engaging Tools,” Course Project Report, Sustainable Futures I (ENG5510).

9. Sutherland, J. W., 2006, "Global Manufacturing and the Sustainability Challenge," *Technology Century Magazine*, The Engineering Society of Detroit, December 2006/January 2007, pp. 23-25 (*assisted with research and manuscript preparation*).
10. Zhang, Q., D. M. Johnson, M. Young, L. T. Helmuth, 2008, "Reducing the Environmental Impact of Material Conversion Process," Project Report for Dow Corning, September (*assisted with literature survey and report preparation*).
11. Sahakian, M.V., Eastlick, D.D., K.R. Haapala, 2011, "Development of a Sustainability Assessment Method for Fabrication of Metal Aircraft Components," Project Report 1, The Boeing Company, January 14, Portland, OR.
12. Sahakian, M.V., Eastlick, D.D., K.R. Haapala, 2011, "Development of a Sustainability Assessment Method for Fabrication of Metal Aircraft Components," Project Report 2, The Boeing Company, May 16, Portland, OR.

Presentations at Professional Conferences

1. Panelist on "Teaching Political Science Across Disciplines," Michigan Conference of Political Sciences – 36th Annual Meeting, Oct. 15-16, 2004, Mt. Pleasant, MI.
2. "Issues Associated with MQL Implementation: Effect on Peripheral Milling Process Performance and Impact on Machining Economics," ASME/IMECE, Nov. 5-11, 2005, Orlando, FL. See paper above.
3. "Optimization of Steel Production to Improve Lifecycle Environmental Performance," CIRP General Assembly, August 19-25, 2007, Dresden, Germany. See paper above.
4. "Education, Research, and Training Aspects of the Sustainable Futures NSF IGERT Project," ASEE North Midwest Section Conference, Sep. 20-22, 2007, Houghton, MI. See paper above.
5. "A Life Cycle Environmental and Economic Comparison of Product-Service Systems," 36th Annual North American Manufacturing Research Conference, May 20-23, 2008, Monterrey, Mexico. See paper above.
6. "Reducing Environmental Impacts of Steel Product Manufacturing," 37th Annual North American Manufacturing Research Conference, May 19-22, 2009, Greenville, SC. See paper above.
7. "An Environmental Analysis of Nanoparticle-Assisted Diffusion Brazing," 2009 ASME Manufacturing Science & Engineering Conference (MSEC), October 4-7, West Lafayette, IN. See paper above.
8. "Reducing Supply Chain Costs and Carbon Footprint during Product Design," 2010 IEEE International Symposium on Sustainable Systems and Technology, May 16-19, Washington, DC, See paper above. (*Presented by M.-C. Chiu, Penn State*)
9. "Challenges Facing Engineers in Evaluating Life Cycle Impacts of Emerging Technologies," 17th CIRP International Conference on Life Cycle Engineering (LCE2010), Hefei, China, May 19-21, See paper above.
10. "Defining the Dimensions of Human Work for Industrial Sustainability Assessment," 17th CIRP International Conference on Life Cycle Engineering (LCE2010), Hefei, China, May 19-21, See paper above.

11. "Application of Life Cycle Assessment for Greener Synthesis of Nickel Nanoparticles," Greener Nano 2010 (GN 10): Reducing Principles to Practice, June 16-18, Portland, OR. (*Presented with M.O. Brown, M.S. Advisee*), See poster above.
12. "Climate Solutions from Nanoscience to Geoengineering: Risk, Scale, and Scientific Uncertainty in Public Policymaking," 2010 Association for Environmental Studies and Sciences Conference, June 17-20, Portland, OR. (*Presented by T.D. Eatmon, Alleghany College*), See paper above.
13. "Life Cycle Assessment of Modern Wind Power Plants," 2010 ASME IDETC/CIE: 15th Design for Manufacturing and the Lifecycle Conference (DFMLC), August 15-18, Montreal, Canada, See paper above.
14. "Environmental Analysis of Consumer Products During the Conceptual Phase of Product Design," 2010 ASME IDETC/CIE: 15th Design for Manufacturing and the Lifecycle Conference (DFMLC), August 15-18, Montreal, Canada, See paper above. (*Presented by M.R. Bohm, University of Louisville*)
15. "An Approach for Sustainable Manufacturing," SAE 2010 Aerospace Manufacturing and Automated Fastening Conference & Exhibition, September 28-30, Wichita, KS.
16. "Addressing Uncertainty in the Environmental Analysis of Nickel Nanoparticle Production," 2010 ASME International Manufacturing Science & Engineering Conference (MSEC), October 12-15, Erie, PA, See paper above (*Presented by M.O. Brown, M.S. advisee*).
17. "Sustainability Assessment of Titanium Aircraft Component Manufacturing," 4th International Conference on Business & Sustainability, November 4-5, 2010, Portland, OR.
18. "Automating Environmental Impact Assessment during the Conceptual Phase of Product Design," 2011 Spring Symposium Series: Artificial Intelligence and Sustainable Design, Association for the Advancement of Artificial Intelligence, March 21-23, Stanford University, Stanford, CA, (*Presented by K. Poppa, Oregon State Ph.D. student*), See paper above.
19. "Integration of Sustainability Issues during Early Design Stages in a Global Supply Chain Context," 2011 Spring Symposium Series: Artificial Intelligence and Sustainable Design, Association for the Advancement of Artificial Intelligence, March 21-23, Stanford University, Stanford, CA, See paper above.
20. "Environmental Impacts of Microchannel Air Preheater Manufacturing under Different Scenarios," IIE Annual Conference and Expo 2011 (IERC 2011), Reno, NV, (*Presented by M.O. Brown, M.S. advisee*), See paper above.
21. "Toward Collaborative E-learning for Sustainable Design and Manufacturing," IIE Annual Conference and Expo 2011 (IERC 2011), Reno, NV, (with Kim, K.-Y., G. E. Okudan Kremer, E. A. Murat, and R. B. Chinnam), (*Presented by K.-Y. Kim, Wayne State University*), abstract.
22. "Positioning Product Architecture as the Driver for Carbon Footprint & Efficiency Trade-offs in A Global Supply Chain," International Conference on Industrial Engineering and Systems Management (IESM 2011), May 25 - 27, 2011, Metz, France, (*Presented by G.E. Okudan Kremer, Pennsylvania State University*).

23. "Environmental Impact and Cost Assessment of Product Service Systems using IDEF0 Modeling," 39th North American Manufacturing Research Conference (NAMRC), June 13-17, 2011, Corvallis, OR, (*Presented by H. Zhang, M.S. advisee*), see paper above.
24. "Environmental and Cost Assessment of Several Injection Molded Materials," 2011 ASME International Manufacturing Science & Engineering Conference (MSEC), June 13-17, Corvallis, OR, (*Presented by M.V. Sahakian, M.S. advisee*), see paper above.
25. "Consideration of Manufacturing Processes and the Supply Chain in Product Design," 2011 ASME International Manufacturing Science & Engineering Conference (MSEC), June 13-17, Corvallis, OR, (*Presented by A.J. Alsaffar, M.S. advisee*), see paper above.
26. "A Review of Engineering Research in Sustainable Manufacturing," 2011 ASME International Manufacturing Science & Engineering Conference (MSEC), Manufacturing Engineering Division Biennial State of the Art Paper, June 13-17, Corvallis, OR, (*Presented by J. Camelio, Virginia Tech University and F. Zhao, Purdue University*), see paper above.
27. "A Conceptual Framework for a Sustainable Product Development Collaboratory to Support Integrated Sustainable Design and Manufacturing," 2011 ASME IDETC/CIE: 16th Design for Manufacturing and the Lifecycle Conference (DFMLC), August 28-31, Washington, D.C., (*Presented by K.-Y. Kim, Wayne State University*), see paper above.
28. "Sustainable Manufacturing Analysis for Titanium Components," 2011 ASME IDETC/CIE: 16th Design for Manufacturing and the Lifecycle Conference (DFMLC), August 28-31, Washington, D.C., see paper above.

Other Presentations, Seminars, and Lectures

1. "Caterpillar Internship 2005: Modeling Manufacturing Process Energy, Resources, and Wastes," Sustainable Futures Institute (SFI) Brown Bag Seminar, Sep. 7, 2005, Michigan Technological University.
2. "Predicting Environmental Performance of Manufacturing Operations for Steel Products," Sustainable Futures Institute Research Colloquium, Jan. 18, 2006, Michigan Technological University.
3. "Environmental Performance of Manufacturing Operations," Presentation for the Factory Team, June 9, 2006, University of Oulu, Finland.
4. "An Overview of the Sustainable Futures Institute at Michigan Tech," Presentation for the Factory Team, June 13, 2006, University of Oulu, Finland.
5. "Michigan Tech and the Sustainable Futures Institute," Presentation for the Laboratory of Process Metallurgy, Aug. 2, 2006, University of Oulu, Finland.
6. "Optimization of EAF Steelmaking Environmental Performance: A Process Modeling Approach," Sigma Xi Research Colloquium, April 14, 2007, Michigan Technological University.
7. "Sustainable Design and Manufacturing," Facilitators: K.R. Haapala and M.J. Hutchins, SFI Colloquium in Sustainability, July 11, 2007, Michigan Technological University.
8. "Optimization of Steel Production to Improve Lifecycle Environmental Performance," SFI Colloquium in Sustainability, Aug. 8, 2007, Michigan Technological University.

9. "Decision-Making for Sustainable Manufacturing," Project Presentation, March 13, 2008, Caterpillar Inc., Peoria, IL.
10. "Incorporating Environmental Sustainability Concepts into Manufacturing Decision Making," CII Henes Fellow Lecture, March 21, 2008, Michigan Technological University.
11. "Decision-Making for Sustainable Manufacturing," Project Presentation, August 14, 2008, Caterpillar Inc., Peoria, IL.
12. "Decision-Making for Sustainable Manufacturing," Project Presentation, August 15, 2008, Caterpillar Inc., Champaign, IL.
13. "Life Cycle Analysis," Guest Lecture, Entrepreneurship, Innovation, and Supply Chain in Environmental Management (BA 567), May 15, 2009, Oregon State University, Corvallis, OR.
14. "Manufacturing Engineering," Guest Lecture, Introduction to Industrial and Manufacturing Engineering (IE 285), November 16, 2009, Oregon State University, Corvallis, OR.
15. "Sustainable Engineering," Guest Lecture, Engineering Orientation I (ENGR 111), November 30, 2009, Oregon State University, Corvallis, OR.
16. "Improving Environmental Performance of Manufacturing Operations," Webinar, April 22, 2010, Boeing Sustainable Manufacturing National Working Group.
17. "Application of Life Cycle Assessment for Greener Synthesis of Nickel Nanoparticles," Poster, Oregon Nanoscience and Microtechnologies Institute (ONAMI) MegaMixer, August 27, Corvallis, OR. (*Presented with M.O. Brown, M.S. Advisee*), See poster above.
18. "Sustainability Assessment of Nanomanufacturing Processes," Seminar, Sustainable Nanomanufacturing Workshop, June 13, 2011, Oregon State University, Corvallis, OR.
19. "Advanced Manufacturing and Sustainability," Seminar, Smartmap Expo, September 29, 2011, TRAC Center, Pasco, WA.

Other Conferences/Meetings/Workshops Attended

1. Pollution Prevention (P2) Training, Michigan Department of Environmental Quality, Grand Rapids, MI, May 2002.
2. Regs 101: Environmental Regulations, Ann Arbor, MI, July 2002.
3. Water Treatment, Melvindale, MI, July 2002.
4. Engineering for the Environment Education Workshop, Houghton, MI, January 2003.
5. Sustainable Futures Institute Workshop, Houghton, MI, April 2004.
6. Japan-U.S.A. Symposium on Flexible Automation, Denver, CO, July 19-21, 2004.
7. SFI Orientation/Professional Development Week, Houghton, MI, August 2004.
8. 21st Annual Louisiana Remote Sensing & GIS Workshop, New Orleans, LA, April 19-21, 2005.
9. SFI Orientation/Professional Development Week, Houghton, MI, August 2005.
10. Addressing the Social Dimension of Sustainability in Engineering Education Workshop, ASEE North Midwest Section Conference, Houghton, MI, September 20-22, 2007.

11. Education and Outreach Programs Directed at Diverse Students and Faculty, NSF Division of Undergraduate Education (Dr. L. Crumpton-Young, NSF), Houghton, MI, October 6, 2008.
12. Greener Nano 2009, 4th Annual Greener Nanoscience Conference: Nanoscience for a Sustainable Future, Eugene, OR, March 2-3, 2009.
13. Wind Energy Technology (Part II), IEEE Industry Applications Society Professional Presentation (Steven W. Saylor, Vestas Americas), Portland, OR, April 14, 2009.
14. Institute of Industrial Engineers (IIE) New Faculty Colloquium, Miami, FL, May 30, 2009. (Nominated by School Head)
15. Center for Sustainable Engineering Workshop, Pittsburgh, PA, July 13-14, 2009. (Selected through application process.)
16. CIRP 2009 General Assembly, Boston, MA, August 23-27, 2009. (Selected through application process for travel award.)
17. Oregon BEST FEST 2009, Portland State University, Portland, OR, September 14, 2009. (Oregon BEST member)
18. 2009 Micro Nano Breakthrough Conference, Portland, Oregon, September 21-23, 2009. (ONAMI member)
19. CO₂PE! Workshop, 17th CIRP International Conference on Life Cycle Engineering (LCE2010), Hefei, China, May 19-21, 2010. (Open to conference participants)
20. College of Business C2C Project Faculty Discussion Group on the OSU College of Engineering, Corvallis, OR, May 25, 2010. (Focus group for new faculty employees)
21. NSF Workshop: Design Methods for Sustainability, Group 2: Manufacturing Issues, August 15, 2010, Montreal, Quebec, Canada. (Selected through application process)
22. NSF Proposal Writing Workshop, September 1-2, 2010, Lincoln, NE. (Selected through application process)
23. NSF Computing Education for the 21st Century Community Meeting, January 31-February 1, 2011, New Orleans, LA. (Invited as PI of an NSF CI-TEAM project)
24. Sustainable Aerospace Manufacturing Initiative (SAMI) Academic Workshop, March 10, 2011, Berkeley, CA. (Invited as a recognized researcher in sustainable manufacturing; ~20 attendees)
25. NSF CI-TEAM Principal Investigator's Meeting, May 24-26, 2011, Champaign-Urbana, IL. (Invited as PI of an NSF CI-TEAM project)

Grant and Contract Support

Funded Projects: Oregon State University (Total: \$290,266.11 of \$1.49M)

1. *As PI:* "Life Cycle Analysis: Sustainable Manufacturing and Supply Chains (BA/IE 5xx/4xx)," Oregon State University COB/COE Seed Grant, \$10,000, submitted March 30, 2011, awarded May 2011.
2. *As PI:* "Development of a Unit Process Life Cycle Inventory," Wichita State University, \$8,031.11, submitted October 26, 2010, awarded March 2011.

3. *As PI*: “OMI Project: Development and Application of a Metal Cutting Tool Selection Procedure,” (Dr. D. Kim, co-PI), Benchmade Knife Company and Oregon Metals Initiative, \$30,000, submitted July 20, 2010, awarded October 2010.
4. *As PI*: “OMI Project: Development of a Knife Testing Device,” Benchmade Knife Company and Oregon Metals Initiative, \$20,000, submitted July 20, 2010, awarded October 2010.
5. *As PI*: “OMI Project: Development of a Sustainability Assessment Method for Fabrication of Metal Aircraft Components,” The Boeing Company and Oregon Metals Initiative, \$102,000, submitted July 15, 2010, awarded November 2010.
6. *As PI*: “Manufacturing Engineering Educational Laboratory: Automated Manufacturing System Upgrade,” OSU Technology Resource Fee (TRF), \$3,800, awarded June 10, 2010, Commenced September 2010.
7. *As Senior Personnel*: “Task 2.1: Identification of Alternative Manufacturing Strategies” (Haapala: \$61,495 of Task 2: \$313,372), in “FY 2010 Tactical Energy Systems Development,” (Dr. R. Peterson, PI and Dr. B. K. Paul, co-PI), U.S. Army CERDEC, \$1,079,659, awarded May 2010, Commenced October 2010.
8. *As PI*: “CI-TEAM Demonstration Project: Collaborative Research: A Sustainable Product Development Collaboratory,” (Dr. K.-Y. Kim, et al. Wayne State (lead) and Dr. G.E. Okuden Kremer, Penn State), National Science Foundation, OSU: \$64,940 (2 yrs., of a total of \$250,000 to three universities), submitted April 27, 2010, awarded October 2010.

Funded Projects: Michigan Technological University

1. *As co-PI*: “Environmental Performance of Manufacturing Operations,” Dr. J. W. Sutherland (PI, MTU), Caterpillar Inc., \$266,313, submitted October 2005, awarded November 2005.

SERVICE

University Service

Oregon State University

School of Mechanical, Industrial, and Manufacturing Engineering

Member, Industrial & Manufacturing Engg. Undergraduate Program Committee (W09-present)

Coordinator, Manufacturing Engineering Curriculum (W09-present)

Curriculum Innovation: Coordinated revision of undergraduate Manufacturing

Engineering curriculum with MIME design/manufacturing faculty and staff (W09-Sp09)

Leader, Manufacturing Engineering Educational Laboratory (Su09-present)

Coordinator, Energy & Sustainability Research Cluster (Sp09-present)

Faculty Advisor, Society of Manufacturing Engineering, Chapter S019 (F09-present)

Co-Leader, Composites Laboratory (F09-present)

Member, Safety Committee (F09-present)

Member, Search Committee for Machining/Product Realization Lab Manager (Sp11)

IME Faculty Representative, Beaver Open House (F09, F10)

Michigan Technological University

Department of Mechanical Eng.-Eng. Mechanics

Graduate Student Council (Voting Representative, 2002-03, 2007-08; At-large 2003-07)
Student Advisory Committee (2002-03) – Co-organizer for ME-EM Open House & Lab Tour
Sustainable Futures Institute

Restructuring of Graduate Certificate in Sustainability (2007-08)
Co-organizer of Orientation/Professional Development Week (August 2004)
Co-organizer of Sustainable Futures Day (April 2004)

Graduate Student Council

Secretary (2007-08), Vice President (2002-03), University Senate Liaison (2002-03)
Graduate Student Mentor Award Committee (2002-03)

Project Teams

Michigan Tech FutureTruck (2000-01) – Treasurer, Enterprise Design Team
Michigan Tech FutureCar (1997-2000) – Treasurer (1999-2000), Body Team

Service to the Profession

Journals Reviewed for

International Journal of Product Life Cycle Management (2009)
International Journal of Production Research (2008)
Journal of Intelligent Materials Systems and Structures (2004)
Journal of Manufacturing Science and Engineering (2004, 2011)
Journal of Manufacturing Systems (2006)
Journal of Mechanical Engineering Design (2009)
Journal of STEM Education: Innovations and Research (2010)
Resources, Conservation & Recycling (2010)
Sustainability (2010)
Transactions of NAMRI/SME (2005-2010)

Proceedings Reviewed for

CIRP International Conference on Life Cycle Engineering (2010)
ASME International Design Engineering Technical Conferences (2010-11)
ASME Manufacturing Science and Engineering Conference (2009-2011)
ASME International Symposium on Flexible Automation (2006)
IIE Industrial Engineering Research Conference (2011)
INEER International Conference on Engineering Education (2007)
International Conference on Agile Manufacturing (2007)
SME North American Research Conference (2011)

National Science Foundation Panelist

CMMI Manufacturing and Construction Machines and Equipment Program (2009)

Professional Society Memberships

American Society of Mechanical Engineers, Society of Manufacturing Engineers, Institute of Industrial Engineers

American Society of Mechanical Engineers

Chair, Life Cycle Engineering Technical Committee, 2011-2012, ASME Manufacturing Engineering Division (MED).

Vice Chair, Life Cycle Engineering Technical Committee, 2010-2011, ASME Manufacturing Engineering Division (MED).

Member, 2005-present, ASME Manufacturing Engineering Division (MED).

Session Co-Chair, Japan-USA Symposium on Flexible Automation, July 19-21, 2004, Denver, CO.

Session Chair, “Sustainable Manufacturing Processes – II,” 2009 ASME Manufacturing Science & Engineering Conference (MSEC), October 4-7, West Lafayette, IN.

Topic Organizer and Review Coordinator, “DFMLC-5: Environmental Analysis of Emerging Technologies,” 15th Design for Manufacturing and the Lifecycle Conference (DFMLC), ASME 2010 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), August 15-18, Montreal, Quebec.

Review Coordinator, “Manufacturing Cost Estimation and Total Cost of Ownership,” 15th Design for Manufacturing and the Lifecycle Conference (DFMLC), ASME 2010 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), August 15-18, Montreal, Quebec.

Symposium Organizer, “Sustainable Nanomanufacturing,” 2010 ASME Manufacturing Science & Engineering Conference (MSEC), October 12-15, Erie, PA (with B.K. Paul, and W. Zhang).

Session Chair, “Sustainable Nanomanufacturing,” 2010 ASME Manufacturing Science & Engineering Conference (MSEC), October 12-15, Erie, PA.

Symposium Organizer, “Sustainable Nanomanufacturing,” 2011 ASME Manufacturing Science & Engineering Conference (MSEC), June 13-17, 2011, Corvallis, OR (with W. Zhang).

Conference Host Committee Co-Chair, 2011 ASME Manufacturing Science & Engineering Conference (MSEC), June 13-17, 2011, Corvallis, OR.

Review Co-Coordinator, “Sustainable Design,” 16th Design for Manufacturing and the Lifecycle Conference (DFMLC), ASME 2011 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), August 28-31, Washington, D.C.

Session Co-Chair, “Life Cycle Decision Making II,” 16th Design for Manufacturing and the Lifecycle Conference (DFMLC), ASME 2011 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), August 28-31, Washington, D.C.

Session Co-Organizer, “System-wide Impacts of the Energy-Water Nexus,” 2011 ASME International Mechanical Engineering Congress and Exposition (IMECE), November 11-17, Denver, CO.

Symposium Organizer, “Sustainable Manufacturing Processes and Systems,” 2012 ASME Manufacturing Science & Engineering Conference (MSEC), June 4-8, South Bend, IN (with W. Zhang).

Society of Manufacturing Engineers

Member, SME NAMRI (North American Manufacturing Research Institute), 2002-present.

Faculty Advisor, Oregon State University Student Chapter (S019), F09-present.

SMIS Beta Reviewer, Sustainable Manufacturing Information Service (SMIS) Project, 2010.

Session Co-Chair, “Manufacturing Systems 3,” 37th Annual NAMRC, May 19-22, 2009, Greenville, SC.

Conference Host Committee Co-Chair, 2011 SME North American Manufacturing Research Conference (NAMRC), June 13-17, 2011, Corvallis, OR.

Session Co-Chair, “Sustainable Manufacturing 1,” 39th Annual NAMRC, June 13-17, 2011, Corvallis, OR.

The International Academy for Production Engineering (CIRP)

Session Chair, B1: Energy Saving Product Development, 2010 CIRP Life Cycle Engineering Conference, May 19-21, 2010, Hefei, China.

Scientific Committee, 19th CIRP Conference on Life Cycle Engineering, May 23 - 25, 2012, University of California at Berkeley, CA, USA.

AWARDS

National and International Awards

NSF (National Science Foundation) CI-TEAM PI Meeting Travel Award (2011)

Hewlett Foundation ESWI-S Proposal Incentive Stipend (2011)

NSF/AAAI Artificial Intelligence and Sustainable Design Symposium Travel Award (2011)

NSF CE-21 Meeting Travel Award (2011)

NSF CAREER Workshop Travel Award (2010)

NSF CIRP (International Academy for Production Engineering) Fellowship (2009)

Center for Sustainable Engineering Workshop Travel Award (2009)

IIE New Faculty Colloquium Travel Award (2009)

Sigma Xi (2008)

Phi Kappa Phi (2006)

Pi Tau Sigma (2000)

State and Regional Awards

Oregon Nanoscience and Microtechnologies Institute (ONAMI), Member (2009-present)

Oregon Built Environment & Sustainable Technologies (BEST) Center, Member (2009-present)

University and Community Awards

NSF IGERT Trainee (2004-08)

MTU Sustainable Futures Institute Graduate Scholar (2006-08)

Caterpillar Research Assistantship (2005-06)

MTU Graduate Student Council Travel Grant (2004, 2005, 2008)

MTU Proposal Incentive Award (2002, 2003, 2005)

DeVlieg Doctoral Scholarship (2005)

Century II Henes Fellowship (2004)

MTU Graduate Student Council Leader Award (2003)

Ford Fellowship (2001-03)

Fundamentals of Engineering Exam (passed 2001)