Kemper Lewis

Professor and Chair
Department of Mechanical and Aerospace Engineering

University at Buffalo - SUNY
Buffalo, New York 14260
(716) 645-2682 (716) 645-2684 fax
kelewis@buffalo.edu
www.mae.buffalo.edu/people/faculty/lewis
www.buffalo.edu/SMART
does.eng.buffalo.edu

Education:

Ph.D.	Mechanical Engineering, Georgia Institute of Technology, 1996
M.B.A.	School of Management, University at Buffalo – SUNY, 2003
M.S.	Mechanical Engineering, Georgia Institute of Technology, 1994
B.S.	Mechanical Engineering, Duke University, 1992
B.A.	Mathematics, Duke University, 1992

Technical Interests:

Large-Scale Systems Design, Design Analytics, Collaborative Design Methods, Decentralized Design, Decision Theory, Decision Networks, Strategic Product Optimization and Design, Multiobjective Optimization, Reconfigurable Systems

Employment History:

9/15 – present	Director, Sustainable Manufacturing and Advanced Robotic Technology (SMART) Community of Excellence, University at Buffalo - SUNY
7/14 – present	Chair, Department of Mechanical and Aerospace Engineering, University at Buffalo - SUNY
3/13 – present	Professor, School of Management, University at Buffalo – SUNY (courtesy appointment)
8/06 – present	Professor, Department of Mechanical and Aerospace Engineering, University at Buffalo - SUNY
8/05 – 6/14	Executive Director, New York State Center for Engineering Design and Industrial Innovation (NYSCEDII), University at Buffalo
8/01 – 8/06	Associate Professor, Department of Mechanical and Aerospace Engineering, University at Buffalo
10/01 – 8/05	Director for Education and Training, New York State Center for Engineering Design and Industrial Innovation (NYSCEDII), University at Buffalo

8/99	Visiting Research Fellow, Australian Defence Force Academy, Canberra, Australia
8/96 – 8/01	Assistant Professor, Department of Mechanical and Aerospace Engineering, University at Buffalo

Honors and Awards:

- Design Automation Award, ASME, 2017
- Senior Researcher of the Year, School of Engineering and Applied Sciences, University at Buffalo, 2016
- Elected as member of the ASME Mechanical Engineering Department Head Executive Committee, 2015
- President Emeritus and Mrs. Myerson Award for Undergraduate Teaching and Mentoring, 2013
- Eminent Engineer, Tau Beta Pi, 2013
- Milton Plesur Excellence in Teaching Award, 2012-2013
- Best Paper Award, ASME Design Engineering Technical Conferences, Design Education Conference, 2011
- Elected ASME Fellow, 2011
- ASEE Fred Merryfield Design Award, 2010
- Selected for the National Academies Panel on Benchmarking the Research Competitiveness of the US in Mechanical Engineering, 2006-2007
- Recognized as one of the Top Forty Leaders Under Forty in Western New York by *Business First*, 2006
- AIAA Multidisciplinary Design Optimization Technical Committee, Outstanding Service Award, 2006
- Six Sigma Black Belt, American Society for Quality, 2006
- Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA), 2004 - present
- Certificate of Recognition, University at Buffalo Career Services' Year after Graduation Survey of Baccalaureate and Graduate and Professional Schools, Class of 2003
- SAE Ralph R. Teetor Educational Award, 2004
- Honored for "Notable Contributions to Teaching and Learning at UB", 2003
- Tau Beta Pi, Professor of the Year 2000-2001, 2002-2003
- Black and Decker Best Paper Award, ASME Design Engineering Technical Conferences, Design Automation, 2002
- State University Chancellor's Award for Excellence in Teaching, 2001
- Milton Plesur Excellence in Teaching Award, 2000-2001
- National Science Foundation Career Award, 1999
- Engineering Foundation Fellowship, 1997, 1999
- Engineering Excellence in Design, Xerox Corp., 1998
- Sloan Foundation New Faculty Fellowship, 1997
- Riefler Award, University at Buffalo, 1997, 1998, 1999
- NASA Graduate Fellowship, 1993-1996
- National Science Foundation Graduate Fellowship, 1993
- Presidential Fellowship, Georgia Institute of Technology, 1993-1996
- Woodruff Teaching Fellowship, Georgia Institute of Technology, 1995
- Outstanding Doctoral Student, Woodruff School of Mechanical Engineering, 1996

- Outstanding Masters Student, Woodruff School of Mechanical Engineering, 1994
- Pi Tau Sigma Mechanical Engineering Honors Fraternity 1990 – present
- Finalist, GM Scholarship Award, 1990
- JA Jones, Class of 1981 Scholarships, Duke University, 1990-92
- Gold Medal in Mathematics Olympiad, Southern Methodist University, 1988

Google Scholar Citation Report
Citations: 4019
h-index: 31
i10-index: 101

Publications-Books:

5. Wickert, J., and Lewis, K., 2016, Introduction to Mechanical Engineering, Fourth Edition, Cengage Learning, Florence, KY.
4. Wickert, J., and Lewis, K., 2016, Introduction to Mechanical Engineering, Fourth Edition, SI Edition, Cengage Learning, Florence, KY.
3. Wickert, J., and Lewis, K., 2016, Introduction to Mechanical Engineering, Third Edition, Cengage Learning, Florence, KY.
2. Wickert, J., and Lewis, K., 2012, Introduction to Mechanical Engineering, Third Edition, SI Edition, Cengage Learning, Florence, KY.
1. Lewis, K., Chen, W., and Schmidt, L. (eds.), 2006, Decision Making in Engineering Design, ASME Press, New York, NY.

Publications-Book Chapters:

6. Lewis, K., Castellani, M., Simpson, T., Stone, R., Wood, W., Regli, W., 2007, "Fundamentals and Applications of Reverse Engineering in Engineering Design," Handbook of Environmentally Conscious Mechanical Design, Wiley, Hoboken, NJ, pp. 127-159.
5. See, T.K. and Lewis, K., 2006, "Multiattribute Decision Making Using Hypothetical Equivalents and Inequivalents," Decision Making in Engineering Design, ASME Press, New York, NY, pp. 145-154.
4. Chanron, V. and Lewis, K., 2006, "The Dynamics of Decentralized Design Processes: The Issue of Convergence and its Impact on Decision-Making," Decision Making in Engineering Design, ASME Press, New York, NY, pp. 281-290.
3. Olewnik, A. and Lewis, K., 2006, "Development and Use of Design Method Validation Criteria," Decision Making in Engineering Design, ASME Press, New York, NY, pp. 325-340.
2. Lewis, K., Smith, W., and Mistree, F., 1999, "Determining the Top-Level Specifications of Engineering Systems," Simultaneous Engineering: Methodologies and Applications, U. Roy, J. Usher, and H. Parsaei, Eds., Gordon and Breach Science Publishers, pp. 279-303.
1. Lewis, K., Mistree, F., and Rao, J.R.J., 1998, "Optimization in Multidisciplinary Design," CRC Handbook of Mechanical Engineering, CRC Press, New York, NY, pp. 11-99 - 11-109.

Publications-Invited Articles:

7. Lewis, K., 2017, "How to Ensure the Fourth Industrial Revolution is 'Made in the USA,'" *The Conversation*, October 11, theconversation.com/how-to-ensure-the-fourth-industrial-

revolution-is-made-in-the-usa-81385. (Over 6,000 reads and also covered in *The Houston Chronicle*, *The San Francisco Gate*, and *Washington's Top News*).

6. Leyh, T., Lewis, K., and English, K., 2017, "Educating the Industry 4.0 Workforce," Spring 2017, pp. 16-17.
5. Moore-Russo, D. and Lewis, K., 2014, "They Can Dig It: Adapting Archaeology Lessons Helps Develop Students' Design Skills," *ASEE Prism*, Vol. 23, No. 6, p. 29.
4. Frey, D. and Lewis, K., 2005, "The Deciding Factor," *Mechanical Engineering, Design Supplement*, ASME, March, pp. 20-25.
3. Lewis, K.E., 2002, "Multidisciplinary Design Optimization in the Year 2002," *Aerospace America*, Vol. 40, No. 12, p. 42.
2. Lewis, K.E., 2001, "Multidisciplinary Design Optimization in the Year 2001," *Aerospace America*, Vol. 39, No. 12, p. 31.
1. Lewis, K.E., 2000, "Multidisciplinary Design Optimization in the Year 2000," *Aerospace America*, Vol. 38, No. 12, p. 65.

Publications-Archived Journals:

63. Ball, Z. and Lewis, K., 2018, "Observing Network Characteristics in Mass Collaboration Design Projects," *Design Science*, doi:10.1017/dsj.2017.26.
62. Ghosh, D., Olewnik, A., and Lewis, K., 2017, "Application of Feature-Learning Methods Toward Product Usage Context Identification and Comfort Prediction," *ASME Journal of Computing and Information Science in Engineering*, Vol. 18, pp. 011004-1 - 011004-10, doi:10.1115/1.4037435.
61. Moore-Russo, D., Wilsey, J.N., Parthum Sr., M.J., and Lewis, K., 2017, "Navigating Transitions: Challenges for Engineering Students," *Theory into Practice*, doi:10.1080/00405841.2017.1350496.
60. Ghosh, D., Olewnik, A., Lewis, K., Kim, J., and Lakshmanan, A., 2017, "Cyber-Empathic Design – A Data Driven Framework for Product Design," *Journal of Mechanical Design*, Vol. 139, No. 9, doi:10.1115/1.4036780.
59. Cormier, P. and Lewis, K., 2016, "Evaluating Consumer Commonality Leveraging Consumer Specific Design Information," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, Vol. 30, No. 4, pp. 474-487, doi:10.1017/S0890060416000123.
58. Stratton, D., Martino, D., Lewis, K., and Hall, J., 2016, "A Design Framework for Optimizing the Mechanical Performance, Cost, and Environmental Impact of a Wind Turbine Tower," *ASME Journal of Solar Energy Engineering*, Vol. 138, No. 4, doi:10.1115/1.4033500.
57. Fabiano, G. A., Schatz, N.K., Morris, K.L., Willoughby, M.T., Vujnovic, R.K., Hulme, K.F., Riordan, J., Howard, M., Hennessey, D., Lewis, K., Hawk, L., Wylie, A., and Pelham, W.E., 2016, "The Efficacy of a Family-Focused Intervention for Young Drivers with Attention-Deficit Hyperactivity Disorder," *Journal of Consulting and Clinical Psychology*, doi:10.1037/ccp0000137.
56. Odonkor, P., Lewis, K., Wen, J., and Wu, T., 2016, "Adaptive Energy Optimization in Net Zero Building Clusters," *ASME Journal of Mechanical Design*, Vol. 138, doi:10.1115/1.4033395.
55. Cormier, P. and Lewis, K., 2015, "An Affordance-Based Approach for Generating User-Specific Design Specifications," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, Vol. 29, No. 3, pp. 281-295, doi:10.1017/S089006041500027X.
54. Eddy, D., Krishnamurty, S., Grosse, I., Wileden, J., and Lewis, K., 2015, "A Predictive Modeling-Based Material Selection Method for Sustainable Product Design," *Journal of Engineering Design*, Vol. 26, No. 10-11, pp. 365-390, doi:10.1080/09544828.2015.1070258.

53. Honda, T., Ciucci, F., Lewis, K., and Yang, M., 2015, "A Comparison of Information Passing Strategies in System Level Modeling," *AIAA Journal*, doi:10.2514/1.J052568.
52. Ghosh, S., Devendorf, E., and Lewis, K., 2014, "Exploring the Effectiveness of Parallel Systems in Distributed Design Processes Subjected to Stochastic Disruptions," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, Vol. 28, No. 4, pp. 399-412, doi:10.1017/S0890060414000559.
51. Van Horn, D. and Lewis, K., 2014, "The Use of Analytics in the Design of Socio-Technical Products," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, Vol. 29, No. 1, pp. 65-81, doi:10.1017/S0890060414000614.
50. Cormier, P., Olewnik, A., and Lewis, K., 2014, "Toward a Formalization of Affordance Modeling for Engineering Design," *Research in Engineering Design*, doi:10.1007/s00163-014-0179-3.
49. Krishnamurty, S., Eddy, D., Grosse, I., Wileden, J., Witherell, P., and Lewis, K., 2014, "An Integrated Approach to Information Modeling for the Sustainable Design of Products," *ASME Journal of Computing and Information Science in Engineering*, Vol. 14, doi:10.1115/1.4027375.
48. Kalyanasundaram, V. and Lewis, K., 2014, "A Function Based Approach for Product Integration," *ASME Journal of Mechanical Design*, Vol. 136, No. 4, doi:10.1115/1.4026032.
47. Moore-Russo, D., Cormier, P., Devendorf, E., and Lewis, K., 2013, "Incorporating a Product Archaeology Paradigm Across the Mechanical Engineering Curriculum," *Advances in Engineering Education*, Vol. 3, No. 4, 22 pages.
46. Devendorf, E., and Lewis, K., 2013, "Characterization of the Transient Response of Coupled Optimization in Multidisciplinary Design," *Mathematical Problems in Engineering*, Vol. 2013, doi:10.1155/2013/910209.
45. Eddy, D.C., Krishnamurty, S., Grosse, I.R., Wileden, J.C., and Lewis, K., 2012, "A Normative Decision Analysis Method for the Sustainability-Based Design of Products," *Journal of Engineering Design*, doi:10.1080/09544828.2012.745931.
44. Lewis, K., 2012, "Making Sense of Elegant Complexity in Design," *Journal of Mechanical Design*, Vol. 134, doi:10.1115/1.4023002.
43. Lewis, K., Hulme, K., Kasprzak, E., Moore-Russo, D., and Fabiano, G., 2011, "Motion Simulation Experiments for Driver Behavior and Road Vehicle Dynamics," *ASME Journal of Computing and Information Science in Engineering*, Vol. 11, doi:10.1115/1.3617437.
42. Devendorf, E. and Lewis, K., 2011, "The Impact of Process Architecture on Equilibrium Stability in Distributed Design," *ASME Journal of Mechanical Design*, Vol. 133, No. 10, doi:10.1115/1.4004463.
41. Moore-Russo, D., Grantham-Lough, K., Lewis, K., and Bateman, S., 2010, "Comparing Physical and Cyber-Enhanced Product Dissection: Analysis from Multiple Perspectives," *International Journal of Engineering Education*, Vol. 26, No. 6, pp. 1378-1390.
40. Regli, W., Kopena, J.B., Grauer, M., Simpson, T., Stone, R., Lewis, K., Bohm, M., Wilkie, D., Piecyk, M., Osecki, J., 2010, "Semantics for Digital Engineering Archives Supporting Engineering Design Education," *AI Magazine*, Association for the Advancement of Artificial Intelligence, Vol. 31, No. 1, pp. 37-50, doi:10.1609/aimag.v31i1.2282.
39. Fabiano, G.A., Hulme, K., Linke, S.M., Nelson-Tuttle, C., Pariseau, M.E., Gangloff, B., Lewis, K., Pelham, W.E., Waschbusch, D.A., Waxmonsky, J., Gormley, M., Gera, S., and Buck, M.M., 2010, "The Supporting a Teen's Effective Entry to the Roadway (STEER) Program: Feasibility and Preliminary Support for a Psychosocial Intervention for Teenage Drivers With ADHD," *Cognitive and Behavioral Practice*, Vol. 18, No. 2, pp. 267-28, doi:10.1016/j.cbpra.2010.04.002.
38. English, K., Naim, A., Lewis, K., Schmidt, S., Viswanathan, V., Linsey, J., McAdams, D. A., Bishop, B., Campbell, M. I., Poppa, K., Stone, R. B., Orsborn, S., 2010, "Impacting Designer Creativity

Through IT-Enabled Concept Generation," *ASME Journal of Computing and Information Science in Engineering*, Vol. 10, No. 3, doi:10.1115/1.3484089.

37. Devendorf, M., Lewis, K., Simpson, T., Stone, R., and Regli, W., 2009, "Evaluating the Use of Digital Repositories to Enhance Product Dissection Activities in the Classroom," *ASME Journal of Computing and Information Science in Engineering*, Vol. 9, No. 4, doi:10.1115/1.3264574.
36. Chiu, P., Naim, A., Bloebaum, C.L., Lewis, K., 2009, "The Hyper-Radial Visualization Method for Multi-attribute Decision-Making Under Uncertainty," *International Journal of Product Development*, Vol. 9, No. 1/2/3, pp. 4-31.
35. Hulme, K., Kasprzak, E., English, K., Moore-Russo, D. and Lewis, K., 2009, "Experiential Learning in Vehicle Dynamics Education via Motion Simulation and Interactive Gaming," *International Journal of Computer Games Technology*, Vol. 2009, doi:10.1155/2009/952524.
34. Ferguson, S.F., Kasprzak, E.M., and Lewis, K., 2008, "Design of a Family of Reconfigurable Vehicles Using Multilevel Multidisciplinary Design Optimization," *Structural and Multidisciplinary Optimization Journal*, Vol. 29, No. 2, pp. 171-186, doi:10.1007/s00158-008-0319-3.
33. Gurnani, A. and Lewis, K., 2008, "Using Bounded Rationality to Improve Decentralized Design," *AIAA Journal*, Vol. 46, No. 12, pp. 3049-3059 doi:10.2514/1.35776.
32. Gurnani, A. and Lewis, K., 2008, "Collaborative, Decentralized Engineering Design at the Edge of Rationality," *Journal of Mechanical Design*, Vol. 130, No. 12, doi:10.1115/1.2988479.
31. Dolan, B. and Lewis, K., 2008, "Robust Product Family Consolidation and Selection," *Journal of Engineering Design*, Vol. 19, No. 6, pp. 553-569, doi:10.1080/09544820802126511.
30. Olewnik, A. and Lewis, K., 2008, "Limitations of the House of Quality to Provide Quantitative Design Information," *International Journal of Quality and Reliability Management*, Vol. 25, No. 2, pp. 125-146, doi:10.1108/02656710810846916.
29. Kulok, M. and Lewis, K., 2007, "A Method to Ensure Preference Consistency in Multiattribute Selection Decisions," *ASME Journal of Mechanical Design,* Vol. 129, No. 10, pp. 1002-1011, doi:10.1115/1.2761921.
28. Kasprzak, E.M., Lewis, K., and Milliken, D.L., 2007, "Inflation Pressure Effects in the Nondimensional Tire Model," *SAE Journal of Passenger Cars – Mechanical Systems,* Vol. 115, pp. 1781-1792, doi:10.4271/2006-01-3607.
27. Kasprzak, E., Lewis, K. and Milliken, D., 2007, "Tire Asymmetries and Pressure Variations in the Radt/Milliken Nondimensional Tire Model," *SAE Journal of Passenger Cars – Mechanical Systems,* Vol. 115, pp. 1637-1647, doi:10.4271/2006-01-1968.
26. Gurnani, A., Ferguson, S., Donndelinger, J., and Lewis, K., 2006, "A Constraint-Based Approach to Feasibility Assessment in Conceptual Design," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, *Special Issue on Constraints and Design*, Vol. 20, pp. 351-367, doi:10.1017/S0890060406060252.
25. Kanukolanu, D., Lewis, K. and Winer, E., 2006, "A Multidimensional Visualization Interface for the Design of Coupled Subsystems Under Uncertainty," *ASME Journal of Computing and Information Science in Engineering,* Vol. 6, No. 3, pp. 288-299, doi:10.1115/1.2218370.
24. See, T.K. and Lewis, K., 2006, "A Formal Approach to Handling Conflicts in Multiattribute Group Decision Making," *ASME Journal of Mechanical Design*, Vol. 128, No. 4, pp. 678-688, doi:10.1115/1.2197836.
23. Ferguson, S., and Lewis, K., 2006, "Effective Development of Reconfigurable Systems Using Linear State-Feedback Control," *AIAA Journal,* Vol. 44, No. 4, pp. 868-878, doi:10.2514/1.17147.
22. Olewnik, A. and Lewis, K., 2006, "A Decision Support Framework for Flexible System Design," *Journal of Engineering Design,* Vol. 17, No. 1, pp. 75-97, doi:10.1080/09544820500274019.

21. Chanron, V. and Lewis, K. 2005, "A Study of Convergence in Decentralized Design Processes," *Research in Engineering Design,* Vol. 16, pp. 133-145, doi:10.1007/s00163-005-0009-8.
20. Ferguson, S., Gurnani, A., Lewis, K., Donndelinger, J., 2005, "A Study of Convergence and Mapping in Preliminary Vehicle Design," *International Journal for Vehicle Systems Modeling and Testing*, Vol. 1, No. 1-3, pp. 192-215, doi:10.1504/IJVSMT.2005.008579.
19. Gurnani, A. and Lewis, K., 2005, "Robust Multiattribute Decision Making Under Risk and Uncertainty in Engineering Design," *Engineering Optimization,* Vol. 37, No. 8, pp. 813-830, doi:10.1080/03052150500340520.
18. Chanron, V., Singh, T., and Lewis, K., 2005, "Equilibrium Stability in Decentralized Design Systems," *International Journal of Systems Science,* Vol. 36, No. 10, pp. 651-662, doi:10.1080/03052150500340520.
17. Olewnik, A. and Lewis, K., 2005, "On Validating Engineering Design Decision Support Tools," *Concurrent Engineering: Research and Applications*, Vol. 13, No. 2, pp. 111-122, doi:10.1177/1063293X05053796.
16. McAllister, C. D., Simpson, T. W., Hacker, K., Lewis, K., Messac, A., 2005, "Integrating Linear Physical Programming within Collaborative Optimization for Multiobjective Multidisciplinary Design Optimization," *Journal of Structural and Multidisciplinary Optimization*, Vol. 29, No. 3, pp. 178-189, doi:10.1007/s00158-004-0481-1.
15. See, T.K., Gurnani, A., and Lewis, K., 2004, "Multi-Attribute Decision Making Using Hypothetical Equivalents and Inequivalents," *ASME Journal of Mechanical Design,* Vol. 126, No. 6, pp. 950-958, doi:10.1115/1.1814389.
14. Srivastava, A., Hacker, K., Lewis, K., and Simpson, T., 2004, "A Method for Using Legacy Data for Metamodel-Based Design of Large-Scale Systems," *Journal of Structural and Multidisciplinary Optimization,* Vol. 28, No. 2-3, pp. 146-155, doi:10.1007/s00158-004-0438-4.
13. Olewnik, A., Brauen, T., Ferguson, S., and K. Lewis, 2004, "A Framework for Flexible Systems and Its Implementation in Multiattribute Decision Making," *ASME Journal of Mechanical Design,* Vol. 126, No. 3, pp. 412-419, doi:10.1115/1.1701874.
12. Patel, M., Lewis, K., Maria, A., and Messac, A., 2003, "System Design Through Subsystem Selection Using Physical Programming," *AIAA Journal*, Vol. 41, No. 6, pp. 1089-1096, doi:10.2514/2.2049.
11. Kasprzak, E. and Lewis, K., 2001, "Pareto Analysis in Multiobjective Optimization Using the Colinearity Theorem and Scaling Method," *Structural and Multidisciplinary Optimization*, Vol. 22, No. 3, pp. 208-218.
10. Kalsi, M., Hacker, K., and Lewis, K., 2001, "A Comprehensive Robust Design Approach for Decision Trade-Offs in Complex Systems Design," *ASME Journal of Mechanical Design,* Vol. 123, No. 1, pp.1-10, doi:10.1007/s001580100138.
9. Lewis, K. and Mistree, F., 2001, "Modeling Subsystem Interactions: A Game Theoretic Approach," *Journal of Design and Manufacturing Automation,* Vol. 1, No. 1, pp. 17-36, doi:10.1080/15320370108500217.
8. Kasprzak, E. and Lewis, K., 2000, "An Approach to Facilitate Decision Tradeoffs in Pareto Solution Sets," *Journal of Engineering Valuation and Cost Analysis*, Vol. 3, No. 1, pp. 173-187.
7. Chen, W., Lewis, K., and Schmidt, L., 2000, "The Open Workshop on Decision-Based Design: Origin, Status, Promise, and Future," *Journal of Engineering Valuation & Cost Analysis*, Vol. 3, No. 1, pp. 57-66.
6. Kasprzak, E., Lewis, K, and Milliken, D., 1999, "Steady-State Vehicle Optimization using Pareto Minimum Analysis," *SAE Transactions, Journal of Passenger Cars*, Vol. 107, No.6, pp. 2624-2631, doi:10.4271/983083.

5. Chen, W. and Lewis, K., 1999, "A Robust Design Approach for Achieving Flexibility in Multidisciplinary Design," *AIAA Journal,* Vol. 37, No. 8, pp. 982-990, doi:10.2514/2.805.
4. Lewis, K. and Mistree, F., 1999, "FALP: Foraging-directed Adaptive Linear Programming, A Hybrid Algorithm for Discrete/Continuous Design Problems," *Engineering Optimization*, Vol. 32, No. 2, pp. 191-218, doi:10.1080/03052159908941297.
3. Lewis, K. and Mistree, F., 1998, "Collaborative, Sequential and Isolated Decisions in Design," *ASME Journal of Mechanical Design,* Vol. 120, No. 4, pp. 643-652, doi:10.1115/1.2829327.
2. Lewis, K. and Mistree, F., 1998, "The Other Side of Multidisciplinary Design Optimization: Accommodating a Multiobjective, Uncertain and Non-Deterministic World," *Engineering Optimization,* Vol. 31, No. 2, pp. 161-189, doi:10.1080/03052159808941369.
1. Lewis, K. and Mistree, F., 1997, "Modeling the Interactions in Multidisciplinary Design: A Game-Theoretic Approach," *AIAA Journal of Aircraft,* Vol. 35, No. 8, pp. 1387-1392, doi:10.2514/2.248.

To Appear, Accepted, or Submitted for Review:

2. Ghosh, D., Olewnik, A., Lewis, K., Kim, J., and Lakshmanan, A., 2017, "Unsupervised Deep Learning in Cyber-Empathic Design," *Design Science*, under review.
1. Behdad, S., Esmaeilian, B., Wang, B., Lewis, K., Duarte, F., and Ratti, C., 2017, "The Future of Waste Management in Smart & Sustainable Cities: A Review and Concept Paper," *Resources, Conversation, and Recycling*, submitted.

Publications - Peer Reviewed Conference Proceedings (Full Papers):

134. Ghosh, D., Olewnik, A., and Lewis, K., 2017, "An Integrated Framework for Predicting Consumer Choice Through Modeling of Preference and Product Use Data," *ASME International Design Technical Conferences, Design Automation Conference*, Cleveland, OH, DETC2017-68010.
133. Naim, A. and Lewis, K., 2017, "Modeling the Dynamics of Innovation in Engineered Systems," *ASME International Design Technical Conferences, Design Automation Conference*, Cleveland, OH, DETC2017-68180.
132. Ball, Z. and Lewis, K., 2017, "The Design of the Crowd: Organizing Mass Collaboration Efforts," *ASME International Design Technical Conferences, Design Theory and Methodology Conference*, Cleveland, OH, DETC2017-68127. (*Awarded top 5 papers for the *Design Theory and Methodology Conference*)
131. Odonkor, P. and Lewis, K., 2016, "Optimization of Energy Use Strategies in Building Clusters using Pareto Bands," *ASME International Design Technical Conferences, Design Automation Conference*, Charlotte, NC, DETC2016-59963.
130. Ziegler, L. and Lewis, K., 2016, "Many-Attribute Decision Making Using Iterative Attribute Subsets," *ASME International Design Technical Conferences, Design Automation Conference*, Charlotte, NC, DETC2016-60094. (*Awarded top 9 papers for the *Design Automation Conference)*
129. Ghosh, D., Kim. J, Olewnik. A., Lakshmanan, A., and Lewis, K., 2016, "Cyber-Empathic Design: A Data-Driven Framework for Product Design," *ASME International Design Technical Conferences, Design Automation Conference*, Charlotte, NC, DETC2016-59642.
128. Ghosh, D., Olewnik. A., and Lewis, K., 2016, "Product 'In-Use' Context Identification Using Featuring Learning Methods," *ASME International Design Technical Conferences, Computers in Engineering Conference*, Charlotte, NC, DETC2016-59645.
127. Odonkor, P. and Lewis, K., 2015, "Adaptive Operation Decisions in Net Zero Building Clusters," *ASME International Design Technical Conferences, Design Automation Conference*, Boston, MA, DETC2015-47290.

126. Ferguson, T., Greene, M., Repetti, F., Behdad, S., and Lewis, K., 2015, "Combining Anthropometric Data and Consumer Review Content to Inform Design for Human Variability," *ASME International Design Technical Conferences, Design Automation Conference*, Boston, MA, DETC2015-47640.
125. Cui, C., Weir, J.D., Wen, J., Lewis, K., and Wu, T., 2015, "Data-driven Forecasting on Building Energy Consumption," 5th Southwest Energy Science and Engineering Symposium (SESES), El Paso, TX.
124. Odonkor, P., Lewis, K., Wen J., and Wu, T., 2014, "Energy Optimization in Net-Zero Energy Building Clusters," *ASME International Design Technical Conferences, Design Automation Conference*, Buffalo, NY, DETC2014-34970. (*Awarded top 6 papers for the *Design Automation Conference*)
123. Stratton, D., Martino, D., Lewis, K., and Hall, J., 2014, "Selection of Wind Turbine Tower Geometry and Material Using Multi Level Decision Making," *ASME International Design Technical Conferences, Design for Manufacturing and the Life Cycle Conference*, Buffalo, NY, DETC2014-35195.
122. Stratton, D., Behdad, S., Lewis, K., and Krishnamurty, S., 2014, "A Multi-Level Approach to Concept Selection in Sustainable Design," *ASME International Design Technical Conferences, Design Automation Conference*, Buffalo, NY, DETC2014-35215.
121. Eddy, D., Krishnamurty, S., Grosse, I., Wileden, J., and Lewis, K., 2014, "A Robust Surrogate Modeling Approach for Material Selection in Sustainable Design of Products," *ASME International Design Technical Conferences, Computers in Engineering Conference*, Buffalo, NY, DETC2014-34280.
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3. Lewis, K. and Mistree, F., 1995, "On Developing a Taxonomy for Multidisciplinary Design Optimization: A Decision-Based Perspective," *The First World Congress of Structural and Multidisciplinary Optimization*, edited by N. Olhoff and G. I. N. Rozvany, Elsevier Science, Oxford, UK: ISSMO, pp. 811-818.
2. Lewis, K., Lucas, T., and Mistree, F., 1994, "A Decision-Based Approach For Developing Ranged Top-Level Aircraft Specifications: A Conceptual Exposition," in *5th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Panama City, FL, pp. 465-481.
1. Mistree, F., Lewis, K., and Stonis, L., 1994, "Selection in the Design of Aircraft," in *5th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Panama City, FL, pp. 1153-1166.

Publications – Non-Peer Reviewed Conference Proceedings (Full Papers):

21. Chen, P.W., Naim, A., Lewis, K., and Bloebaum, C.L., 2008, "Visual Hyperspace Pareto Frontier (VHPF) for Multiattribute Decision-Making," *National Science Foundation Engineering Research and Innovation Conference,* Knoxville, TN.
20. Lewis, K., Winer, E., Zhang, A., English, K., Bisantz, A., and Bloebaum, C.L., 2005, "Visual Design Steering as an Aid in Complex System Decision Making," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Phoenix, AZ.
19. Lewis, K., and Singh, T., 2005, "Multiattribute Decision Making in Centralized and Decentralized Design," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Phoenix, AZ.
18. Lewis, K., 2004, "Decision Support Tools for the Design of Large-Scale Systems," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Dallas, TX.
17. Lewis, K., Winer, E., and Bloebaum, C.L., 2004, "Visual Design Steering As A Decision Support Aid In Design and Rapid Virtual Prototyping," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Dallas, TX.
16. Lewis, K., 2003, "Decision Support Tools for the Design of Multiobjective and Flexible Systems," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Birmingham, AL.
15. Chen, W., Lewis, K., and Schmidt, L., 2003, "E-Volving the Open Workshop on Decision-Based Design," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Birmingham, AL.

14. Lewis, K., Winer, E., and Bloebaum, C.L., 2003, "Visual Design Steering As A Decision Support Aid In Design and Rapid Virtual Prototyping," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Birmingham, AL.
13. Lewis, K., 2002, "Decision Support Tools for the Design of Multiobjective and Flexible Systems," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Puerto Rico.
12. Chen, W., Lewis, K., and Schmidt, L., 2002, "Decision-Based Design: An E-Colloquium Focus," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Puerto Rico.
11. Lewis, K., and Bloebaum, C.L., 2002, "Visualization as a Decision Support Tool in Multidisciplinary Design," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Puerto Rico.
10. Lewis, K., 2001, "Development of Decision Support Tools for Large-Scale Design," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Tampa, FL.
9. Chen, W., Lewis, K., and Schmidt, L., 2001, "Decision-Based Design: Status and Promise," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Tampa, FL.
8. Lewis, K., and Bloebaum, C.L., 2001, "Visualization as a Decision Support Tool in Multidisciplinary Design," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Tampa, FL.
7. Chen, W., Lewis, K., and Schmidt, L., 2000, "Decision-Based Design: Status and Promise," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Vancouver, Canada.
6. Chen, W., Lewis, K., and Schmidt, L., 1999, "Decision-Based Design: Status and Promise," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Long Beach, CA.
5. Lewis, K., 1998, "Exploring Product and Process Tradeoff in Engine Design," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Monterrey, Mexico, pp. 53-54.
4. Chen, W., Lewis, K., and Schmidt, L., 1998, "Decision-Based Design: Status and Promise," *NSF Design, Manufacturing, and Industrial Innovation Grantees Conference,* Monterrey, Mexico, pp. 79-80.
3. Lewis, K., 1997, "Bridging the Gap Between Education and Practice in the Design and Development of Engineering Systems," *Frontiers in Engineering Education*, Pittsburgh, PA.
2. Hacker, K., and Lewis, K., 1997 "The Application of Robust Design Techniques to Strategic Decision Making in Design," *ASME Graduate Student Technical Conference*, University Park, PA, pp. 2-4.
1. Ramaswamy, V., and Lewis, K., 1997, "Reduction of Product Development Time: A Game Theoretic Approach," *ASME Graduate Student Technical Conference*, University Park, PA, pp.21-23.

Publications - Technical Reports:

1. Lewis, K., "An Algorithm for Integrated Subsystem Embodiment and System Synthesis," NASA Contractor Report 201732, August 1997.

Patents:

1. Hyperspace Diagonal Counting for Multiobjective and Multidimensional Applications, Docket No. 19226/2410 Provisional Patent Awarded (U.S. Provisional patent 60/601, 421, August 2004).

Invited Presentations/Seminars:

70. "The Digital Manufacturing Ecosystem: Using AI to Align People, Machines, and Materials," Invited Presentation, SUNY/IBM Workshop on Artificial Intelligence Research, December 22, 2017.
69. "The Emergence of the Digital Manufacturing Ecosystem for Product Development: People, Processes, Materials, and Machines," Keynote Address, ASME International Design Engineering Technical Conferences, Design Automation Conference, August 7, 2017.
68. "The Sustainable Manufacturing and Advanced Robotic Technologies (SMART) Community of Excellence," Buffalo Manufacturing Works, June 14, 2017.
67. "The Emergence of the Digital Manufacturing Ecosystem: People, Processes, Materials, and Machines," Keynote Address, SUNY Research Council Meeting, June 14, 2017.
66. "Materials Design in Digitized Manufacturing," Erich Bloch Materials, Design, and Innovation Symposium, University at Buffalo, June 1, 2017.
65. "The Sustainable Manufacturing and Advanced Robotic Technologies (SMART) Community of Excellence," University at Buffalo Emeritus Center, April 11, 2017.
64. "Understanding Complexity in Engineered Systems Using Resilient Decision Networks," Baylor University, Waco, TX, March 24, 2017.
63. "Design Analytics: The Integration of Sensors, Data, and Machine Learning to Understand Consumer Product Usage," Texas A&M University, College Station, TX, March 22, 2017.
62. "Sensors and Machine Learning in the Design of Consumer Products," University of Oklahoma, Norman, OK, March 2, 2017.
61. "A Data-Driven Framework to Support the Design of Engineered Products," Brigham Young University, Provo, UT, November 7, 2016.
60. "A Data-Driven Framework to Support the Design of Engineered Products," Baylor University, Waco, TX, October 27, 2016.
59. "System Design Analytics: Machine Learning of User Perceptions," CECD/ME Symposium on Data-Driven Design, University of Maryland, October 14, 2016.
58. "Sustainable Manufacturing and Robotic Technologies: The Formation of the SMART Community of Excellence," UB School of Management, Dean's Advisory Council, Keynote Address, San Francisco, CA, March 11, 2016.
57. "Cyber-empathic Design: A Data Driven Framework for Product Design," Northwestern University, Chicago, IL, February 29, 2016.
56. "Towards Understanding the Value of Consumer Products," National Science Foundation Workshop on Decision Engineering: From Engineering Phenomena to Value, Washington, DC, October 30, 2015.
55. "Sustainable Manufacturing and Robotic Technologies: Bridging Boundaries to Form the SMART Community," Association of Public & Land-Grant Universities, Council on Academic Affairs, Keynote Address, July 10, 2015.
54. "Design and Fabrication of Energy Generation Systems," RENEW Workshop, University at Buffalo – SUNY, May 18, 2015.
53. "Designing Complex Systems: Foundations and Emerging Methods," International Council on Systems Engineering - INCOSE_IL, Tel Aviv, Israel, July 10, 2014.
52. "Finding Simple Solutions to Complex Problems: Elegant Engineering Design," Complex Systems Engineering Conference, The Technion, Gordon Center for Systems Engineering, Keynote Address, Haifa, Israel, July 7, 2014,
51. "Dissecting the Emerging Complexity in the Design of Large-Scale Systems," Colorado School of Mines, April 24, 2014.

50. "Handling Emerging Complexity in Engineering Design Processes," McGill University, Montreal, Canada, December 5, 2013.
49. "Product Archaeology: Studying the Engineered Past to Better Inform the Designed Future," Virginia Tech, November 9, 2013.
48. "Handling Complexity: Design Processes and Design Analytics," Ecole Centrale, Paris, France, September 10, 2013.
47. "Making Sense of Complexity in Multidisciplinary Design," Keynote Address, Fourth International Conference on Multidisciplinary Design Optimization and Applications, Xi'an, China, November 6, 2012.
46. "Experiences in a Split Live/Distance Course," Online Learning Workshop, University at Buffalo – SUNY, May 11, 2012.
45. "Making Sense of Complexity in Design," NSF/NASA Workshop on Large-Scale Complex Engineered Systems: From Basic Research through Product Realization, Washington, DC, February 7, 2012.
44. "Project-Based Learning in a Flat World," National Academy of Engineering, Frontiers of Engineering Education Symposium, Irvine, CA, November 14, 2011.
43. "Innovation in Product Design," CE404/505: Chemical Engineering Product Design, Department of Chemical & Biological Engineering, University at Buffalo – SUNY, November 7, 2011.
42. "e-Design: The Realization of Complex Systems," Insights, The University at Buffalo – SUNY, May 17, 2011.
41. "Distributed and Adaptive Decision Makings in Complex Air Force Systems," Symposium on Product Development Research, Air Force Institute of Technology/Air Force Research Lab, Wright Patterson Air Force Base, November 12, 2010.
40. "Engineering Design and Industrial Innovation," Growth and Expansion Tools at the University at Buffalo, Office of Economic Engagement, University at Buffalo – SUNY, Nov. 9, 2010.
39. "Product Design Innovation," CE404/505: Chemical Engineering Product Design, Department of Chemical & Biological Engineering, University at Buffalo – SUNY, Nov. 2, 2010.
38. "Open Systems Design: A Platform for Design Research, Innovation, and Education," Indo-US Workshop in Product Design – Impact from Research to Education to Practice, Coimbatore, India, March 15, 2010.
37. "Foundations for the Design and Development of Reconfigurable Systems," Indian Institute of Technology – Madras, Chennai, India, March 9, 2009.
36. "Innovation in Product Design: Frontiers in Research and Development," CE404/505: Chemical Engineering Product Design, Department of Chemical & Biological Engineering, University at Buffalo – SUNY, Nov. 13, 2008.
35. "Reconfigurable Systems: Exercising the Power of Multiobjective Optimization," Penn State University, November 27, 2007.
34. "Cyber-Engineering: Advances in Simulation and Visualization for Engineering Design," ASME Winter Annual Meeting, National Science Foundation Cyber-Enabled Discoveries and Innovations (CDI) Initiative Workshop, Seattle, WA, November 11, 2007.
33. "Reconfigurable Systems: Exercising the Power of Multiobjective Optimization", Univ. of Illinois – Urbana-Champaign, September 27, 2007.
32. "The Principles of Innovation" University at Buffalo Engineering Career Institute, May 16, 2007
31. "Insights from Shrek: Teaching is Like an Onion" University at Buffalo, Excellence in Graduate Student Teaching Award Ceremony, March 23, 2007.

30. "Modeling and Analysis of Adversarial Behavior" (with T. Singh and J. Crassidis, University at Buffalo) Fifth Center for Multisource Information Fusion Workshop on Critical Issues in Information Fusion, September 20, 2006.
29. "Decision-Based Design: The Core of Effective Design Engineering" Keynote Address, Design Engineering Functional Excellence (DEFE) Conference, Cummins Inc., September 13, 2006.
28. "Making Decisions: Subtle Traps to Avoid" Breakout Session, Design Engineering Functional Excellence (DEFE) Conference, Cummins Inc., September 13, 2006.
27. "From Sophomores to Seniors: Lessons Learned in the Integration of IT Across the ME Curriculum" Plenary Session on Information Technology, ASME International Mechanical Engineering Education Conference, March 2005.
26. "The Rational Reality of Making Mistakes in Tradeoffs" Panel on Resolving Tradeoffs in MDO: Performance, Cost, and DFX, 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, September 2004.
25. "The Challenges of College, Careers, and Calculus" Western New York Gifted Math Program, March 2004.
24. "A Vision for Cyberinfrastructure in Design" National Science Foundation session on Cyberinfrastructure, 2004 Design, Service, and Manufacturing Grantees and Research Conference, Dallas, TX, January 6, 2004.
23. "Multiattribute Decisions in Vehicle Design: Principles for Centralized and Decentralized Approaches" General Motors, Inc., June 26, 2003.
22. "The Challenges of College, Careers, and Calculus" Western New York Gifted Math Program, March 2003.
21. "Multiattribute Decisions in Engineering Design: Principles for Centralized and Decentralized Approaches" Carnegie Mellon University, October 25, 2002.
20. "Optimization, Mathematics, and Computers" NYSCEDII Summer Workshop on Virtual Reality in Engineering, July 2002.
19. "Calculus and Mathematics in Society" Western New York Gifted Math Program, April 2002.
18. "Decision Making in Strategic Product Development" Institute for Mathematical Behavioral Sciences, University of California-Irvine, Workshop on Decisions and Engineering, October, 2001.
17. "Addressing Appropriate Criteria in Design: A Blend of Organization Consciousness and Awareness" ASME and NSF Decision Based Design Workshop, Pittsburgh, PA, September 2001.
16. "Optimization, Mathematics, and Computers" NYSCEDII Summer Workshop on Virtual Reality in Engineering, July 2001.
15. "Engineering in the 21st Century" Lancaster High School, May 2001.
14. "The Role of Calculus in Our Society" Western New York Gifted Math Program, February 2001.
13. "Handling Complexity in Design Through Flexible Processes and Systems" Department of Aeronautical & Astronautical Engineering, Massachusetts Institute of Technology, May 2000.
12. "Handling Complexity in Design Using Dynamic, Interactive, Multi-Level Games" Department of Industrial and Manufacturing Engineering, Penn State University, April 2000.
11. "Goals, Dreams, and Careers" Christian Central Academy, Buffalo, NY, April 2000.
10. "The Desire Accomplished" Pi Tau Sigma Induction Banquet, Keynote Speaker, Buffalo, NY, February 2000.
9. "Desires, Dreams, and Souls" Tau Beta Pi Induction Banquet, Keynote Speaker, Buffalo, NY, November 1999.
8. "The Evolution of Research, Practice, and Education in Engineering Design: Towards a Common Paradigm," Australian Defence Force Academy, Canberra, Australia, August 1999.

7. "Managing Dispersed Design and Manufacturing Teams," Gordon Conference on the Theoretical Foundations of Design and Manufacturing, June 1998.
6. "Large-Scale System Simulation and Optimization," i2 Technologies, Dallas, TX, December 1997.
5. "The Evolution of Research and Practice: Converging Paradigms for Product and Process Design," Xerox Corporation, Day of Engineering Excellence, October 1997.
4. "Bridging the Barriers in Large-Scale Systems Design: A Game Theoretical Approach," Massachusetts Institute of Technology, May 1997.
3. "Designing with Available Assets: Its Impact on Decision Support in Optimization," Optimization in Industry Conference, Palm Coast, Florida, March 1997.
2. "Value Engineering and Selection in the Design of Open Engineering Systems," National Center for Advanced Technologies, course for the U.S. Army and U.S. Navy/ONR on Integrated Product and Process Development, Washington, D.C., November 1996, January 1997.
1. "Bridging the Barriers in Product Realization: An Infrastructure for Integrated Product and Process Design," Allison Engine Company/Rolls Royce, Indianapolis, Indiana, November 1996.

Professional Development:

- Co-organizer of and participant in the 2017 *Mechanical Engineering Design Heads Forum & Professional Development Workshop*, Tampa, FL, November 6-7, 2017.
- Participant in the 2017 *ASME International Engineering Education Leadership Summit*, as part of the Executive Committee of ME Department Heads/Chairs, Washington, DC, April 17-20, 2017.
- Co-organizer of and participant in of the 2016 *Mechanical Engineering Design Heads Forum & Professional Development Workshop*, Phoenix, AZ, November 14-15, 2016.
- Participant in the 2016 *ASME International Engineering Education Leadership Summit*, as part of the Executive Committee of ME Department Heads/Chairs, Tampa, FL, March 16-19, 2016.
- Participant in the *Mechanical Engineering Design Heads Forum & Professional Development Workshop*, Houston, TX, November 16-17, 2015.
- Participant in the 2015 *ASME International Engineering Education Leadership Summit*, as part of the Executive Committee of ME Department Heads/Chairs, Tampa, FL, March 11-15, 2015.
- "From Product Dissection to Product Archaeology: Understanding the Global, Economic, Environmental, and Societal Foundations of Engineering Design", (with T. Simpson, S. Zappe, A. McKenna, and M. Hynes), Workshop at the *2013 American Society for Engineering Education Annual Conference*, Atlanta, GA.
- "From Product Dissection to Product Archaeology: Understanding the Global, Economic, Environmental, and Societal Foundations of Engineering Design", (with S. Shooter, and C. Williams), Workshop at the *2013 ASME International Design Technical Conferences*, Portland, OR.
- "Design Frontier Symposium", University of Michigan, Ann Arbor, MI, May 19-20, 2011.
- "From Product Dissection to Product Archaeology: Understanding the Global, Economic, Environmental, and Societal Foundations of Engineering Design", (with T. Simpson, G. Kremer, W. Chen, and A. McKenna), Workshop at the *2010 ASME International Design Technical Conferences*, Montreal, Quebec, Canada.
- "Driving Innovation through Design: Engineering in the 21st Century", National Science Foundation Design Workshop, Northwestern University, Evanston, IL, April 15-16, 2010.

- "Engineered Systems Design Workshop," National Science Foundation, Washington, DC, February 22 – 24, 2010.
- "Spanning Design Boundaries," National Science Foundation Design Workshop, Northwestern University, Evanston, IL, April 16-17, 2009.
- "The Design Discipline," National Science Foundation Design Workshop, University of Michigan, Ann Arbor, MI, November 6-7, 2008.
- "A Hands-On Product Dissection Workshop for Engineering Educators" (with T. Simpson, R. Stone, S. Shooter, and G. Kremer), 2008 American Society for Engineering Education Annual Conference, Pittsburgh, PA.
- "Exchanging Cyber-Infrastructure Themes in Engineering Design" (with T. Simpson, and W. Chen), National Science Foundation EXCITED Workshop, Washington DC, February 28-March 1, 2005.
- "Decision-Based Design, Seventeenth Workshop" National Science Foundation, Dallas, TX, January 4, 2004.
- "Decision-Based Design, Sixteenth Workshop" National Science Foundation, Chicago, IL, September 6, 2003.
- "Decision-Based Design, Fifteenth Workshop" National Science Foundation, Birmingham, AL, January 10, 2003.
- "Decision-Based Design, Fourteenth Workshop" National Science Foundation, Montreal, Canada, October 2, 2002.
- "Workshop on Decisions and Engineering" National Science Foundation and The Institute for Mathematical Behavioral Sciences, University of California-Irvine, October, 2001.
- "Decision-Based Design, Thirteenth Workshop" National Science Foundation, San Juan, Puerto Rico, January 9, 2002.
- "Decision-Based Design, Twelfth Workshop" National Science Foundation, Pittsburgh, PA, September 9, 2001.
- "Decision-Based Design, Eleventh Workshop" National Science Foundation, Tampa, FL, January 7, 2001.
- "Decision-Based Design, Tenth Workshop" National Science Foundation, Baltimore, MD, September 5, 2000.
- "Decision-Based Design: Status and Promise, Eighth Workshop" National Science Foundation, Las Vegas, NV, September 12, 1999.
- "Decision-Based Design: Status and Promise, Seventh Workshop" National Science Foundation, Long Beach, CA, January 4, 1999.
- "Decision-Based Design: Status and Promise, Sixth Workshop" National Science Foundation, Atlanta, GA, September 12, 1998.
- NSF Teaching Scholars Workshop, University at Buffalo, February 16-17, 1998.
- "Decision-Based Design: Status and Promise, Fifth Workshop" National Science Foundation, Monterrey, Mexico, January 3-4, 1998.
- "Decision-Based Design: Status and Promise, Fourth Workshop" National Science Foundation, Sacramento, CA, September 4-6, 1997.
- "Decision-Based Design: Status and Promise, Third Workshop" National Science Foundation, Orlando, FL, April 6-7, 1997
- "Integrating Design into the Engineering Curriculum," Southern Methodist University, Dallas, TX, March 20-22, 1997.
- "Decision-Based Design: Status and Promise, Second Workshop" National Science Foundation, Seattle, WA, January 4-5, 1997.

- "Decision-Based Design: Status and Promise, First Workshop" National Science Foundation, Atlanta, GA, November 22-23, 1996.

Grants and Contracts: (over $18M in total funding, with $9.0M apportioned to K. Lewis)

Title	Source	Duration	Amount
EAGER: Collaborative Research: An Experimental Approach to Formulate Research Questions	NSF	10/01/17-9/30/19	$298,643 ($123,773 UB portion)
GOALI: Data Driven Remanufacturing: Foundation for Modeling the Impact of Product Middle-of-Life Data on End-of-Life Recovery Decisions (co-PI, Sara Behdad, PI)	NSF	8/15/17-7/30/20	$288,605
Coordinated Holistic Alignment of Manufacturing Processes (co-PI, Barry Smith, PI)	DMDII	8/1/16-1/31/18	$626,223
Digital Manufacturing and Design 101 Course Development (PI)	DMDII	7/1/16-6/30/17	$384,489
Designing Sustainability: Integrating Consumer Behavior and Product Design to Minimize Electronic Waste (co-PI, Sara Behdad PI)	UB - RENEW	7/16-6/17	$24,900
A Novel Deceleration Concept Based on Modulating Lift-to-Drag through Actuating the Payload Mass (PI)	NASA-Langley	4/16-10/16	$6,000
Sustainable Manufacturing and Robotic Technologies (SMART) Community of Excellence (Project Lead and current Director)	UB Provost Communities of Excellence	9/15-8/20	$3.29M
Engineering Literacy in the Elementary School: Learning the Engineering Design Process to Read, Write, Think, Talk, and Act Like an Engineer (co-PI, Mary McVee PI)	UB - Innovative Micro-Programs Accelerating Collaboration in Themes (IMPACT)	7/15-6/16	$32,100
Cyber-empathic Healthcare Prognostics: Using Sensor Integrated Shoe Inserts to Support Prognostics to Mitigate Falling in an Aging Population (co-PI, Andrew Olewnik PI)	UB – Institute for Person-Centered Care	6/15-5/16	$7,000

Title	**Source**	**Duration**	**Amount**
Cyber-Empathic Design: Using Embedded Sensors to Improve Product and System Design (co-PI, Andrew Olewnik PI)	NSF – ESD	9/14-8/16	$367,927
NSF CAREER Proposal Writing Workshop (co-PI, S. Behdad PI)	NSF	7/14-12/14	$9,995
CPS: Synergy: Collaborative Research: SMARTER - Smart Manager for Adaptive and Real-Time Decisions in Building ClustERs (UB PI with T. Wu, Arizona State and J. Wen, Drexel)	NSF - CPS	10/12-3/17	$1,000,000 ($200,000 UB portion)
Assessment of Product Archaeology as a Platform for Contextualizing Engineering Design (PI with co-PI D. Moore-Russo; A. McKenna, Arizona State; T. Simpson, G. Kremer, C. Tucker, and S. Zappe, Penn State; W. Chen and D. Gatchell, Northwestern; C. Williams, L. McNair, and M. Paretti, Virginia Tech; S. Shooter, Bucknell)	NSF – TUES	9/12-8/14	$600,000 ($92,858 UB portion)
Research Experience for Veterans/Teachers/Undergraduates: IUCRC Center for e-Design	NSF - IUCRC	9/12-8/13	REV:$8,000 REU:$16,000 RET: $19,927
Collaborative Research: A Decision Support e-Design Framework for Sustainable Product Design (UB PI with S. Krishnamurty, UMass-Amherst, project PI)	NSF - IUCRC	9/12-9/14	$200,000 ($98,235 UB portion)
Research Experience for Veterans: IUCRC Center for e-Design	NSF - IUCRC	7/11-6/12	$8,000
IUCRC Center for e-Design: IT Enabled Design and Realization of Products and Systems (PI of UB research site, with Iowa State - lead, UMass-Amherst, Oregon State, Wayne State, and BYU)	NSF - IUCRC	2/11-1/17	$875,000
Center for e-Design: Planning Grant	NSF - IUCRC	2/10-1/11	$13,000
Development of a Free-Space Optical Robot Communication Tower	US Office of Naval Research	5/10-4/11	$29,823

Title	**Source**	**Duration**	**Amount**
Improving Parenting Capacity to Promote Safe Driving for Adolescents with ADHD (co-PI with PI G. Fabiano and co-PI's K. Hulme and W. Pelham)	National Institute of Health	5/10-1/15	$2,838,186
Teaching the Global, Economic, Environmental, and Societal Foundations of Engineering Design through Product Archaeology (PI with co-PI D. Moore-Russo; T. Simpson and G. Kremer, Penn State; W. Chen and A. McKenna, Northwestern)	NSF CCLI Type II	9/09-9/11	$500,000 ($170,747 UB Portion)
New York State Center for Engineering Design and Industrial Innovation (PI with co-PI's K. English and H. Stenger)	New York State, NYSTAR	1/09-6/10	$250,000
In-Mouth Teeth Cleaning System (PI with co-PI A. Olewnik)	Oral Health Innovations	9/1/08-6/30/09	$20,826
VisualizeIT - Measuring the Impact of IT-Enabled Concept Generation on Designer Creativity (Collaborative Research with Missouri Institute of Technology, Univ. of Texas, and Texas A&M)	NSF SGER	9/1/08 – 8/31/09	$127,395 ($35,573 UB Portion)
Improving the Driving of Teens with ADHD Through Parenting (co-PI with PI G. Fabiano, and co-PI's K. Hulme, C. Nelson, W. Pelham, D. Waschbusch, and J. Waxmonsky)	UB2020 Research and Development Activities Fund	5/08-5/09	$45,000
New York State Center for Engineering Design and Industrial Innovation (PI with co-PI's C. Bloebaum, M. Karwan, A. Soom, K. English, and V. Krovi)	New York State, NYSTAR	11/07-12/08	$250,000
Experiential Learning in Vehicle Dynamics Education (PI with co-PI's Deborah Moore-Russo, Ken English, Kevin Hulme)	NSF-CCLI	2/15/07-2/14/10	$150,000
A National Engineering Dissertation Cyber-Collaboratory (Collaborative Research Project with Penn State, Drexel, Univ. of Missouri-Rolla, Virginia Tech, Northwestern, Bucknell, and Sweet Briar)	NSF: CI-TEAMS	1/1/07-12/31/08	$900,000 ($105,000 UB Portion)

Title	**Source**	**Duration**	**Amount**
Visual Hyperspace Pareto Frontier (VHPF) for Multiattribute Decision-Making (co-PI with C. Bloebaum, PI)	NSF	5/15/06-5/14/08	$250,000
Cyber-Infrastructure-Based Engineering Repositories for Undergraduates (CIBER-U) (Collaborative Research Project with T. Simpson, Penn State, W. Regli, Drexel, and R. Stone, Univ. of Missouri-Rolla)	NSF:CI-TEAMS	1/01/06-12/31/07	$275,000
New York State Center for Engineering Design and Industrial Innovation (PI with co-PI's C. Bloebaum, M. Karwan, A. Soom, K. English, and V. Krovi)	New York State, NYSTAR	11/06-12/07	$250,000
New York State Center for Engineering Design and Industrial Innovation (co-PI with C. Bloebaum, PI, M. Karwan, co-PI, A. Soom, co-PI, K. English, co-PI, and V. Krovi, co-PI)	New York State, NYSTAR	11/05-12/06	$250,000
Workshop: Exchanging Cyber-Infrastructure Themes in Engineering Design (co-PI with T. Simpson, PI, Penn State, and W. Chen, co-PI, Northwestern)	NSF	1/05-6/06	$59,983
Lean Methods and Statistical Process Control (co-PI with A. Hammonds and D. Bowes)	NY State Dept. of Labor/ Multisorb	9/04-8/05	$117,900
New York State Center for Engineering Design and Industrial Innovation (co-PI with C. Bloebaum, PI, M. Karwan, co-PI, A. Soom, co-PI, K. English, co-PI, and V. Krovi, co-PI)	New York State, NYSTAR	7/04-10/05	$250,000
Lean Manufacturing and Six Sigma Principles Training (PI)	NY Dept. of Labor	6/04-9/04	$2,400
Multiattribute Decision Making in Centralized and Decentralized Design (PI)	NSF	9/03-8/07	$390,870
Extension of Nondimensional Tire Theory to General Operating Conditions (PI)	U.S. Department of Transportation	9/03-8/06	$103,500

Title	Source	Duration	Amount
Feasibility Assessment in Vehicle Performance and Design (PI)	General Motors	1/03-5/04	$109,454
Roll out and Application of SOLVE - A Multi-package Optimal Design and Visualization Tool (co-PI)	Praxair	1/03-12/03	$91,268
Statistical Process Control and Six Sigma (PI)	Curbell, Inc.	7/02	$3,586
Development of Case-Based Engineering Instruction System in a New Sophomore Design Course (PI)	UB: Education Technology Program	6/02-9/02	$6,000
Integration and the Implementation of a Distributed Multi-Package Coldbox Optimization and Visualization Design Capability (co-PI)	Praxair	1/02-1/03	$58,809
Collaborative Research: E-Volving the Open Workshop on Decision-Based Design (co-PI with Dr. Linda Schmidt, University of Maryland, and Dr. Wei Chen, Univ. of Illinois-Chicago)	NSF	12/01-11/05	$118,142
Visual Design Steering as a Decision Support Aid In Design and Rapid Virtual Prototyping (PI)	NSF	9/01-9/04	$347,000
Statistical Process and Quality Control (PI)	NY Partnership for Industrial Resurgence	5/01	$4,320
Statistical Process Control and Robust Design Training (PI)	Vishay Thin Film	7/00-8/00	$13,095
Computer-Aided Design Support (PI)	Ony, Inc.	7/00-10/00	$11,737
The Integration of Visualization and Robust Simulation Techniques in Open Engineering Systems (PI)	NASA Langley Research Center	7/00-6/03	$66,000
The Expansion of the Decision-Based Design Open Workshop (co-PI with Dr. Linda Schmidt, University of Maryland, and Dr. Wei Chen, Univ. of Illinois-Chicago)	NSF	12/99-11/01	$125,203
CAREER: Development of Design Decision Support Methods for Large-Scale Systems (PI)	NSF	9/99-9/04	$307,680

Title	**Source**	**Duration**	**Amount**
Electronic Profiler Design (co-PI with Dr. T. Kesavadas)	Rodgard Corporation	7/99-2/00	$19,039
Development of a Multi-Package Site Optimization Capability (co-PI with PI Dr. C.L. Bloebaum)	Praxair	1/00-12/00	$83,394
Creation of an Interactive Product Development Tool - Phase 3 (co-PI with PI Dr. C.L. Bloebaum and co-PI Dr. T. Kesavadas)	Praxair	1/99-12/99	$91,000
Mechanical Analysis and Design Support (PI)	Mokon	1/99-5/99	$6,585
Design and CAD Development of Piston-Actuator Bed Assemblies (PI)	American Massage	10/98-12/98	$1,352
Conferences in the Disciplines: Support for 3rd World Congress of Structural and Multidisciplinary Optimization (Co-PI with Drs. C.L. Bloebaum and R. Mayne)	University at Buffalo	7/98-6/99	$2,500
Exploring Interfaces within Product and Process Life Cycle Design (PI)	NASA Langley Research Center	7/98-6/01	$66,000
Visualization as a Decision Support Tool in Multidisciplinary Design (PI with co-PI Dr. C.L. Bloebaum)	NSF	6/98-6/00	$185,917
Interface for Web-based Simulation and Optimization (co-PI with PI Dr. A. Gupta and co-PI Dr. T. Singh)	UB Ed. Tech. Faculty Development Grant	6/98-12/98	$5,000
Empirical Investigation of Concurrent Engineering Practices and their Impact on Firm Performance (co-PI with PI Dr. N. Suresh and co-PI Dr. C.L. Bloebaum)	UB Multi-disciplinary Pilot Project Program	4/98-4/99	$20,000
Creation of an Interactive Product Development Tool - Phases 1 & 2 (co-PI with PI Dr. C.L. Bloebaum and co-PI Dr. T. Kesavadas)	Praxair, Inc.	10/97-12/98	$118,809
Exploring Product and Process Tradeoffs in Engine Design (PI)	NSF	9/97-8/99	$45,333

Title	Source	Duration	Amount
An Open Workshop on Decision-Based Design: Status and Promise (co-PI with Dr. Linda Schmidt, University of Maryland, and Dr. Wei Chen, Univ. of Illinois-Chicago)	NSF	12/96-11/99	$183,771
The Application and Development of FMECA Practices in Product Development (PI)	Sherwood Company	11/96-4/97	$4,723

Academic Courses Taught:

MAE 277	Introduction to Mechanical and Aerospace Engineering Practice (sophomore)
MAE 412	Machines and Mechanisms II (junior/senior)
MAE 451	Design Process and Methods (senior)
MAE 459	Capstone Design Project (senior)
MAE 499	Independent Study, various topics
MAE 449/549	Design of Complex Engineering Systems (senior/graduate)
	Resulting from their projects in this course in Spring 1998, two seniors, Ed Woiccak and Joseph Crimi won the ASME National Undergraduate Design Competition which included a $1,000 award to travel to Atlanta, GA and present their submission.
	Resulting from their projects in this course in Spring 1999, two seniors, Tom Halecki and Jake Deiz won the ASME National Undergraduate Design Competition which included a $1,000 award to travel to Las Vegas, NV and present their submission.
MAE 550	Optimization in Engineering Design (graduate)
MAE 551	Advanced Design Theory (graduate)

Students Research Supervision:

Ph.D.

completed:

Dipanjan Ghosh (3/17)	"Towards Formalizing Cyber-Empathic Design - A Data Driven Framework for Product Design" Currently a Research Scientist at Hitachi.
Aziz Michel Naim (2/17)	"Towards a Formal Integration of Innovation in Engineering Design"
Phil Cormier (8/14)	"An Affordance-based Approach to Evaluating Consumer Variation" (Presidential Fellow) Currently an Teaching Assistant Professor at the University at Buffalo-SUNY.
Erich Devendorf (2/11)	"The Impact of Solution Process Architecture on the Dynamics of Distributed Design Processes" (Moog Fellow) Currently a Research Scientist at Air Force Rome Laboratories.
Scott Ferguson (8/08)	"Design of Autonomous Reconfigurable Systems for use in Extreme Operating Environments" (UB Presidential Fellow) Currently an Associate Professor at North Carolina State University.
Edward Kasprzak (12/06)	"Extension of the Non-dimensional Tire Theory to General Operating Conditions" (U.S. Dept. of Transportation Fellow, 2004 SAE Fellow) Currently a research associate at Milliken Research Associates.

Ashwin Gurnani (12/06)	"Engineering Design at the Edge of Rationality" (Morihara and Mcswain Fellow) Currently a research associate at Capital One.
John Eddy (12/05)	"Solving Distributed, Non-Cooperative Design Problems using Multi-Agent Systems" Currently a Research Scientist at Sandia National Laboratories.
Tung-King See (11/05)	"Preference Modeling and Conflict Modeling in Multiattribute Group Decision Making" Currently a Systems Engineer at Cummins Inc.
Vincent Chanron (8/05)	"On Decentralized Design: Rationale, Dynamics and Effects on Decision-Making" (JSPS 2004 Fellow) Currently a Director at Daher, a French industrial conglomerate in the aerospace, defence, nuclear, and automotive industrial sectors.
Andrew Olewnik (6/05)	"Validating Design-Decision Support Models" (UB Presidential Fellow) Currently Director of Experiential Learning for the School of Engineering and Applied Sciences, University at Buffalo-SUNY.
Kurt Hacker (11/01)	"Efficient Robust Systems Design through the use of Hybrid Optimization and Distributed Computing" (NASA Graduate Research Fellowship) Currently a Research Associate at the Air Force Research Laboratory.

in progress:

Phil Odonkor, expected (12/17)
Zack Ball, expected (6/18)
Elehah Ghiasian, expected (6/20)

M.S. Thesis

completed:

Phil Odonkor (5/15)	"Adaptive Operational Strategy Optimization for Energy Efficiency In Net-Zero Energy Building Clusters" (NSF RA)
Laura Ziegler (5/15)	"Many-Attribute Decision Making Using Iterative Attribute Subsets" (Schomburg Fellow & NSF RA)
Dan Stratton (5/14)	"A Multi-Level Approach to Concept Selection in Sustainable Design"
David Van Horn (5/13)	"Design Analytics: Capturing, Understanding, and Meeting Customer Needs Using Product Usage Data"
Brian Literman (5/13)	"Concept Analysis for Reconfigurable Systems"
Vishwa Kalyanasundaram (9/10)	"Function Based Heuristics to Develop Reconfigurable and Multifunctional Products"
Saket Kansara (6/10)	"Exploring the Significance of Design Variable Choice On Solution Quality, Convergence and Robustness"
Phillip Cormier (7/08)	"An Approach to Quantifying Flexibility for Mass Customization" (UB Presidential Fellow)
Aziz Michel Naim (6/08)	"Multiattribute Decision Making Under Uncertainty Using Preference Ranges: A Filtering Algorithm"
Ali Kamyab (06/08)	"A Methodology for Collaborative Design Customization" (NYSCEDII RA)
Erich Devendorf (9/07)	"Planning on Mistakes: An Approach to Incorporate Error Proofing Into the Design Process" (Moog Fellow)
Matt Devendorf (6/07)	"Implementing Cyberinfrastructure in the Classroom and the Investigation of Its Effectiveness through Similarity Metrics"

Bryan Dolan (6/07)	"Robust Product Family Selection Using the Hypothetical Equivalents and Inequivalents Method"
Rohit Thali (6/05)	"A Study of Uncertainty and Optimality in Distributed Product Design"
Michael Kulok (8/04)	"A Study of Consistency in Multiattribute Decision Making" (Visiting Scholar, Darmstadt, Germany)
Lincoln Chua (7/04)	"A Study on the Effects of Decentralization on the Optimization of a Joule-Thomson Cryocooler"
Scott Ferguson (6/04)	"An Approach to the Design of Flexible Systems Using Linear State Feedback Control" (General Motors RA, Presidential Fellow)
Mitul Patel (12/03)	"System Design Through Coupled Subsystem Selection"
Ashwin Gurnani (8/03)	"An Approach to Multiattribute Selection Problems Under Uncertainty: The Overlap Measure Method" (General Motors RA, Morihara and Mcswain Fellow)
Adeline de Villardi (9/02)	"A Set-Based Approach to Facilitate Distributed Design" (Visiting Scholar, ENSICA, France)
Vincent Chanron (9/02)	"A Study of Convergence in Decentralized Design" (Visiting Scholar, ENSICA, France)
TK See (9/02)	"A Multiattribute Decision Making in Engineering Design Using Hypothetical Equivalents and Inequivalents" (NSF RA)
Andrew Olewnik (5/02)	"A Comprehensive Decision Support Framework for Flexible System Design" (NSF RA, Presidential Fellow)
Chris O'Hare (8/01)	"An Investigation of Communication Between Designers in a Non-Cooperative Environment"
Trevor Brauen (5/01)	"An Approach to Designing Flexible Engineering Systems" (NSF RA)
Tom Halecki (5/01)	"The Application of Simulation and Robust Design To Facilitate the Design of Complex Engineering Systems" (NASA Graduate Research Fellow)
John Eddy (12/00)	"The Use of Genetic Programming and Visualization to Facilitate Multiobjective Design Optimization" (NSF RA)
Anoop Nair (12/99)	"An Efficient Design Strategy for Solving MDO Problems in Non-Cooperative Environments" (Praxair RA)
Alison Callaghan (12/99)	"A Two-Phase Aspiration-Level and Utility Theory Approach to Large Scale Design" (UB Multidisciplinary Pilot Project Program RA)
Amit Srivastava (8/99)	"Application of Surrogate Approximation Models to Large-Scale Complex Systems" (NSF Research Assistant and Departmental Teaching Assistant)
Monu Kalsi (6/99)	"A Comprehensive Robust Design Approach for the Design of Coupled Systems" (NSF Research Assistant)
Vasu Ramaswamy (12/98)	"Configuration Design of Complex Systems Using Coupled Selection" (NSF/Allison Engine Company RA)
Magnus Johannson (12/98)	"An Evaluation of the Critical Factors in Design" (Swedish Government RA)
Edward Kasprazak (12/98)	"Multivariate Optimization and Game Theory Applications in Vehicle Dynamics Simulations" (UB Presidential Fellowship, Milliken Fellow)
Kurt Hacker (4/98)	"The Application of Robust Design Techniques to Strategic Decision Making in Design" (NASA Graduate Research Fellowship) Awarded top graduate research paper from the AIAA Northeast Region I Student Paper Conference, Buffalo, NY:

Hacker, K., 1999, "Comparison of Design Methodologies in the Preliminary Design of a Passenger Aircraft," 37th AIAA Aerospace Sciences Meeting, Reno, NV, AIAA 99-0011

in progress:

Jamie Asbach, expected 5/18

M.S. Project

completed:

Kent Carolus, (2/2014)	"Pressure Control Valve Re-Design for Commercial Aircraft Braking Systems"
David Ort (5/12)	"Design Optimization of Piezoelectric Accelerometers"
Jonathan Schmiedel (5/12)	"Implementing a Lean Design Approach for a Competitive Edge"
Laxmikant Vyavahre (8/11)	"Development of a Terrain-based, Multi-participant Real-time Driving Simulation Environment"
Ankur Bhargava (8/11)	"Design and Implementation of Motion Based Flight Simulation for Experiential Learning"
Viral Raghuwanshi (8/11)	"Artificial Intelligent Traffic Simulator"
Tom McGreevy (8/06)	"Heat Exchanger Design Optimization"
Dan Tobey (12/04)	"Multiattribute Decision Making in Heat Exchanger Design"
Jon Bechtel (9/04)	"Software Tool for the Design and Optimization of Multi-layered High Pressure Vessels"
Yik Kan Leung (2/02)	"Direct Electronic Production Ordering"
Shaokang Wang (5/01)	"Integration of Negotiation Theory and Set-Based Design To Support Tradeoffs In Design"
Rich Kurdziel (5/01)	"An Evaluation of The Effective Use of Product Family Design In Moog Inc. Dual Tandem Actuators"
Alex Owusu (5/99)	"A Comparison of Noncooperative and Sequential Design Problems"
Kerwin Wang (12/98)	"The Development of Real Coding Genetic Algorithms and Their Application"

Graduate Student Committee Membership:

Ivan Matta (Clemson)	Ph.D.	10/16	Ter Wei Chaim	M.S.	12/03
Gokturk Poyrazoglu (EE)	Ph.D.	9/15	Amit Bhandwale	M.S.	12/03
Baris Canbaz (École Centrale, Paris)	Ph.D.	9/13	Rajan Bhatt	M.S.	12/03
Ahmad Ayob (UNSW, Australia)			Walter Bratek	M.S.	12/03
Ruud Binnekamp (TU-Delft)	Ph.D.	9/11	Gebremeskel Hadush	M.S.	8/03
Shuiwei Xie (UNSW, Australia)	Ph.D.	5/10	Ping Chou Chen	M.S.	1/03
Galen Brambley (ANU, Australia)	Ph.D.	8/09	Yuji Nozaki	M.S.	8/02
Chen-Hung Huang	Ph.D.	4/08	Tabrez Malik	M.S.	7/02
Neale Fulton (ADFA, Australia)	Ph.D.	5/03	Andrew Sarantopolous	M.S.	7/02
Eric Chou (IE)	Ph.D.	8/02	Ryan Sandner	M.S.	5/02
Aihu Wang (IE)	Ph.D.	5/02	Matt Gersely	M.S.	2/02
Ken English	Ph.D.	11/01	Udayan Misra	M.S.	8/01
Kevin Hulme	Ph.D.	1/01	Faisal Ahmad	M.S.	8/01
Eliot Winer	Ph.D.	1/00	Cartik Sharma	M.S.	6/01
John Robinson	Ph.D.	9/99	Jason Scarcella	M.S.	1/01

Tae Wook Lee	M.S.	8/12	Scott Foster	M.S.	1/01
Aaron Nichols	M.S.	5/12	J. Rajesh	M.S.	5/00
Dipanjin Ghosh	M.S.	5/12	Charinjiv Singh	M.S.	5/00
Sidhant Sharma	M.S.	5/12	Deviprasad Tulak	M.S.	9/99
Nikhil Aphale	M.S.	5/12	Nikola Pretovic	M.S.	4/99
Bryan Mesmer	M.S.	8/11	Tom Kilburn	M.S.	12/98
David Sekuterski	M.S.	12/09	Ali Abbas	M.S.	4/98
Justin Schifferlie	M.S.	6/07	Ethan Bowerman	M.S.	3/98
Sumeet Parashar	M.S.	12/06	Ken English	M.S.	1/98
Utkarsh Bharadwaj	M.S.	9/04	Alex Lumbab	M.S.	9/97
Kevin Smalley	M.S.	6/04	Dan Boardman	M.S.	7/97
Nikhil Khedkar	M.S.	6/04	Hideo Aso	M.S.	2/97
	M.S.	1/04	Axle Rosenwigg	M.S.	11/96

Undergraduate Research Projects

Jon Bissette, Optimization in Design Innovation, 2017-
Benjamin Grace, The Development of Game Theoretical Protocols for Satellite Design, 2016-
Emanuel Malof, The Integration of Data Analytics in Smart Building Clusters, 2016-
Henry Kwan, The Co-existence of Complexity and Elegance in Systems Design, 2014-2016
Jamie Asbach, Design and Analysis of Cyber-Empathic Device, 2015-2016
James Lombardo, Development of Design Engineering Problems for Flipped Classroom Models, 2014-2015
Sarah Jacobowitz, Development of a Stochastic Model for Design Process Disruptions, 2013-2014
Taylor Ferguson, Development of a Biomimicry Model for Design, 2011-2014
Aaron Selkridge, A Study of the Formulation of Floating Ant Structures, 2011-2012
Phil Odonkor, Development of Digital Instructional Materials for Mechanical Engineering, 2010-2012
Sourobh Ghosh, A Study of Design Impulses and their Impact on Design Robustness, 2011-2013
David Van Horn, Development of IT-enabled Concept Generation Tools, 2009-2010
Jordan Matthews, investigation of Impulse Inputs on Complex System Stability, 2009-2010
Michael Castellani, Development of a Design Repository for High School Physics Education, 2007-2008
John Amend, Design and Development of a Line-Following Robot, Zimmer Award, 2007
Erich Devendorf, An Investigation of Rationality in Engineering Decision Making (awarded 2nd place in the 2005 UB Honors Research Poster Competition), 2005
Anand Naik, Genetic Programming in Aircraft Design, 2004
Jennifer Haendiges, Development of Pedagogical Case Studies for Decision-Based Design, 2003-2004
Jeremy Malik, Design of a Flexible Racecar Prototype, 2002
Mike Dearman, Development of Multiobjective Optimization Software Tool, 2001
Scott Ferguson, An Auction-based Approach to Design Negotiations, 2001
Scott Winesman, Negotiations in Decentralized Designs, 1999
Brendon Wade, The Design of a 2-DOF Ultrasound Linkage, 1999
Seth Galley, Implementation of Project Lead-the-Way, 1999
Andy Olewnik, Extensions to the Contour Method, 1999
John Eddy, Engine Design Tradeoff Analysis Using Pricer, 1998
Tom Halecki, Investigation of Robust Design Techniques in Product Design, 1998
Trevor Brauen, A Study of Personality Type and its Effect on Design Success, 1998
Omar Conteh, Development of an Interactive Workshop on the Internet, 1997

Sig Golembreski, The Role of Mathematical Modeling in Design, 1997
Michael Hennigan, Development of an Open Workshop Infrastructure on the Internet, 1997
Ray Cholod, An Internet Study of Tools and Methods for K-12 Science and Mathematics Education, 1996

Service:

Community:
Board of Directors, The Chapel at CrossPoint, 2005-2012, 2014-present
Advisory Board Member, Western New York Regional Partnership, 2006-2008
Lancaster High School, Lecture on Engineering in the 21st Century, 2000
Western New York Gifted Math Program Guest Lecturer, 1999-2004
Christian Central Academy, High School Lecture on Careers, 2001
Pembroke High School, Technology Department, Design Presentation, 2001
Instructor, Techwood Outreach Program Through Sports (TOPS), 1993-1996

University
Member, Department Chair's Advisory Committee, Vice Provost for Faculty Affairs, 2015-2018
Selection Committee Member, Meyerson Award for Distinguished Undergraduate Teaching & Mentoring, 2015
Presidential Fellow Committee Member, Honors College, 2015
Honors Council, School of Engineering Representative, 2013-2016
Vice Provost for Undergraduate Education, Education Innovation Subcommittee, 2013
Executive Committee, Techne Institute for Arts and Emerging Technologies, 2012-2014
Provost's Faculty Liaison Committee, Realizing UB2020, School of Engineering and Applied Sciences Representative, 2012-2013
Provost's Task Force on General Education Requirements, 2009-2011
Excellence in Graduate Teaching Awards Selection Committee, 2008
Search Committee Member, Mathematics Department ICT Faculty Search, 2007
Executive Committee, Information and Computing Technology Strategic Strength, UB2020, 2007-2014
Faculty Review Panel, Interdisciplinary Research and Development Fund, 2006, 2007
Faculty Review Panel, NSF MRI Program, 2006
Faculty Senate Representative, School of Engineering and Applied Science, 2004-2006
Faculty Review Panel, Interdisciplinary Research and Creative Activities Fund, 2005
Faculty Review Panel, Educational Technology Grants, Round Six, April 2004
Search Committee Member, Computing and Information Associate Director, 2003
Search Committee Member, Education Technology Center (ETC) Director, 2002
Member, Advisory Board, Education Technology Center (ETC), 2002-2003
Panelist, Center for Scientific Research Lecture series on developing research programs, 2002
NYSCEDII/CCR Summer Workshop on Scientific Visualization, Lecturer, various
Faculty Advisor, McNair Program for Minority Undergraduate Students, various
Provost's Junior Faculty Advisory Committee, School of Engineering Junior Faculty Representative, 1999-2001
Judge, Sigma Xi Research Competition, April 1999
Lunch with the Faculty, School of Engineering Representative, Spring 1999
University Honors Program, MAE Lunch Representative, various
Panelist, New Faculty Orientation, August 13, 1998

Faculty Review Panel, Conferences in the Disciplines, Office of the Provost, Spring 1998
Faculty Advisor, Sigma Phi Epsilon Fraternity, 1997-2000

School of Engineering
Organizer and Panel Member, Academic Careers Panel, SEAS GSA Conference on Career Perspectives and Networking, 2015
SEAS Future Faculty Workshop, 2011-2013
Mentor, Freshman Engineering Program, 2013-2015
Interdisciplinary Research Committee, 2013-2014
Senior Faculty Panel, SEAS Future Faculty Workshop, 2011-2013
Advisory Board, The Center for Industrial Effectiveness, 2009-2010
Executive Director, New York State Center for Engineering Design and Industrial Innovation (NYSCEDII), University at Buffalo, 2005 - 2014
Keynote Speaker, Theta Tau Installation Banquet, April 2003
Faculty Advisor, Tau Beta Pi Engineers Honors Society, 2005 - Present
Faculty Advisor, Theta Tau Professional Engineering Fraternity, 2003 - Present
Keynote Speaker, Tau Beta Pi Induction Banquet, November 1999, 2001, 2002
Judge, Engineering Student Associate BotWars, February 2002
Keynote Speaker, Pi Tau Sigma Induction Banquet, February 2000
Faculty Advisor, Dymaxion Club, SEAS, 1998-2000
Mentor, University Honors Program, 1998-2005
Co-op/ECI Program Advisor, 1997-2009
Subcommittee on Community Outreach, Spring 1996
Lectures on Disciplines EAS 140, Fall 1996, Fall 1997, Fall 1998, Fall 1999, Fall 2014, Fall 2015

Department
Search Committee, Faculty Position in Design and Optimization, 2013-2014
Search Chair, Faculty Position in Design Science, 2012-2013
Search Committee, Faculty Position in Design Science, 2011-2012
Search Co-chair, Faculty Position in Complex Systems, 2010-2011
Search Chair, Faculty Position in Information and Computing Technology, 2009-2010
Director, Joint BS/MBA Program in Mechanical and Aerospace Engineering, 2001-present
Marshall, MAE, Graduation, Spring, 1998-2001
Member, Undergraduate Education Committee, 1998-2014
Coordinator, Ph.D. Qualifying Committee, Design and Optimization Group, 1998, 2000
Member, Ph.D. Qualifying Committee - Civil Engineering, Optimization, 1998, 2007
Member, Ph.D. Qualifying Committee, Design and Optimization Group, 1997 - 2014
Member, Ph.D. Qualifying Committee, Dynamics and Controls Group, 2001

Professional
American Society of Mechanical Engineers
Elected as member of the ASME Mechanical Engineering Department Head Executive Committee, 2015
Elected Secretary of ASME Mechanical Engineering Department Head Executive Committee, 2017-2018
Fellow, 2011-present
Member, 1992-present
Design Automation Executive Committee, 2008-2013
Design Automation Committee, Chair, 2011-2012

Design Automation Conference, General Chair, 2010-2011
Design Automation Conference Technical Chair, 2009-2010
Associate Editor, *ASME Journal of Mechanical Design*, 2004-2007
Conference Session Chair (36 sessions since 1996) in Design Theory and Methodology and Design Automation Conferences at the ASME International Design Technical Conferences
Judge, ASME Mechanism Design Competition, Montreal, Canada, October 2002
Review Panelist, NSF Design Essay Competition at the ASME Design Technical Conferences, 2000-2015

American Institute of Aeronautics and Astronautics
Associate Fellow, 2004-present
Senior Member, 2002-2004
Chair, Education Subcommittee, Multidisciplinary Design Optimization Technical Committee, 11/00-4/03
Chair, Benchmarking Subcommittee, Multidisciplinary Design Optimization Technical Committee, 11/98-11/00
Associate Member, Multidisciplinary Design Optimization Technical Committee, 1998-2003
Conference Chair (7 sessions since 1996) in AIAA/AF/NASA/OAI Symposium on Multidisciplinary Analysis and Optimization
Associate Member, 1993-2002

American Society of Engineering Education
Member, 1996-present
Member, ASEE Fred Merryfield Design Award Committee, 2011-2013
Chair, ASEE Fred Merryfield Design Award Committee, 2013-2015

American Society for Quality
Member, 2005-2008

International Society for Structural and Multidisciplinary Optimization
Co-Conference Chair, *The Third World Congress of Structural and Multidisciplinary Optimization,* Buffalo, NY 1999
Judge, ISSMO National MicroAV Competition, Gainesville, Florida, April 5-6, 1997
Member, 1995-present

Society of Automotive Engineers
Member, 2003-2007

Pi Tau Sigma, Mechanical Engineering Honors Society
Member, 1992-present

Omega Rho, International Honor Society for Operations Research and Management Sciences
Member, 2004-present

Co-Editor, Artificial Intelligence for Engineering Design, Analysis and Manufacturing, Special Issue on Designing Complex Engineering Systems

Editorial Board, Journal of Engineering Design, 2010-present

Editorial Board, Research in Engineering Design, 2017-present

Reviewed for:

Conferences

- ASME CIE Conference 2005-2010, 2014-present
- ASME DTM Conference 1997-2015 (area paper coordinator in 2000, 2002, 2004, 2008)
- ASME DAC Conference 1996-2015 (area paper coordinator 1999, 2003, 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2015, 2016)
- ASME DFMLC Conference 2015 - present
- AIAA MAO Conference 1998-2012

- AIAA SDM Conference 1997, 1998, 2002, 2003, 2004, 2007, 2008, 2012
- International Conference on Research into Design (International Programme Committee, 2011, 2013, 2015)
- International Conference on Transformations in Engineering Education, 2015
- International Conference on Engineering Design, 2017

Journals

- Additive Manufacturing
- Advances in Engineering Software
- Advances in Artificial Intelligence
- Advances in Engineering Education
- ASME Journal of Mechanical Design
- ASME Journal of Medical Devices
- ASME Journal of Computing and Information Science in Engineering
- ASME Journal of Manufacturing Science and Engineering
- AIAA Journal of Aircraft
- AIAA Journal
- Annals of Biomedical Engineering
- ASCE Journal of Structural Engineering
- Artificial Intelligence for Engineering Design, Analysis and Manufacturing
- Computer-Aided Design
- Concurrent Engineering: Research and Applications
- Energy
- Engineering Computations
- Engineering Design and Automation Journal
- Engineering Management Journal
- Engineering Optimization Journal
- Engineering and Applied Sciences Optimization (OPTI 2014), Scientific Committee
- European Journal of Industrial Engineering
- European Journal of Operations Research
- IEEE Transactions on Robotics and Automation
- IEEE Transactions on Human-Machine Systems
- IIE Transactions on Design and Manufacturing
- International Journal of Bio-Inspired Computation
- International Journal of CAD/CAM
- International Journal of Information Technology & Decision Making
- International Journal of Product Development
- International Journal of Sustainable Engineering
- International Journal of Systems Science
- International Journal of Technology, Policy and Management
- International Journal of Quality and Reliability Management
- International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems
- International Journal for Numerical Methods in Engineering
- Journal of Computer-Aided Design
- Journal of Engineering Design (Editorial Board, 2012-2013)
- Journal of Design Research
- Journal of Design Optimization
- Journal of Global Optimization
- Journal of Integrated Design and Process Science

- Journal of Intelligent Manufacturing
- Journal of Manufacturing Systems
- Journal of Heuristics
- Journal of Zhejiang University-SCIENCE A
- Mathematical and Computer Modeling
- Mathematical Problems in Engineering
- OMEGA: The International Journal of Management Science
- Optimization and Engineering
- PLOS-ONE
- Research in Engineering Design
- Scientific World Journal
- Simulation Modelling Practice and Theory
- Structural and Multidisciplinary Optimization Journal
- Systems Engineering

Other Organizations

- Charles Goodyear Cooperative Research and Development Program, State of Connecticut
- ASME Press
- Addison-Wesley Longman, Computer and Engineering Group
- Alexander and Watson Publishers
- City University of Hong Kong
- CRC Press
- John Wiley and Sons
- Kluwer Academic Publishing
- Thomson, Brooks and Cole
- Prentice-Hall
- National Center for Case Study Teaching in Science
- Qatar National Priorities Research Program (NPRP)
- Oxford University Press
- Springer-Verlag
- Natural Sciences and Engineering Research Council of Canada
- Technology Foundation STW, Holland
- Israel Science Foundation
- National Science Foundation Panels
  Design of Engineering Material Systems (DEMS), Computational Discovery and Innovation (CDI), Information Technology Research (ITR), Small Business Innovation Research (SBIR), Engineering Design and Innovation (EDI), Design Manufacturing and Industrial Innovation (DMII), DMII CAREER, Course and Curriculum Development Program, International Programs Division, Office of Cyberinfrastructure, GK-12 Program, Integrative Graduate Education and Research Traineeship Program (IGERT), Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics (TUES), Improving Undergraduate STEM Education (IUSE), Partnerships for Innovation Program (PFI), Graduate Research Fellowship Program (GRFP), Engineering and Systems Design (ESD)
- National Institute of Health Panels
  Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR)

Consulting:

AccuMed Technologies, Buffalo, NY
BOC Edwards, Buffalo, NY
Del Monte Foods, Buffalo, NY
ITT Heat Transfer, Buffalo, NY
Contract Pharmaceuticals Ltd., Buffalo, NY
Curbell, Inc., Orchard Park, NY
Ultra-Scan Corporation, Amherst, NY
Praxair, Tonawanda, NY
Vishay Thin Film, Niagara Falls, NY
Rodgard Corporation, Buffalo, NY
Mokon Co., Buffalo, NY
National Center for Advanced Technologies, Washington, D.C.
Augello and Matteliano, Buffalo, NY (expert witness)
John J. Fromen, Attorneys at Law, Buffalo, NY (expert witness)
Crustinger and Booth, Dallas, TX (expert witness)
Damon and Morey, LLP, Buffalo, NY (expert witness)
Feroletu and Associates, Buffalo, NY (expert witness)
Hogan and Willig, Amherst, NY (expert witness)
Lipsitz, Green, Scmie, and Cambria, Buffalo, NY (expert witness)
Morrison Mahoney, New York, NY (expert witness)
Roach, Brown, McCarthy and Gruber, Buffalo, NY (expert witness)
Smith, Sovik, Kendrick and Sugnet, P.C., Syracuse, NY (expert witness)