

Curriculum Vitae of Dr. Satyandra K. Gupta

2147 AV Williams Building, University of Maryland, College Park, MD 20742

Phone: (301) 405-5306, FAX: (301) 314-9477, Email: skgupta@umd.edu

Updated on November 24, 2011

1. PERSONAL INFORMATION

A. RESEARCH INTERESTS

Computer Aided Design, Manufacturing Automation, and Robotics.

B. EDUCATION

- Ph.D. in Mechanical Engineering, University of Maryland, College Park, September 1994
- M.Tech. in Production Engineering, Indian Institute of Technology, Delhi, India, December 1989
- B.E. in Mechanical Engineering, University of Roorkee (presently known as Indian Institute of Technology, Roorkee), India, May 1988

C. EMPLOYMENT HISTORY

- Senior Fellow, Engineering Laboratory, National Institute of Standards and Technology, September 2011 to present
- Director, Maryland Robotics Center, University of Maryland, March 2010 to present
- Co-Director, Simulation-Based System Design Lab, University of Maryland, January 2010 to present
- Director, Advanced Manufacturing Lab, University of Maryland, July 2008 to present
- Professor, Mechanical Engineering Department and Institute for Systems Research, University of Maryland, July 2008 to present
- Guest Researcher, National Institute of Standards and Technology, July 2004 to June 2005 (on sabbatical from the University of Maryland)
- Associate Professor, Mechanical Engineering Department and Institute for Systems Research, University of Maryland, July 2002 to June 2008
- Assistant Professor, Mechanical Engineering Department and Institute for Systems Research, University of Maryland, July 1998 to June 2002
- Research Scientist and Adjunct Assistant Professor, Robotics Institute and Graduate School of Industrial Administration, Carnegie Mellon University, July 1996 to June 1998
- Project Scientist, Robotics Institute, Carnegie Mellon University, January 1995 to June 1996
- Research Associate, Institute for Systems Research, University of Maryland, September 1994 to December 1994
- Senior Scientific Officer, Numerical Control Laboratory, Indian Institute of Technology, Delhi, February 1990 to August 1990

D. FELLOWSHIPS, PRIZES, AND AWARDS

Awards

- Kos Ishii-Toshiba Award from American Society for Mechanical Engineers (ASME) Design for Manufacturing and the Life Cycle Committee, August 2011
- Compliant Mechanism Application Award in *2010 ASME Mechanism and Robotics Conference* for the paper “W. Bejgerowski, J.W. Gerdes, S.K. Gupta, H.A. Bruck, and S. Wilkerson, Design and fabrication of a multi-material compliant flapping wing drive mechanism for miniature air vehicles, *ASME Mechanism and Robotics Conference*, Montreal, Canada, August 2010”
- Bioinspiration & Biomimetics Highlights of 2009 (Paper “J.K. Hopkins, B.W. Spranklin, and S.K. Gupta, A survey of snake-inspired robot designs, *Bionispiration and Biomimetics*, 4(2):021001, 2009” was selected as one of the six highlight articles of 2009 by the journal)
- Winner, 2007 Invention of the Year Award in Physical Science Category, University of Maryland (Invention: Minimally Invasive Neurosurgical Intracranial Robot; Inventors: Jaydev P. Desai, Marc J. Simard, professor, Satyandra K. Gupta, Rao Gullapalli, Nicholas Pappafotis, and Wojciech Bejgerowski)
- Finalist, 2007 Invention of the Year Award in Information Science Category, University of Maryland (Invention: Geometry Based Search Software; Inventors: Satyandra K. Gupta, Antonio Cardone, and Maxim Schwartz)
- Fellow of American Society of Mechanical Engineers (Elected in August 2007)
- Best Paper Award in *2006 ASME Computers and Information in Engineering Conference* for the paper “T. Peng and S.K. Gupta, A computational framework for point cloud construction using digital projection patterns, *ASME Computers and Information in Engineering Conference*, Philadelphia, Pennsylvania, September 2006” (One paper was selected as the best paper from ninety four papers.)
- Trailblazer Award from *Science Spectrum Magazine*, September 2006. (This award is given by the Science Spectrum Magazine to scientists who are pioneers in their field and seen as outstanding Hispanic, Asian American, Native American, and African American professionals. Seventy Trailblazer awards are given annually.)
- Winner of the First Place in 2003 University of Maryland’s Business Plan Competition (Award was given to a team of three members: S.K. Gupta, A.K. Priyadarshi and R. Kumar.)
- Selected to attend National Academy of Engineering’s 2002 Frontiers in Engineering Symposium (Total of eighty engineers between ages of 30 and 45 were selected in US to attend this symposium based on their leading edge research.)
- Presidential Early Career Award for Scientists and Engineers (PECASE), 2001 (Total of twenty awards were given in US across all the science and engineering fields based on the most meritorious NSF CAREER proposals in 2001.)
- NSF CAREER Award, 2001 (Only one NSF CAREER award was given in the Engineering Design Program in 2001.)
- SME Robert W. Galvin Outstanding Young Manufacturing Engineer Award, 2001 (Total of nine awards were given in 2001.)
- Institute for Systems Research's Outstanding Systems Engineering Faculty Award, 2001

- Highly Commended Award from Literati Club for the paper “S.K. Gupta, C.J. Paredis, R. Sinha, and P.F. Brown, Intelligent Assembly Modeling and Simulation, *Assembly Automation*, 21(3):215--235, 2001”
- ONR Young Investigator Award, 2000 (Total of twenty six awards were given in 2000.)
- Best Paper Award in *1999 ASME Design for Manufacturing Conference* for the paper “R.K. Arni and S. K. Gupta, Manufacturability analysis for solid freeform fabrication, *ASME Design for Manufacturing Conference*, Las Vegas, Nevada, September 1999” (One paper was selected as the best paper from fifty papers.)
- Best Paper Award in the area of Artificial Intelligence and Feature-Based Design and Manufacturing in *1994 ASME Computers in Engineering Conference* for the paper “D. Das, S.K. Gupta, and D.S. Nau, Reducing setup cost by automated generation of redesign suggestions, *ASME Computers in Engineering Conference*, Minneapolis, MN, September 1994” (One paper was selected from fifty four papers in the Area of Artificial Intelligence and Feature-Based Design and Manufacturing.)
- Institute for Systems Research's Outstanding Systems Engineering Graduate Student Award, 1994
- Gold Medal for First Rank in Bachelor of Engineering in Mechanical Engineering, University of Roorkee, 1988
- Gold Medal for the Best Engineering Design Project, University of Roorkee, 1988
- First Prize, Science and Technology Entrepreneurship Park (Roorkee Chapter) Project Competition, 1988

Fellowships and Scholarships

- NIST ARRA Senior Fellowship (2011-2012)
- Institute for Systems Research Graduate Fellowship, University of Maryland (1992-1994)
- Graduate School Fellowship, University of Maryland (1990-1992)
- University Grant Commission Fellowship, Indian Institute of Technology, Delhi (1988-1989)
- University Merit Scholarship, University of Roorkee (1984-1988)

2. RESEARCH, SCHOLARLY, AND CREATIVE ACTIVITIES

A. BOOKS

Edited Books

1. D.K. Anand, S.K. Gupta, and R.A. Kavetsky (editors), *Simulation Driven Innovation and Discovery in Energetics Applications*, CALCE EPSC Press, College Park, 2011.

Authored Books

1. E.B. Magrab, S.K. Gupta, F.P. McCluskey, and P. Sandborn. *Integrated Product and Process Design and Development: The Product Realization Process*. Second Edition, CRC Press, July 2009.
2. S.K. Gupta, D.K. Anand, J.E. Brough, M. Schwartz, and R.A. Kavetsky. *Training in Virtual Environments: A Safe, Cost-Effective, and Engaging Approach to Training*. CALCE EPSC Press, College Park, July 2008.

Chapters in Books

1. M. Schwartz, P. Svec, A. Thakur, and S.K. Gupta. Simulation based synthesis of planning logic for autonomous unmanned sea surface vehicles. *Simulation Driven Innovation and Discovery in Energetics Applications*, CALCE EPSC Press, College Park, 2011.
2. A. Ananthanarayanan, W. Bejgerowski, J. Gerdes, D. Mueller, S.K. Gupta, and S. Wilkerson. Simulation based design of drive mechanism for flapping wing micro air vehicles. *Simulation Driven Innovation and Discovery in Energetics Applications*, CALCE EPSC Press, College Park, 2011.
3. P. Svec and S.K. Gupta. Automated planning logic synthesis for autonomous unmanned vehicles in competitive environments with deceptive adversaries. *New Horizons in Evolutionary Robotics: Extended Contributions from the EvoDeRob Workshop*, Studies in Computational Intelligence, Springer, pp. 171-193, 2011.
4. A.L. Gershon, L.S. Gyger, Jr., H.A. Bruck, and S.K. Gupta. In situ characterization of residual strains near electronic components embedded in thermoplastic polymers during processing and operation. *Advances in Mathematical Modeling and Experimental Methods for Materials and Structures*. The Jacob Aboudi Volume, Eds. Leslie Banks-Sills and Rivka Gilat, Springer, 2009.
5. S.K. Gupta, D.S. Nau, W.C. Regli, and G. Zhang. A methodology for systematic generation and evaluation of alternative operation plans. In *Advances in Feature Based Manufacturing*, pages 161-184, Elsevier Science Publishers, 1994.
6. D.S. Nau, G. Zhang, S.K. Gupta, and R.R. Karinithi. Evaluating product machinability for concurrent engineering. In *Concurrent Engineering: Contemporary Issues and Modern Design Tools*, pages 264-279, Chapman and Hall, 1993.

B. ARTICLES IN JOURNALS

Accepted/Published Articles in Journals

1. P. Svec and S.K. Gupta. Automated synthesis of action selection policies for unmanned vehicles operating in adverse environments. *Autonomous Robots*, Accepted for publication.
2. R. Patro, J. Dickerson, S. Bista, S.K. Gupta, and A. Varshney. Speeding up particle trajectory simulations under moving force fields using GPUs. *ASME Journal of Computing and Information Science in Engineering*, Accepted for publication.
3. J.W. Gerdes, S.K. Gupta, and S. Wilkerson. A review of bird-inspired flapping wing miniature air vehicle designs. *ASME Journal of Mechanism and Robotics*, Accepted for publication.
4. J.G. Cevallos, A.E. Bergles, A. Bar-Cohen, P. Rodgers, and S.K. Gupta. Polymer heat exchangers - History, opportunities, and challenges. *Heat Transfer Engineering*, Accepted for publication.
5. A. Ananthanarayanan, L. Ehrlich, J.P. Desai, and S.K. Gupta. Design of revolute joints for in-mold assembly using insert molding. *ASME Journal of Mechanical Design*, Accepted for publication.
6. W. Bejgerowski, J.W. Gerdes, S.K. Gupta, and H.A. Bruck. Design and fabrication of a miniature compliant hinges for multi-material compliant mechanisms. *International Journal of Advanced Manufacturing Technology*, 57(5):437-452, 2011.

7. J. Cevallos, S.K. Gupta, A. Bar-Cohen. Incorporating moldability considerations during the design of thermally enhanced polymer heat exchangers. *ASME Journal of Mechanical Design*, 133(8):081009, August 2011.
8. A.G. Banerjee, S. Chowdhury, W. Losert, and S.K. Gupta. Survey on indirect optical manipulation of cells, nucleic acids, and motor proteins. *Journal of Biomedical Optics*, 16(5), 051301, May 2011.
9. A. Weissman, M. Petrov, S.K. Gupta, X. Fiorentini, R. Sudarsan, and R. Sriram. A computational framework for authoring and searching product design specifications. *Advanced Engineering Informatics*, 25(3):516-534, August 2011.
10. D. Bourne, J. Corney, and S.K. Gupta. Recent advances and future challenges in automated manufacturing planning. *ASME Journal of Computing and Information Science in Engineering*, 11(2): 021006, June 2011.
11. A. Thakur and S.K. Gupta. Real-time dynamics simulation of unmanned sea surface vehicles for virtual environments. *ASME Journal of Computing and Information Science in Engineering*, 11(3):031005, September 2011.
12. J.K. Hopkins, B.W. Spranklin, and S.K. Gupta. A case study in optimization of gait and physical parameters for a snake-inspired robot based on a rectilinear gait. *ASME Journal of Mechanism and Robotics*, 3(1):014503, February 2011.
13. B. Koss, S. Chowdhury, T. Aabo, S.K. Gupta, and W. Losert. Indirect optical gripping with triplet traps. *Journal of Optical Society of America B*, 28(5), 982-985, 2011.
14. A. Ananthanarayanan, S.K. Gupta, and H.A. Bruck. Modeling and characterization to minimize effects of melt flow fronts on premolded component deformation during in-mold assembly of mesoscale revolute joints. *ASME Journal of Manufacturing Science and Engineering*, 132 (4): 041006, 2010.
15. A. Ananthanarayanan, S.K. Gupta, and H.A. Bruck. Characterization of a reverse molding sequence at the mesoscale for in-mold assembly of revolute joints. *Journal of Polymer Engineering and Science*, 50(9): 1843–1852, 2010.
16. D. Mueller, H.A. Bruck, and S.K. Gupta. Measurement of thrust and lift forces associated with drag of compliant flapping wing for micro air vehicles using a new test stand design. *Experimental Mechanics*, 50(6):725–735, 2010.
17. A. Balijepalli, T.W. LeBrun, and S.K. Gupta. Stochastic simulations with graphics hardware: Characterization of accuracy and performance. *ASME Journal of Computing and Information Science in Engineering*, 10(1): 011010, March 2010.
18. A.G. Banerjee, A. Pomerance, W. Losert, and S.K. Gupta. Developing a stochastic dynamic programming framework for optical tweezers based automated particle transport operations. *IEEE Transactions on Automation Science and Engineering*, 7(2), 218 – 227, 2010.
19. W. Bejgerowski, S.K. Gupta, and H.A. Bruck. A systematic approach for designing multi-functional thermally conducting polymer structures with embedded actuators. *ASME Journal of Mechanical Design*, 131(11): 111009, 2009.
20. T. Peng, A. Balijepalli, S.K. Gupta, and T. LeBrun. Algorithms for extraction of nanowire lengths and positions from optical section microscopy image sequence. *ASME Journal of Computing and Information Science in Engineering*, 9(4), December 2009.

21. W. Bejgerowski, A. Ananthanarayanan, D. Mueller, and S.K. Gupta. Integrated product and process design for a flapping wing drive-mechanism. *ASME Journal of Mechanical Design*, 131: 061006, 2009.
22. A.G. Banerjee, A. Balijepalli, S.K. Gupta, and T.W. LeBrun. Generating simplified trapping probability models from simulation of optical tweezers system. *ASME Journal of Computing and Information Science in Engineering*, 9(2):021003, June 2009.
23. J.K. Hopkins, B.W. Spranklin, and S.K. Gupta. A survey of snake-inspired robot designs. *Bionispiration and Biomimetics*, 4(2):021001, 2009.
24. A. Thakur, A.G. Banerjee, and S.K. Gupta. A survey of CAD model simplification techniques for physics-based simulation applications. *Computer Aided Design*, 41(2):64-80, 2009.
25. A.K. Priyadarshi and S.K. Gupta. Algorithms for generating multi-stage molding plans for articulated assemblies. *Robotics and Computer Integrated Manufacturing*, 32(3/4):350-365, 2009.
26. A. Ananthanarayanan, S.K. Gupta, and H.A. Bruck. Characterization and control of plastic deformation in mesoscale premolded components to realize in-mold assembled mesoscale revolute joints. *Polymer Engineering and Science*, 49(2):293-304, 2009.
27. A.L. Gershon, L.J. Gyger, Jr., H.A. Bruck and S.K. Gupta. Thermoplastic polymer shrinkage in emerging molding processes. *Experimental Mechanics*, 48(6):789-798, 2008.
28. T. Peng and S.K. Gupta. Algorithms for generating adaptive projection patterns for 3-D shape measurement. *ASME Journal of Computing and Information Science in Engineering*, 8(3), 2008.
29. A.S. Deshmukh, A.G. Banerjee, S.K. Gupta, and R. Sriram. Content-based assembly search: A step towards assembly reuse. *Computer Aided Design*, 40(2):244-261, 2008.
30. T. Peng and S.K. Gupta. Model and algorithms for point cloud construction using digital projection patterns. *ASME Journal of Computing and Information Science in Engineering*, 7(4): 372-381, 2007.
31. T. Peng, A. Balijepalli, S.K. Gupta, and T. LeBrun. Algorithms for on-line monitoring of microspheres in an optical tweezers-based assembly cell. *ASME Journal of Computing and Information Science in Engineering*, 7(4):330-338, 2007.
32. A.G. Banerjee and S.K. Gupta. Geometric algorithms for automated design of side actions in injection molding of complex parts. *Computer Aided Design*, 39(10):882-897, 2007.
33. J.E. Brough, M. Schwartz, S.K. Gupta, D.K. Anand, R. Kavetsky, and R. Pettersen. Towards development of a virtual environment-based training system for mechanical assembly operations. *Virtual Reality*, 11(4):189-206, 2007.
34. H.A. Bruck, A.L. Gershon, I. Golden, S.K. Gupta, L.S. Gyger, Jr., E. B. Magrab, and B.W. Spranklin. Training Mechanical Engineering students to utilize biological inspiration during product development. *Bionispiration and Biomimetics*, 2:S198-S209, 2007.
35. A. Banerjee, X. Li, G. Fowler, and S.K. Gupta. Incorporating manufacturability considerations during design of injection molded multi-material objects. *Research in Engineering Design*, 17(4):207-231, March 2007.
36. L.S. Gyger, Jr., P. Kulkarni, H.A. Bruck, S.K. Gupta, and O.C. Wilson, Jr. Replamineform Inspired Bone Structures (RIBS) using multi-piece molds and advanced ceramic gelcasting technology. *Materials Science and Engineering C*, 27(4):646-653, 2007.

37. A.K. Priyadarshi, S.K. Gupta, R. Gouker, F. Krebs, M. Shroeder, and S. Warth. Manufacturing multi-material articulated plastic products using in-mold assembly. *International Journal of Advanced Manufacturing Technology*, 32(3-4):350-365, March 2007.
38. R.M. Gouker, S.K. Gupta, H.A. Bruck, and T. Holzschuh. Manufacturing of multi-material compliant mechanisms using multi-material molding. *International Journal of Advanced Manufacturing Technology*, 30(11-12):1049-1075, 2006.
39. A. Cardone, S.K. Gupta, A. Deshmukh, and M. Karnik. Machining feature-based similarity assessment algorithms for prismatic machined parts. *Computer Aided Design*, 38(9):954-972, 2006.
40. S.K. Gupta, S.K. Saini, B.W. Spranklin, and Z. Yao. Geometric algorithms for computing cutter engagement functions in 2.5D milling operations. *Computer Aided Design*, 37(14):1469-1480, 2005.
41. M. Karnik, S.K. Gupta, and E.B. Magrab. Geometric algorithms for containment analysis of rotational parts. *Computer Aided Design*, 37(2):213-230, 2005.
42. X. Li and S.K. Gupta. Geometric algorithms for automated design of rotary-platen multi-shot molds. *Computer Aided Design*, 36(12):1171-1187, 2004.
43. Z. Yao and S.K. Gupta. Cutter path generation for 2.5D milling by combining multiple different cutter path patterns. *International Journal of Production Research*, 42(11):2141-2161, 2004.
44. H. Bruck, G. Fowler, S.K. Gupta, and T. Valentine. Towards bio-inspired interfaces: Using geometric complexity to enhance the interfacial strengths of heterogeneous structures fabricated in a multi-stage multi-piece molding process. *Experimental Mechanics*, 44(3):261-271, 2004.
45. A. Priyadarshi and S.K. Gupta. Geometric algorithms for automated design of multi-piece permanent molds. *Computer Aided Design*, 36(3):241-260, 2004.
46. S. Dhaliwal, S.K. Gupta, J. Huang, and A. Priyadarshi. Algorithms for computing global accessibility cones. *ASME Journal of Computing and Information Science in Engineering*, 3(3):200-209, 2003.
47. J. Huang, S.K. Gupta, and K. Stoppel. Generating sacrificial multi-piece molds using accessibility driven spatial partitioning. *Computer Aided Design*, 35(13):1147-1160, 2003.
48. S.K. Gupta, Y.S. Chen, S. Feng, and R. Sriram. A system for generating process and material selection advice during embodiment design of mechanical components. *SME Journal of Manufacturing Systems*, 22(1):28-45, 2003.
49. A. Cardone, S.K. Gupta, and M. Karnik. A survey of shape similarity assessment algorithms for product design and manufacturing applications. *ASME Journal of Computing and Information Science in Engineering*, 3(2):109-118, 2003.
50. S. Bellam and S.K. Gupta. An efficient geometric algorithm for extracting structural elements to facilitate automated MEMS extraction. *ASME Journal of Computing and Information Science in Engineering*, 3(2):155-165, 2003.
51. Z. Yao, S.K. Gupta, and D. Nau. Algorithms for selecting cutters in multi-part milling problems. *Computer Aided Design*, 35(9):825-839, 2003.
52. S.K. Gupta and D. Rajagopal. Sheet metal bending: Forming part families for shared setup generation. *SME Journal of Manufacturing Systems*, 21(5):329-350, 2002.
53. M. Kumar and S.K. Gupta. Automated design of multi-stage molds for manufacturing multi-material objects. *ASME Journal of Mechanical Design*, 124(3):399-407, 2002.

54. B. Baidya, S.K. Gupta, and T. Mukherjee. An extraction based verification methodology for MEMS. *IEEE/ASME Journal of Microelectromechanical Systems*, 11(1):2-11, 2002.
55. R. Sinha, S.K. Gupta, C.J. Paredis, P.K. Khosla. Extracting articulation models from CAD models of parts with curved surfaces. *ASME Journal of Mechanical Design*, 124(1):106-114, 2002.
56. S. Dhaliwal, S.K. Gupta, J. Huang, and M. Kumar. A feature based approach to automated design of multi-piece sacrificial molds. *ASME Journal of Computing and Information Science in Engineering*, 1(3):225-234, 2001.
57. S.K. Gupta, C.J. Paredis, R. Sinha, and P.F. Brown. Intelligent assembly modeling and simulation. *Assembly Automation*, 21(3):215-235, 2001.
58. Z. Yao, S.K. Gupta, and D.S. Nau. A geometric algorithm for finding the largest milling cutter. *SME Journal of Manufacturing Processes*, 3(1):1-16, 2001.
59. U. Alva and S.K. Gupta. Automated design of sheet metal punches for bending multiple parts in a single setup. *Robotics and Computer Integrated Manufacturing*, 17(1/2):33-47, 2001.
60. R.K. Arni and S.K. Gupta. Manufacturability analysis of flatness tolerances in solid freeform fabrication. *ASME Journal of Mechanical Design*, 123(1):148-156, 2001.
61. H. Last, M. Deeds, D. Garvick, B. Kavetsky, P. Sandborn, E.B. Magrab, and S.K. Gupta. Nano-to-millimeter scale integrated systems. *IEEE Transactions on Components and Packaging Technologies*, 22(2):338-343, 1999.
62. S.K. Gupta. Sheet metal bending operation planning: Using virtual node generation to improve search efficiency. *SME Journal of Manufacturing Systems*, 18(2):127-139, 1999.
63. S.K. Gupta and D.A. Bourne. Sheet metal bending: Generating shared setups. *ASME Journal of Manufacturing Science and Engineering*, 121:689-694, 1999.
64. S.K. Gupta, D.A. Bourne, K. Kim, and S.S. Krishnan. Automated process planning for sheet metal bending operations. *SME Journal of Manufacturing Systems*, 17(5):338-360, 1998.
65. S.K. Gupta, D.S. Nau, and W.C. Regli. IMACS: A case study in real-world planning. *IEEE Intelligent Systems*, 13(3):49-60, 1998.
66. S.K. Gupta. Using manufacturing planning to generate manufacturability feedback. *ASME Journal of Mechanical Design*, 119:73-79, March 1997.
67. S.K. Gupta, D. Das, W.C. Regli, and D.S. Nau. Automated manufacturability analysis: A survey. *Research in Engineering Design*, 9(3):168-190, 1997.
68. W.C. Regli, S.K. Gupta, and D.S. Nau. Towards multiprocessor feature recognition. *Computer Aided Design*, 29(1):37-51, 1997.
69. D. Das, S.K. Gupta, and D.S. Nau. Generating redesign suggestions to reduce setup cost: A step towards automated redesign. *Computer Aided Design*, 28(10):763-782, 1996.
70. S.K. Gupta and D.S. Nau. Systematic approach to analyzing the manufacturability of machined parts. *Computer Aided Design*, 27(5):323-342, 1995.
71. W.C. Regli, S.K. Gupta, and D.S. Nau. Extracting alternative machining features: An algorithmic approach. *Research in Engineering Design*, 7(3):173-192, 1995.
72. S.K. Gupta, T.R. Kramer, D.S. Nau, W.C. Regli, and G. Zhang. Building MRSEV models for CAM applications. *Advances in Engineering Software*, 20(2-3):121-139, 1994.

73. S.K. Gupta, W.C. Regli, and D.S. Nau. Integrating DFM with CAD through design critiquing. *Concurrent Engineering: Research and Applications*, 2(2):85-95, 1994.
74. S.K. Gupta, D.S. Nau, and G.M. Zhang. Concurrent evaluation of machinability during product design. *IEEE Computer*, 26(1): 62-63, 1993.
75. S.K. Gupta, P.N. Rao, and N.K. Tewari. Development of a CAPP system for prismatic parts using feature based design concepts. *International Journal of Advanced Manufacturing Technology*, 7:306-313, 1992.

Editorials

76. J. Corney and S.K. Gupta, Introduction to special issue on Advances in Computer Aided Manufacturing. *ASME Journal of Computing and Information Science in Engineering*, 7(3):185-185, September 2007.
77. S.K. Gupta and W.C. Regli. Introduction to special issue on Feature-Based Manufacturing. *Computer Aided Design*, 33(9):619-620, 2001.

Book Reviews

78. S.K. Gupta. Review of *Computer-Aided Injection Mold Design and Manufacture* (by JYH Fuh, YF Zhang, AYC Nee, MW Fu). *Computer Aided Design*, 37(14):1543, 2005.

C. CONFERENCE PUBLICATIONS

Full Paper Refereed Research Related Publications in Conferences

1. P. Svec, M. Schwartz, A. Thakur, and S.K. Gupta. Trajectory planning with look-ahead for unmanned sea surface vehicles to handle environmental uncertainties. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '11)*, September 2011.
2. J. Hopkins and S.K. Gupta. Design of a drive mechanism for a rectilinear-gait based snake-inspired robot. *ASME Mechanisms and Robotics Conference*, Washington DC, August 2011.
3. A. Thakur, P. Svec, and S.K. Gupta. Generation of state transition model using simulation for unmanned sea surface vehicle trajectory planning. *ASME Mechanisms and Robotics Conference*, Washington DC, August 2011.
4. S. Chowdhury, P. Svec, C. Wang, K.T. Seale, J.P. Wikswo, W. Losert, and S.K. Gupta. Investigation of automated cell manipulation in optical tweezers assisted microfluidic chamber using simulation. *ASME International Conference on Micro and Nanosystems*, Washington DC, August 2011.
5. Y.S. Kim, N.G. Dagalakis and S.K. Gupta. A two degree of freedom nanopositioner with electrothermal actuator for decoupled motion. *ASME International Conference on Micro and Nanosystems*, Washington DC, August 2011.
6. D. Vogtmann, S.K. Gupta, and S. Bergbreiter. A systematic approach to designing multi-material miniature compliant mechanisms. *ASME Mechanisms and Robotics Conference*, Washington DC, August 2011.
7. A. Weissman and S.K. Gupta. Selecting a design-stage energy estimation approach for manufacturing processes. *ASME Design for Manufacturing and the Life Cycle Conference*, Washington DC, August 2011.

8. T. Hall, M. Dabbeeru, and S.K. Gupta. A new approach for explicit construction of moldability based feasibility boundary for polymer heat exchangers. *ASME Design for Manufacturing and the Life Cycle Conference*, Washington DC, August 2011.
9. J. Cevallos, A. Bar-Cohen, and S.K. Gupta. An integrated approach to design of enhanced polymer heat exchangers. *ASME Design for Manufacturing and the Life Cycle Conference*, Washington DC, August 2011.
10. B. Russ, M. Dabbeeru, A. Chorney, D. Skelley, and S.K. Gupta. Suppressing features to generate simplified models for finite element analysis. *ASME Computers and Information in Engineering Conference*, Washington DC, August 2011.
11. W. Bejgerowski and S.K. Gupta. Runner optimization for in-mold assembly of multi-material compliant mechanisms. *ASME Computers and Information in Engineering Conference*, Washington DC, August 2011.
12. D. Vogtmann, S.K. Gupta, and S. Bergbreiter. Multi-material compliant mechanisms for mobile millirobots. *IEEE International Conference on Robotics and Automation*, Shanghai, China, May 2011.
13. A. Ananthanarayanan, L. Ehrlich, Jaydev P. Desai, S.K. Gupta. Design of revolute joints for insert molding: A step towards realizing low cost highly articulated robot structures. *ASME Design for Manufacturing and Lifecycle Conference*, Montreal, Canada, August 2010.
14. W. Bejgerowski, J.W. Gerdes, S.K. Gupta, H.A. Bruck, and S. Wilkerson. Design and fabrication of a multi-material compliant flapping wing drive mechanism for miniature air vehicles. *ASME Mechanism and Robotics Conference*, Montreal, Canada, August 2010.
15. J.W. Gerdes, S.K. Gupta, and S. Wilkerson. A review of bird-inspired flapping wing miniature air vehicle designs. *ASME Mechanism and Robotics Conference*, Montreal, Canada, August 2010.
16. A. Weissman, A. Ananthanarayanan, S.K. Gupta, and R. Sriram. A systematic methodology for accurate design-stage estimation of energy consumption for injection molded parts. *ASME Design for Manufacturing and Lifecycle Conference*, Montreal, Canada, August 2010.
17. A. Thakur and S.K. Gupta. A computational framework for real-time unmanned sea surface vehicle motion simulation. *ASME Computers in Engineering Conference*, Montreal, Canada, August 2010.
18. A. Bar-Cohen, P. Luckow, J.G. Cevallos, and S.K. Gupta. Thermal anisotropy in injection molded polymer composite fins. *International Heat Transfer Conference*, Washington DC, August 2010.
19. P. Svec, A. Thakur, D.K. Anand, S.K. Gupta, and M. Schwartz. A simulation based framework for discovering planning logic for autonomous unmanned surface vehicles. *ASME Engineering Systems Design and Analysis Conference*, Istanbul, Turkey, July 2010.
20. E. Raboin, D. Nau, U. Kuter, S.K. Gupta, and P. Svec. Strategy generation in multi-agent imperfect-information pursuit games. *9th Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS 2010)*, Toronto, Canada, May, 10–14, 2010.
21. M. Schwartz, P. Svec, A. Thakur, and S.K. Gupta. Evaluation of automatically generated reactive planning logic for unmanned surface vehicles. *Performance Metrics for Intelligent Systems Workshop*, Gaithersburg, MD, September 2009.
22. A. Balijepalli, T.W. LeBrun, J. Gorman, and S.K. Gupta. Evaluation of a trapping potential measurement technique for optical tweezers using simulations and experiments. *ASME International Conference on Micro and Nano Systems*, San Diego, August 30-September 2, 2009.

23. A.G. Banerjee, W. Losert, and S.K. Gupta. A decoupled and prioritized stochastic dynamic programming approach for automated transport of multiple particles using optical tweezers. *ASME International Conference on Micro and Nano Systems*, San Diego, August 30-September 2, 2009.
24. A. Thakur and S.K. Gupta. Context dependent contact preserving off-line model simplification for interactive rigid body dynamics simulations. *ASME Computers and Information in Engineering Conference*, San Diego, August 30-September 2, 2009.
25. W. Bejgerowski, H.A. Bruck, and S.K. Gupta. A modeling approach for simulating heat dissipation from actuators and electronic components embedded in thermally conducting polymers. *ASME Computers and Information in Engineering Conference*, San Diego, August 30-September 2, 2009.
26. A. Weissman, S.K. Gupta, X. Fiorentini, R. Sudarsan, and R. Sriram. Formal representation of product design specifications for validating product design. *ASME Computers and Information in Engineering Conference*, San Diego, August 30-September 2, 2009.
27. D. Mueller, J. Gerdes, and S.K. Gupta. Incorporation of passive wing folding in flapping wing miniature air vehicles. *ASME Mechanism and Robotics Conference*, San Diego, August 30-September 2, 2009.
28. A. Ananthanarayanan, S.K. Gupta, H.A. Bruck Characterization and control of pin diameter during in-mold assembly of mesoscale revolute joints. *Proceedings of North American Manufacturing Research Institute*, Vol. 37, 2009.
29. A.G. Banerjee and S.K. Gupta. Use of simulation in developing and characterizing motion planning approaches for automated particle transport using optical tweezers. *Virtual Manufacturing Workshop*, Turin, Italy, October 2008.
30. A. Ananthanarayanan, S. K. Gupta and H. A. Bruck. Characterization and control of plastic deformation in premolded components in in-mold assembled mesoscale revolute joints using bi-directional filling strategy. *All India Manufacturing Technology Development and Research Conference*, Chennai, India, December 2008.
31. S.K. Gupta, D.K. Anand, J.E. Brough, R.A. Kavetsky, M. Schwartz, and A. Thakur. A survey of the virtual environments-based assembly training applications. *Virtual Manufacturing Workshop*, Turin, Italy, October 2008.
32. A.G. Banerjee, A. Balijepalli, S.K. Gupta, and T.W. LeBrun. Radial basis function based simplified trapping probability models for optical tweezers. *ASME Computers and Information in Engineering Conference*, Brooklyn, NY, August 2008.
33. N. Pappafotis, W. Bejgerowski, R. Gullapalli, J.M. Simard, S.K. Gupta, and J.P. Desai. Towards design and fabrication of a miniature MRI-compatible robot for applications in neurosurgery. *ASME Mechanisms and Robotics Conference*, Brooklyn, NY, August 2008.
34. J.K. Hopkins, B.W. Spranklin, and S.K. Gupta. System-level optimization model for a snake-inspired robot based on a rectilinear gait. *ASME Mechanisms and Robotics Conference*, Brooklyn, NY, August 2008.
35. R. Primerano, D. Wilkie, W. Regli, and S.K. Gupta. Engineering informatics education with biologically inspired robots. *Biorobotics: Research Advances, Standards, and Education Workshop*, held at *IEEE International Conference on Robotics and Automation*, Pasadena, CA, USA, May 2008.

36. A. Ananthanarayanan, W. Bejgerowski, D. Mueller and S.K. Gupta. Development of a multi-piece multi-gate mold for manufacturing a flapping wing drive-mechanism. *North American Manufacturing Research Conference*, Monterrey, Mexico, May 2008.
37. T. Peng and S.K. Gupta. Algorithms for generating adaptive projection patterns for 3-D shape measurement. *ASME Computers and Information in Engineering Conference*, Las Vegas, Nevada, September 2007.
38. T. Peng, A. Balijepalli, S.K. Gupta, and T.W. Lebrun. Algorithms for extraction of nanowires attributes from optical section microscopy images. *ASME Computers and Information in Engineering Conference*, Las Vegas, Nevada, September 2007.
39. A.K. Priyadarshi and S.K. Gupta. Generating multi-stage molding plans for articulated assemblies. *IEEE International Symposium on Assembly and Manufacturing*, Ann Arbor, Michigan, July 2007.
40. A. Ananthanarayanan, C. Thamire, and S.K. Gupta. Investigation of revolute joint clearances created by in-mold assembly process. *IEEE International Symposium on Assembly and Manufacturing*, Ann Arbor, Michigan, July 2007.
41. C. Ip and S.K. Gupta. Retrieving matching CAD models by using partial 3D point clouds. *CAD Conference*, Hawaii, June 2007.
42. M. Schwartz, S.K. Gupta, D.K. Anand, J.E. Brough and R. Kavetsky. Using virtual demonstrations for creating multi-media training instructions. *CAD Conference*, Hawaii, June 2007.
43. A. Ananthanarayanan, S.K. Gupta, H.A. Bruck, Z. Yu and K.P. Rajurkar. Development of in-mold assembly process for realizing mesoscale revolute joints. *North American Manufacturing Research Conference*, Ann Arbor, MI, May 2007.
44. T. Peng and S.K. Gupta. A computational framework for point cloud construction using digital projection patterns. *ASME Computers and Information in Engineering Conference*, Philadelphia, Pennsylvania, September 2006.
45. A. Balijepalli, T.W. Lebrun, and S.K. Gupta. A flexible system framework for a nanoassembly cell using optical tweezers. *ASME Computers and Information in Engineering Conference*, Philadelphia, Pennsylvania, September 2006.
46. T. Peng, A. Balijepalli, S.K. Gupta, and T.W. Lebrun. Algorithms for on-line monitoring of components in an optical tweezers-based assembly cell. *ASME Computers and Information in Engineering Conference*, Philadelphia, Pennsylvania, September 2006.
47. A.G. Banerjee and S.K. Gupta. A step towards automated design of side actions in injection molding of complex parts. *Geometric Modeling and Processing Conference*, Pittsburgh, PA, July 2006.
48. A.K. Priyadrashi and S.K. Gupta. Finding mold-piece regions using computer graphics hardware. *Geometric Modeling and Processing Conference*, Pittsburgh, PA, July 2006.
49. A. Cardone and S.K. Gupta. Similarity assessment based on face alignment using attributed vectors. *CAD Conference*, Phuket Island, Thailand, June 2006.
50. S.K. Gupta, A. Cardone, and A. Deshmukh. Content-based search techniques for searching CAD databases. *CAD Conference*, Phuket Island, Thailand, June 2006.
51. H.A. Bruck, A.L. Gershon, I. Golden, S.K. Gupta, L.S. Gyger, Jr., E.B. Magrab, and B.W. Spranklin. New educational tools and curriculum enhancements for motivating engineering

- students to design and realize bio-inspired products. *Design and Nature*, Wessex Institute of Technology Press, Southampton, UK, May 2006.
52. A. Deshmukh, S.K. Gupta, M.V. Karnik, and R. Sriram. A system for performing content-based searches on a database of mechanical assemblies. *ASME International Mechanical Engineering Congress & Exposition*, Orlando, FL, November 2005.
 53. C. Xu, S.K. Gupta, Z. Yao, M. Gruninger, and R. Sriram. Towards computer-aided conceptual design of mechatronic devices with multiple interaction-states. *ASME Computers and Information in Engineering Conference*, Long Beach, CA, September 2005.
 54. M.V. Karnik, S.K. Gupta, D.K. Anand, F.J. Valenta, and I.A. Wexler. Design Navigator system: A case study in improving product development through improved information management. *ASME Computers and Information in Engineering Conference*, Long Beach, CA, September 2005.
 55. X.F. Zha, R. Sriram, and S.K. Gupta. Information and knowledge modeling for computer supported micro electro-mechanical systems design and development. *ASME Computers and Information in Engineering Conference*, Long Beach, CA, September 2005.
 56. T. Peng, S.K. Gupta, and K. Lau. Algorithms for constructing 3-D point clouds using multiple digital fringe projection patterns. *CAD Conference*, Bangkok, Thailand, June 2005.
 57. M.V. Karnik, D.K. Anand, E. Eick, S.K. Gupta, and R. Kavetsky. Integrated visual and geometric search tools for locating desired parts in a part database. *CAD Conference*, Bangkok, Thailand, June 2005.
 58. H.A. Bruck, A.L. Gershon, and S.K. Gupta. Enhancement of mechanical engineering curriculum to introduce manufacturing techniques and principles for bio-inspired product development. *ASME International Mechanical Engineering Congress*, Anaheim, CA, November 2004.
 59. C. Xu and S.K. Gupta. Algorithmic foundations for consistency-checking of interaction-States of mechatronic systems. *ASME Computers and Information in Engineering Conference*, Salt Lake City, UT, September 2004.
 60. A. Cardone, S.K. Gupta, and M.V. Karnik. Identifying similar parts for assisting cost estimation of prismatic machined parts. *ASME Design for Manufacturing Conference*, Salt Lake City, UT, September 2004.
 61. M.V. Karnik, S.K. Gupta, E.B. Magrab. Geometric containment analysis for rotational parts. *ASME Design Automation Conference*, Salt Lake City, UT, September 2004.
 62. J.W. Herrmann, J. Cooper, C. Hayes, S.K. Gupta, K. Ishii, D. Kazmer, P. Sandborn, and W. Wood. New directions in design for manufacturing. *ASME Design for Manufacturing Conference*, Salt Lake City, UT, September 2004.
 63. X. Li and S.K. Gupta. A step towards automated design of index-plate multi-shot molds. *Tools and Methods of Competitive Engineering Conference*, Lausanne, Switzerland, April 2004.
 64. S.K. Gupta, C. Xu, and Z. Yao. A framework for conceptual design of multiple interaction state mechatronic systems. *Tools and Methods of Competitive Engineering Conference*, Lausanne, Switzerland, April 2004.
 65. S.K. Gupta and G. Fowler. A step towards integrated product/process development of molded multi-material structures. *Tools And Methods Of Competitive Engineering*, Lausanne, Switzerland, April 2004.

66. X. Li and S.K. Gupta. Manufacturability analysis of multi-material objects molded by rotary platen multi-shot molding process. *ASME International Mechanical Engineering Congress and Exposition*, Washington, DC, November 2003.
67. Z. Yao, S.K. Gupta, and G. Fowler. Milling cutter selection for 3D models acquired by scanning. *ASME Computers in Engineering Conference*, Chicago, IL, September 2003.
68. S.K. Gupta and A. Priyadarshi. Towards automated design of multi-piece molds. *ASME Design Automation Conference*, Chicago, IL, September 2003.
69. X. Li and S.K. Gupta. A step towards automated design of rotary-platen multi-shot molds. *ASME Design for Manufacturing Conference*, Chicago, IL, September 2003.
70. A. Montelaro, M. Henderson, C. Roberts, N. Hubele, C. Hayes, and S.K. Gupta. A comparison method for automated manufacturability analysis systems. *ASME International Mechanical Engineering Congress and Exposition*, New Orleans, Louisiana, November 2002.
71. S.K. Gupta, X. Li, and A. Priyadarshi. An algorithm for design of multi-stage molds for multi-material objects with complex interfaces. *ASME International Mechanical Engineering Congress and Exposition*, New Orleans, Louisiana, November 2002.
72. Z. Yao, S.K. Gupta, and D.S. Nau. Hybrid cutter path generation for 2.5D milling operation. *ASME Computers in Engineering Conference*, Montreal, Canada, September 2002.
73. S.K. Gupta and C. Xu. Estimating the optimal number of alternatives to be explored in large design spaces: A step towards incorporating decision making cost in design decision models. *ASME Computers in Engineering Conference*, Montreal, Canada, September 2002.
74. S.K. Gupta, E. Lin, A. Lo, and C. Xu. Web-based innovation alert services to support product design evolution. *ASME Computer in Engineering Conference*, Montreal, Canada, September 2002.
75. J. Huang and S.K. Gupta. Accessibility driven spatial partitioning for generating sacrificial multi-piece molds. *ASME Design for Manufacturing Conference*, Montreal, Canada, September 2002.
76. S. Dhaliwal, S.K. Gupta, J. Huang, and M. Kumar. A step towards automated design of sacrificial multi-piece molds. *ASME Design for Manufacturing Conference*, Montreal, Canada, September 2002.
77. S.K. Gupta and A.K. Samuel. Integrating the market research with the product development process: A step towards design for profit. *ASME Design for Manufacturing Conference*, Pittsburgh, PA, September 2001.
78. S.K. Gupta and D. Rajagopal. A mixed integer programming formulation for generating shared pressbrake setups. *ASME Design for Manufacturing Conference*, Pittsburgh, PA, September 2001.
79. S.K. Gupta, S.K. Saini, and Z. Yao. An algorithm to generate efficient cutter path for pocket milling operations using modified zigzag strategy. *ASME Computers in Engineering Conference*, Pittsburgh, PA, September 2001.
80. S. Bellam and S.K. Gupta. An efficient geometric algorithm for extracting mechanical components: A step towards developing an automated extraction tool for MEMS. *ASME Computers in Engineering Conference*, Pittsburgh, PA, September 2001.
81. Z. Yao, S.K. Gupta, and D.S. Nau. A geometric algorithm for selecting optimal set of cutters for multi-part milling. *ACM Symposium on Solid Modeling and Applications*, Ann Arbor, June 2001.

82. M. Kumar and S.K. Gupta. A geometric algorithm for automated design of multi-stage molds for manufacturing multi-material objects. *ACM Symposium on Solid Modeling and Applications*, Ann Arbor, June 2001.
83. Y.S. Chen, S.K. Gupta, and S. Feng. A web-based process/material advisory system. *ASME International Congress and Exposition*, Orlando, Florida, November 2000.
84. Z. Yao, S.K. Gupta, and D.S. Nau. Finding the maximal cutter for 2D milling operations. *ASME Computers in Engineering Conference*, Baltimore, Maryland, September 2000.
85. R.K. Arni, S.K. Gupta, and M. Kumar. A web based tolerance analysis service for solid freeform fabrication. *ASME Design for Manufacturing Conference*, Baltimore, Maryland, September 2000.
86. S. Dhaliwal, S.K. Gupta, and J. Huang. Computing exact global accessibility cones for polyhedral object. *ASME Design for Manufacturing Conference*, Baltimore, Maryland, September 2000.
87. U. Alva and S.K. Gupta. Automated design of sheet metal bending tools. *Flexible Automation and Intelligent Manufacturing Conference*, College Park, MD, June 2000.
88. Z. Yao, S.K. Gupta, and D.S. Nau, A geometric algorithm for finding maximal cutter for 2-D milling operations. *Flexible Automation and Intelligent Manufacturing Conference*, College Park, MD, June 2000.
89. R.K. Arni and S.K. Gupta. Manufacturability analysis for solid freeform fabrication. *ASME Design for Manufacturing Conference*, Las Vegas, Nevada, September 1999.
90. U. Alva and S.K. Gupta. Automated punch shape synthesis for sheet metal bending operations. *ASME Design for Manufacturing Conference*, Las Vegas, Nevada, September 1999.
91. S.K. Gupta, Q. Tian, and L.E. Weiss. Finding near-optimal build orientation for shape deposition manufacturing. *Sculptured Surface Machining Conference*, Auburn Hills, MI, November 1998.
92. B. Baidya, S.K. Gupta, and T. Mukherjee. Feature recognition for MEMS extraction. *ASME Mechanisms Conference*, Atlanta, GA, September 1998.
93. S. Rajagopalan, J.M. Pinilla, P. Losleben, Q. Tian, and S.K. Gupta. Integrated design and manufacturing over the Internet. *ASME Computers in Engineering Conference*, Atlanta, GA, September 1998.
94. S.K. Gupta. Formation of part families for shared setups generation in sheet metal bending. *ASME Computers in Engineering Conference*, Atlanta, GA, September 1998.
95. R. Sinha, C.J. Paredis, S.K. Gupta, and P.K. Khosla. Capturing articulation in assemblies from component geometry. *ASME Design Automation Conference*, Atlanta, GA, September 1998.
96. S. Sachdev, C.J. Paredis, S.K. Gupta, and S.N. Talukdar. Generating 3D spatial layouts using A-Teams. *ASME Design Automation Conference*, Atlanta, GA, September, 1998.
97. S.K. Gupta, C. J. Paredis, C.H. Wang, R. Sinha, and P.F. Brown. An intelligent environment for simulating mechanical assembly operations. *ASME Design for Manufacturing Conference*, Atlanta, GA, September 1998.
98. S.K. Gupta, C.J. Paredis, and P.F. Brown. Micro planning for mechanical assembly operations. *IEEE Robotics and Automation Conference*, Leuven, Belgium, May 1998.
99. T.N. Madhusudan and S.K. Gupta. Spatial synthesis of electro-mechanical products. *ASME Design for Manufacturing Conference*, Sacramento, CA, September 1997.
100. S.K. Gupta and D.A. Bourne. Multi-part setup planning for sheet metal bending operations. *ASME Computers in Engineering Conference*, Sacramento, CA, September 1997.

101. D.A. Bourne, S.K. Gupta, and K. Kim. Cooperatively planning sheet metal bending. *ASME Design for Manufacturing Conference*, Irvine, CA, August 1996.
102. S.K. Gupta and D.A. Bourne. Using virtual node generation to speed up sheet metal bending operation planning. *ASME Computers in Engineering Conference*, Irvine, CA, August 1996.
103. S.K. Gupta, J.W. Herrmann, G. Lam, and I. Minis. Automated high level process planning for agile manufacturing. *ASME Design Automation Conference*, pages 835-852, Boston, MA, September 1995.
104. W.C. Regli, S.K. Gupta, and D.S. Nau. Interactive feature recognition using multi-processor methods. *ASME Design Automation Conference*, pages 927-938, Boston, MA, September 1995.
105. S.K. Gupta, D. Das, W.C. Regli, and D.S. Nau. Current trends and future challenges in automated manufacturability analysis. *ASME Computers in Engineering Conference*, pages 655-665, Boston, MA, September 1995.
106. D. Das, S.K. Gupta, and D.S. Nau. Estimation of setup time for machined parts: Accounting for work holding constraints. *ASME Computers in Engineering Conference*, pages 619-631, Boston, MA, September 1995.
107. D.S. Nau, S.K. Gupta, and W.C. Regli. AI planning versus manufacturing operation planning: A case study. *International Joint Conference on Artificial Intelligence*, pages 1670-1676, Montreal, Canada, August 1995.
108. S.K. Gupta, W.C. Regli, and D.S. Nau. Manufacturing feature instances: Which ones to recognize? *ACM Symposium on Solid Modeling and Applications*, pages 141-152, Salt Lake City, Utah, May 1995.
109. D.S. Nau, M. Ball, S.K. Gupta, I. Minis, and G. Zhang. Design for manufacture in multi-enterprise partnerships: Current status and future directions. Concurrent Product Design Symposium, *ASME Winter Annual Meeting*, pages 117-125, November 1994.
110. W.C. Regli, S.K. Gupta, and D.S. Nau. Feature recognition for manufacturability analysis. *ASME Computers in Engineering Conference*, pages 93-104, Minneapolis, MN, September 1994.
111. D. Das, S.K. Gupta, and D.S. Nau. Reducing setup cost by automated generation of redesign suggestions. *ASME Computers in Engineering Conference*, pages 159-170, Minneapolis, MN, September 1994.
112. S.K. Gupta, D.S. Nau, and G.M. Zhang. Interpreting product designs for manufacturability evaluation. In Intelligent Concurrent Design, *ASME Winter Annual Meeting*, volume DE-Vol. 66, pages 33-44, New Orleans, LA, November 1993.
113. D.S. Nau, S.K. Gupta, T.R. Kramer, W.C. Regli, and G.M. Zhang. Development of machining alternatives, based on MRSEVs. *ASME Computers in Engineering Conference*, pages 47-57, San Diego, CA, August 1993.
114. S.K. Gupta and D.S. Nau. Generation of alternative feature-based models and precedence orderings for machining applications. *Symposium on Solid Modeling Foundations and CAD/CAM Applications*, Montreal, Canada, May 1993.
115. D.S. Nau, G.M. Zhang, and S.K. Gupta. Generation and evaluation of alternative operation sequences. Quality Assurance through Integration of Manufacturing Processes and Systems. *ASME Winter Annual Meeting*, volume PED-Vol. 56, pages 93-108, Anaheim, CA, November 1992.

Abstract Refereed Publications in Conferences and Workshops

1. R. Madhavan, R. Bostelman, Z. Kootbally, R. Lakaemper, S.K. Gupta, and S. Balakirsky. Smart, flexible, and safe industrial mobile robots: Performance evaluation and standardization efforts. *International Test and Evaluation Association (ITEA) Tech. Review Conference*, Annapolis, MD, U.S.A., July 2011.
2. A. Ananthanarayanan, F. Bussemmer, J. Desai, and S.K. Gupta. Fabrication of highly articulated miniature snake robot structures using in-mold assembly of compliant joints. *International Symposium on Experimental Robotics (ISER)*, New Delhi, India, December 2010.
3. M. Ho, A. Ananthanarayanan, L. Ehrlich, R. Gullapalli, J. M. Simard, S.K. Gupta, and J.P. Desai. Towards a minimally invasive neurosurgical intracranial robot. *Workshop on Snakes, Worms and Catheters: Continuum and Serpentine Robots for Minimally Invasive Surgery, IEEE ICRA*, Anchorage AK, May 2010.
4. P. Svec and S.K. Gupta. Competitive Co-evolution of high-level blocking controllers for unmanned surface vehicles. *Exploring New Horizons in Evolutionary Design of Robots Workshop, International Conference on Intelligent Robots and Systems*, October 2009.
5. A. Balijepalli, T.W. LeBrun, J.J. Gorman, S.K. Gupta. Enhanced force measurement techniques to extend optical trapping towards nanoscale manipulation. *IEEE International Conference on Nanotechnology*, Genoa, Italy, July 2009.
6. W. Bejgerowski, S. K. Gupta, and H.A. Bruck. Multifunctional structures using filled polymers for in-mold assembly of embedded electronic components. *SEM Annual Conference and Exposition, Albuquerque, NM*, 2009.
7. A. Balijepalli, T.W. LeBrun, J.J. Gorman, and S.K. Gupta. Methods to directly measure the trapping potential in optical tweezers. *Optical Trapping and Optical Micromanipulation Conference, SPIE Symposium on NanoScience & Engineering*, San Diego, California, August 2008.
8. A. Ananthanarayanan, S.K. Gupta and H.A. Bruck. Mechanical characterization of cold weld-lines and meld lines in mesoscopic revolute joints for bioinspired structures. *SEM Annual Conference and Exposition, Orlando, Florida*, June 2008.
9. M. Schwartz, S.K. Gupta, D.K. Anand, and R. Kavetsky. Virtual mentor: A step towards proactive user monitoring and assistance during virtual environment-based training. *Performance Metrics for Intelligent Systems (PerMIS) Workshop*, Gaithersburg, MD, August 2007.
10. A.L. Gershon, L.S. Gyger, Jr., H.A. Bruck, and S.K. Gupta. Process characterization and modeling for biologically-inspired Embedded Controls, Actuators, and Power Element (ESCAPE) structures. *SEM Annual Conference and Exposition, Springfield, Massachusetts*, June 2007.
11. L.S. Gyger, Jr., B. Spranklin, S.K. Gupta, and H.A. Bruck. Bio-inspired, modular, and multifunctional Thermal and Impact Protected (TIPed) Embedded Sensing Controls Actuation Power Element (ESCAPE) structures. *SEM Annual Conference and Exposition, St. Louis, Missouri*, June 2006.
12. A. Ananthanarayanan, H.A. Bruck and S.K. Gupta. Interfacial adhesion in multi-stage injection molded components. *SEM Annual Conference and Exposition, St. Louis, Missouri*, June 2006.
13. J.E. Brough, M. Schwartz, S.K. Gupta, D.K. Anand, C.F. Clark, R. Pettersen, and C. Yeager. Virtual Training Studio: A step towards virtual environment assisted training. *IEEE Virtual Manufacturing Workshop, Alexandria, Virginia*, March 2006.

14. L.S. Gyger, Jr., P. Kulkarni, H.A. Bruck, S.K. Gupta, and O.C. Wilson. Porous gelcast ceramics for bone repair implants. *SEM Annual Conference and Exposition*, Portland, OR, June 2005.
15. Z. Tuncali, S.K. Gupta, D.K. Anand, and Z. Yao. Design and operation of a storage facility in a virtual environment. *International Conference on Manufacturing Automation*, pp. 521--528, Wuhan, China, October 2004.
16. S.K. Gupta and J. Huang. Manufacturability-driven spatial partitioning: A systematic approach to computational shape synthesis in manufacturing applications. *Computational Synthesis, AAAI Spring Symposium*, Stanford, CA, March 2003.
17. G. Fowler, S.K. Gupta, and H.A. Bruck. Manufacturing of bio-inspired heterogeneous structures with improved interfacial strength using a multi-stage multi-material molding technique. *SEM Annual Conference and Exposition*, Milwaukee, WI, June 2002.
18. B. Baidya, S.K. Gupta, and T. Mukherjee. MEMS component extraction. *Modeling and Simulation of Microsystems (MSM) Conference*, San Juan, Puerto Rico, April 1999.
19. S.K. Gupta and P.F. Brown. Integrated assembly design/planning systems: How far away are we from commercialization? *IFIP Workshop on Knowledge Intensive CAD*, Pittsburgh, PA, September 1996.
20. D.S. Nau, S.K. Gupta, and W.C. Regli. Manufacturing-operation planning versus AI planning. *AAAI Spring Symposium on Integrated Planning Applications*, 1995.
21. D.S. Nau, M. Ball, S.K. Gupta, I. Minis, and G. Zhang. Design for manufacture by multi-enterprise partnerships. *Bridging the Generations: An International Workshop on the Future Directions of Computer-Aided Engineering*, pages 149--154, June 1994.
22. D.S. Nau, S.K. Gupta, T.R. Kramer, W.C. Regli, and G. Zhang. Using MRSEVs to develop machining alternatives. *AAAI/SIGMAN Workshop on Intelligent Manufacturing*, 1993.
23. S.K. Gupta, P.N. Rao, and N.K. Tewari. Use of part features for process planning. *Fifth International Conference on CAD/CAM Robotics and Factories of the Future*, pages 211--216, Norfolk, VA, December 1990.

Other Publications in Conferences and Workshops

1. S.K. Gupta and A. Thakur. Algorithms for contact preserving model simplification for interactive rigid body dynamics simulations. *NSF CMMI Engineering Research and Innovation Conference*, Atlanta, GA, January 2011.
2. S.K. Gupta, A. Ananthanarayanan, W. Bejgerowski, and H.A. Bruck. Characterizing melt flow and premolded part interactions during in-mold assembly of mesoscale rigid body revolute joints. *NSF CMMI Engineering Research and Innovation Conference*, Honolulu, Hawaii, June 2009.
3. S.K. Gupta and A. Thakur. Off-line model simplification for interactive rigid body dynamics simulations. *NSF CMMI Engineering Research and Innovation Conference*, Honolulu, Hawaii, June 2009.
4. A. Bar-Cohen, S.K. Gupta, P. Rodgers, J.G. Cevallos, and M. Adi. Mold filling meta model for polymer composite heat exchanger. *Proceedings of the Second International Energy 2030 Conference*, November 4-5, 2008, Abu Dhabi, U.A.E.
5. S.K. Gupta, K. Rajurkar, A. Ananthanarayanan, W. Bejgerowski, and H.A. Bruck. Progress towards In-Mold Assembly of Mesoscale Rigid Body Revolute Joints. *NSF CMMI Engineering Research and Innovation Conference*, Knoxville, TN, January 2008.

6. S.K. Gupta and K. Suresh. Automatic generation of context-dependent simplified models to support interactive virtual assembly. *NSF CMMI Engineering Research and Innovation Conference*, Knoxville, TN, January 2008.
7. S.K. Gupta, A. Ananthanarayanan, and H.A. Bruck. Development of multi-stage molding methods for manufacturing of mesoscopic 3D articulated devices. *NSF Design, Service and Manufacturing Grantees and Research Conference*, St. Louis, Missouri, July 2006.
8. S.K. Gupta, A.G. Banerjee, X. Li, and G. Fowler. Development of a manufacturability analysis framework for injection molded multi-material objects. *NSF Design, Service and Manufacturing Grantees and Research Conference*, St. Louis, Missouri, July 2006.
9. S.K. Gupta. Progress towards design and manufacturing of multi-material compliant mechanisms using multi-material molding. *NSF Design, Service and Manufacturing Grantees and Research Conference*, Scottsdale, AZ, January 2005.
10. S.K. Gupta. Progress towards automated manufacturability analysis of molded multi-material objects, *NSF Design, Service and Manufacturing Grantees and Research Conference*, Dallas, TX, January 2004.
11. S.K. Gupta. Progress towards development of a geometric algorithm for designing multi-material molds. *NSF Design, Service and Manufacturing Grantees and Research Conference*, Birmingham, AL, January 2003.
12. S.K. Gupta and D. Rajagopal. Forming part families for generating shared press-brake setups. *NSF Design, Service, and Manufacturing Conference*, Tampa, FL, January 2001.
13. S.K. Gupta and U. Alva. Automated punch design for multi-part process planning. *NSF Design and Manufacturing Conference*, Vancouver, Canada, January 2000.
14. S.K. Gupta. Shared setup generation for sheet metal bending. *NSF Design and Manufacturing Conference*, Long Beach, CA, January 1999.
15. S.K. Gupta, D.S. Nau, W.C. Regli, and G. Zhang. IMACS: Interactive manufacturability analysis and critiquing system. *NSF Design and Manufacturing Grantees Meeting*, January 1996.
16. S.K. Gupta, D.S. Nau, and W.C. Regli. Systematically analyzing the manufacturability of machined parts. *NSF Design and Manufacturing Grantees Meeting*, January 1995.
17. G.M. Zhang, D.S. Nau, W. Ko, and S.K. Gupta. Economic evaluation of alternative machining operation plans. *NSF Design and Manufacturing Grantees Meeting*, January 1994.
18. S.K. Gupta, D.S. Nau, and G.M. Zhang. Systematically generating and evaluating alternative operation plans. *NSF Design and Manufacturing Grantees Meeting*, January 1994.
19. S.K. Gupta, D.S. Nau, and G.M. Zhang. Generation of machining alternatives for machinability evaluation. *NSF Design and Manufacturing Systems Conference*, pages 1771--1780, University of North Carolina, Charlotte, NC, January 1993.

D. PATENTS

1. S. K. Gupta and D. A. Bourne. *Apparatus and Method for Multi-Part Setup Planning for Sheet Metal Bending Operations*. U.S. Patent 6,233,538. Awarded on May 15, 2001.

E. CITATIONS

More than 2000 citations based on Google Scholar Database.

F. INVITED PRESENTATIONS AND SEMINAR

Invited Presentations at Conference, Workshops, and Panels

1. Invited Speaker, USA-Finland Joint Networking Workshop on Digital Product Process, Washington DC, September 2011 (Presentation Title: *Simulation Based Computational Synthesis*)
2. Invited Speaker, Robotics in Endoscopy Workshop, Hyderabad, India, July 2011 (Presentation Title: *Towards a New Manufacturing Approach to Realizing Miniature Robots*)
3. Invited Speaker, NSF Workshop on Bio-Inspired Design, Palo Alto, CA, March 2011 (Presentation Title: *Bio-Inspired Robotics*)
4. Keynote Speaker, All India Manufacturing Technology, Design and Research, Visakhapatnam, India, December 2010 (Presentation Title: *Towards a New Manufacturing Approach to Realizing Bio-Inspired Robots with Mesoscale Features*).
5. Keynote Speaker, Tools and Methods of Competitive Engineering, Ancona, Italy, April 2010 (Presentation Title: *Recent Advances and Potential of Simulation Driven Innovation and Discovery for Intelligent Systems*).
6. Panelist, Tools and Methods of Competitive Engineering, Ancona, Italy, April 2010, (Panel: *Mobile and Ubiquitous Technologies in Design and Engineering*).
7. Keynote Speaker, Northrop Grumman Design Automation Summit, Baltimore, September 2009 (Presentation Title: *Towards Next Generation Design Automation*).
8. Panelist, NSF CMMI Engineering Research and Innovation Conference, Honolulu, Hawaii, June 2009 (Panel: *Getting the Word Out*).
9. Invited Speaker, IEEE Spring Symposium on Technology for the Golden Years, College Park, MD, May 2008 (Presentation Title: *Product Development Challenges and Opportunities for Meeting the Needs of People with Disability*)
10. Invited Speaker, NIST Second Workshop on 3D and 2D Content Representation, Analysis and Retrieval, Gaithersburg, MD, May 2008 (Presentation Title: *Part Similarity Assessment for Injection Molding Applications*)
11. Invited Speaker, NIST First Workshop on 3D and 2D Content Representation, Analysis and Retrieval, Gaithersburg, MD, April 2007 (Presentation Title: *Feature-Based Part Similarity Assessment*)
12. Panelist, Maryland Modeling, Simulation, and Analysis Council Conference, Annapolis, MD January 2007 (Presentation Title: *Virtual Prototyping*)
13. Invited Tutorial Speaker, Computer Aided Design Conference, Phuket Island, Thailand, June 2006 (Presentation Title: *Content Based Search Techniques for Searching CAD Databases*)
14. Keynote Speaker, NSF Sponsored Symposium on Biologically Inspired Design, Georgia Institute of Technology, Atlanta, GA, May 2006 (Presentation Title: *Using Biologically Inspired Robots as Case Studies for Teaching Bio-Inspired Product Development*)
15. Panelist, Design, Analysis and Manufacturing Panel, ACM Symposium on Solid and Physical Modeling, Boston, MA, June 2005 (Presentation Title: *Geometric Computing Challenges in Micro and Nano Manipulation Using Optical Tweezers*)

16. Invited Speaker, Intergovernmental Workshop on Intelligent Information Use in Manufacturing, National Science Foundation, Arlington, VA, September 2004 (Presentation Title: *Improving Product Realization Through Intelligent Design Information Management*)
17. Panelist, Design for X Panel, ASME Computers and Information in Engineering Conference, Salt Lake City, UT, October 2004 (Presentation Title: *Implications of Emerging Manufacturing Processes on DFMA Research and Education*)
18. Keynote Speaker, Tools and Methods of Competitive Engineering Conference, Lausanne, Switzerland, April 2004 (Presentation Title: *A Step towards Integrated Product and Process Development of Molded Multi-Material Structures*)

Invited Seminars at University, Government Labs, and Industry

19. *Automated Planning for Low Production Volume Robotic Assembly Workstations*, Intelligent Systems Division, National Institute of Standards and technology, Gaithersburg, MD, November 2011.
20. *Towards Simulation-Based Computational Synthesis*, Systems Integration Division, National Institute of Standards and technology, Gaithersburg, MD, November 2011.
21. *Planning for Autonomous Robotic Operations in Physically Challenging Environments*. Georgia Institute of Technology, Atlanta, GA, October 2011.
22. *Autonomous Unmanned Vehicles*, Intelligent Automation Inc., Rockville, MD, June 2011.
23. *Autonomous Unmanned Vehicles*, Applied Physics Lab, Laurel, MD, April 2011.
24. *Towards Simulation-Based Computational Synthesis of Robot Behaviors and Structures*, Johns Hopkins University, Baltimore, MD, March 2011.
25. *Towards Simulation-Based Computational Synthesis of Robot Behaviors and Structures*, Carnegie Mellon University, Pittsburgh, PA, October 2010.
26. *A Computational Framework for Simulation Driven Innovation and Discovery*, Drexel University, Philadelphia, PA, June 2010.
27. *A Computational Framework for Simulation Driven Innovation and Discovery*, Missouri University of Science and Technology, Rolla, MO, May 2010.
28. *A Simulation Based Framework for Automatically Synthesizing Planning Logic for Autonomous Unmanned Sea Surface Vehicles*, Northrop Grumman Undersea Systems, Annapolis, MD, April 2010.
29. *A Computational Framework for Simulation Driven Innovation and Discovery*, University of Maryland at Baltimore County, MD, November 2009.
30. *Towards a New Manufacturing Approach to Realizing Bio-Inspired Robots*, Johns Hopkins University, Baltimore, MD, April 2009.
31. *Towards a New Manufacturing Approach to Realizing Bio-Inspired Robots*, University of Connecticut, Storrs, CT, October 2008.
32. *Towards a New Manufacturing Approach to Realizing Bio-Inspired Robots*, Indian Institute of Technology, Kanpur, India, August 2008.
33. *Towards a New Manufacturing Approach to Realizing Bio-Inspired Robots*, Indian Institute of Technology, Roorkee, India, August 2008.
34. *Towards Automated Micro and Nanoscale Assembly Using Optical Tweezers*, University of Michigan, Ann Arbor, MI, November 2007.

35. *Geometry Based Search Tool*, Toshiba Corporate Manufacturing Engineering Center, Yokohama, Japan, July 2007.
36. *Towards Automated Micro and Nanoscale Assembly Using Optical Tweezers*, Illinois Institute of Technology, Chicago, IL, April 2007.
37. *Virtual Training Studio: A Virtual Environment-Based Training System for Mechanical Assembly Operations*, Naval Research Laboratory, Washington DC, January 2007.
38. *Feature-Based Shape Similarity Assessment*. Department of Automation and Computer Aided Engineering, Chinese University of Science and Technology, Hong Kong, January 2006.
39. *Integrated Product and Process Development for Molded Multi-Material Structures*. Mechanical Engineering Department, Hanyang University, Korea, January 2006.
40. *Feature-Based Shape Similarity Assessment*. Mechanical Engineering Department, Sungkyunkwan University, Korea, January 2006.
41. *Improving Product Development through Intelligent Design Information Management*. Industrial and Systems Engineering Department, University of Wisconsin, Madison, WI, December 2005.
42. *Automated Shape Generation and Recognition: Applications in Automated Mold Design*. Solid Works Corporation, Boston, MA, November 2005.
43. *Improving Product Development through Intelligent Design Information Management*. School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, April 2005.
44. *Improving Product Development through Intelligent Design Information Management*. National Institute of Standards and Technology, Gaithersburg, MD, November 2004.
45. *Automated Design of Multi-Stage Molds: A Step towards Cost Effective Manufacturing of Multi-Material Objects*. Mechanical Engineering Department, University of Maryland at Baltimore County, Baltimore, MD, September 2004.
46. *Automated Design of Multi-Stage Molds: A Step towards Cost Effective Manufacturing of Multi-Material Objects*. Mechanical Engineering Department, Michigan Technological University, Houghton, MI, January 2004.
47. *Next Generation Process Planning Technologies*. Surfware Inc., Westlake Village, CA, December 2003.
48. *Automated Design of Multi-Stage Molds: A Step towards Cost Effective Manufacturing of Multi-Material Objects*. Industrial Engineering Department, University of Buffalo (SUNY), Buffalo, NY, April 2003.
49. *Automated Design of Multi-Stage Molds: A Step towards Cost Effective Manufacturing of Multi-Material Objects*. Mechanical and Industrial Engineering Department, University of Illinois, Urbana Champaign, IL, October 2002.
50. *Automated Design of Multi-Stage Molds: A Step towards Cost Effective Manufacturing of Multi-Material Objects*. Mechanical Engineering Department, University of California, Riverside, CA, October 2001.
51. *Parametric and Feature-Based Methodologies for Design and Manufacturing Integration*. United Technology Research Center, Hartford, CT, May 2001.
52. *Automated Design and Fabrication of Multi-Piece Molds: A Step towards Creating Geometrically Complex Objects*. Toshiba Corporate Manufacturing Engineering Center, Yokohama, Japan, February 2001.

53. *Web-Based Manufacturability Analysis: A Step towards Buying and Selling Manufacturing Services on the Internet*. Toshiba Corporate Manufacturing Engineering Center, Yokohama, Japan, February 2001.
54. *Automated Design and Fabrication of Multi-Piece Molds: A Step towards Creating Geometrically Complex Objects*. Mechanical Engineering Department, Indian Institute of Technology, Kanpur, India, December 2000.
55. *Automated Design and Fabrication of Multi-Piece Molds: A Step towards Creating Geometrically Complex Objects*. GRASP Lab, University of Pennsylvania, PA, November 2000.
56. *Web-Based Manufacturability Analysis: A Step towards Buying and Selling Manufacturing Services on the Internet*. Mechanical Engineering Department, Drexel University, PA, February 2000.
57. *Generating Shared Setups: A Step Towards Cost Effective Small Batch Manufacturing*. Department of Mechanical and Industrial Engineering, University of Massachusetts, Amherst, MA, February 1998.
58. *Generating Shared Setups: A Step Towards Cost Effective Small Batch Manufacturing*, Department of Industrial and Manufacturing Engineering, Pennsylvania State University, PA, February 1998.
59. *Generating Shared Setups: A Step Towards Cost Effective Small Batch Manufacturing*. Mechanical Engineering Department, University of Minnesota, MN, January 1998.
60. *Design for Manufacturing: A Computational Perspective*. Mechanical Engineering Department, University of Connecticut, CT, November 1997.
61. *Design for Manufacturing: A Computational Perspective*. Mechanical Engineering Department, Carnegie Mellon University, PA, Fall 1997.
62. *Composable Assembly Simulation and Visualization*. Lockheed Martin Missiles and Space Company, Palo Alto, CA, May 1997.
63. *Next Generation Process Planning Technologies*. Amada Inc., Isehara, Japan, February 1997.
64. *Integrating Feature Recognition with Process Planning*. Allied Signal, Kansas City, MO, November 1996.
65. *Next Generation Process Planning Technologies*. Electronic Data Systems, Cypress, CA, August 1996.
66. *Composable Assembly Simulation and Visualization*. Raytheon Company, Tewksbury, MA, April 1996.
67. *Automated Manufacturability Analysis for Machined Part*. National Institute of Standards and Technology, Gaithersburg, MD, April 1995.
68. *Automated Manufacturability Analysis for Machined Part*. Robotics Institute, Carnegie Mellon University, PA, May 1994.
69. *Automated Manufacturability Analysis for Machined Part*. Department of General Engineering, University of Illinois at Urbana Champaign, IL, April 1994.
70. *Design Critiquing for Machining Applications*. Mechanical Engineering Department, Indian Institute of Technology, Delhi, India, June 1993.
71. *Design Critiquing for Machining Applications*. Mechanical Engineering Department, Indian Institute of Science, Bangalore, India, June 1993.
72. *Design Critiquing for Machining Applications*. Research Development and Design Center, Pune, India, June 1993.

3. TEACHING, MENTORING, AND ADVISING

A. COURSES TAUGHT

University of Maryland

- Bio-Inspired Robotics (ENME 489L): Spring 2006, Spring 2007, Spring 2008, Spring 2010, and Spring 2011
- Computer Aided Design (ENME 414): Fall 2002
- Computer-Aided Manufacturing (ENME 616): Fall 1999 and Spring 2001
- Emerging Manufacturing Technologies (ENME 808B): Fall 2007 and Fall 2009
- Geometric Modeling for CAD/CAM Applications (ENME 611): Fall 1998, Spring 2000, Spring 2002, Fall 2003, and Fall 2005
- Integrated Product and Process Development (ENME 472): Fall 2006 and Spring 2009
- Manufacturing Automation (ENME 489M): Fall 2000, Fall 2001, Spring 2003, and Spring 2004
- Statics (ENES 102): Spring 1999

Carnegie Mellon University

- Advanced Product Realization Technologies (45-934): Spring 1997, Summer 1997 and Spring 1998

B. CURRICULUM DEVELOPMENT

New Courses Developed at University of Maryland

- *Geometric Modeling for CAD/CAM Applications (ENME 611)*: This is an introductory graduate course and introduces geometry representations, algorithms, and the underlying mathematical foundations, essential to solving geometry related problems in computer-aided design and computer-aided manufacturing applications. This course covers (1) geometric representation of three dimensional solid objects, (2) curve and surface representation, (3) geometric algorithms for curves, surfaces, and solids, and (4) real-world applications of geometric modeling. This course is intended for graduate students who plan to work in computer-aided design, computer-aided manufacturing, computer-aided engineering analysis, robotics, and virtual prototyping areas.
- *Manufacturing Automation (ENME 489M)*: This course is a senior elective and covers fundamentals underlying the contemporary manufacturing automation technologies. The following two aspects of manufacturing automation are emphasized: (1) computer-based systems for automating and controlling manufacturing processes such as numerically controlled machines, industrial robots, rapid prototyping machines, coordinate measurement machines, and programmable logic controllers; and (2) use of software systems in facilitating information exchange between different components of manufacturing decision support systems. This course is intended for would be manufacturing system designers who intend to play strategic roles in selection and deployment of advanced manufacturing automation technologies.
- *Bio-Inspired Robotics (ENME 489L)*: This course is a senior elective and uses bio-inspired robots as a means to teach the principles behind bio-inspired designs and robotics. This course covers the following main topics: (1) fundamentals of traditional robotic manipulators, (2) Fundamentals of Biologically Inspired Robotics, (3) Sensors and Actuators for Robotics, and (4) Design and Fabrication of Biologically Inspired Robots. Several examples of bio-inspired robots are discussed in

detail, including the motivation and biological inspiration for their design, as well as technical specifications and comparisons to conventional robots. The examples include robots inspired by the cockroach, snake, and tuna. This course emphasizes hands-on learning. As a part of the course projects, student teams have an opportunity to design and build their own robots.

- *Emerging Manufacturing Technologies (ENME 808B)*: This is an advanced graduate course and provides an overview of several emerging manufacturing technologies. Representative technologies include: micro and nano manipulation, layered manufacturing, multi-material molding, powder injection molding, micro molding, nano-composite molding, and self assembly. For each of the topic, we provide technology overview, assessment of the current state of the technology, and examples of applications where the technology is being used. This course is intended for researchers interested in developing new manufacturing technologies and engineers interested in evaluating and deploying emerging manufacturing technologies.

New Courses Developed at Carnegie Mellon University

- *Advanced Product Realization Technologies (45-934)*: The purpose of course was to familiarize MBA students to new design, manufacturing, and information technologies. This course was a part of the Management of Technology specialization. The main course objectives were (1) introducing newly emerging technologies for improving the product realization process and (2) providing a realistic assessment of the effectiveness of these new technologies. As a part of this course, students performed a wide variety of case studies and experiments in the area of applying emerging technologies to improve the product realization process.

Significant Revision of Old Courses at the University of Maryland

- Computer-Aided Manufacturing (ENME 616)

C. ADVISING

Postdoctoral Fellows

1. Krishna Kaipa (May 2011-Present)
2. Atul Thakur (September 2011-Present)
3. Madan Dabbeeru (June 2010-Present)
4. Petr Svec (August 2008-June 2011)
5. Arvind Ananthanarayanan (May 2009-May 2010)
6. Tao Peng (January 2007-December 2007)
7. XuanFang Zha (October 2005-January 2007)
8. Zhiyang Yao (August 2002-July 2003)
9. Michael Gruninger (July 2000-April 2001)

Research Engineers and Programmers

1. Alexander Weismann (February 2007-August 2008)
2. Cheuk Ip (May 2005-July 2007)
3. Maxim Schwartz (May 2004-September 2007)

Ph.D. Dissertation Completed

1. Atul Thakur, *Physics-Aware Model Simplification For Interactive Virtual Environments*, August 2011
2. Arvind Balijeppali, *Modeling and Experimental Techniques to Demonstrate Nanomanipulation with Optical Tweezers*, January 2011 (Co-advised with Tom LeBrun)
3. Wojciech Bejgerowski, *In-Mold Assembly of Multi-Functional Structures*, November 2010
4. Ashis Banerjee, *Real-Time Path Planning for Automating Optical Tweezers based Particle Transport Operations*, August 2009
5. Arvind Ananthanarayanan, *Development of In-Mold Assembly Methods for Producing Mesoscale Revolute Joints*, May 2009
6. Tao Peng, *Algorithms and Models for 3-D Shape Measurement Using Digital Fringe Projections*, December 2006
7. Alok Priyadarshi, *Algorithms for Generating Multi-Stage Molding Plans for Articulated Assemblies*, September 2006
8. Antonio Cardone, *A Feature-Based Shape Similarity Assessment Framework*, August 2005
9. Changxin Xu, *Computational Foundations for Computer Aided Design of Multiple Interaction-State Mechatronic System*, May 2005
10. Xuejun Li, *Geometric Algorithms for Automated Design of Multi-Stage Molds for Manufacturing Multi-Material Objects*, July 2003
11. Zhiyang Yao, *Geometric Algorithms for Operation Planning of Geometrically Complex Milling Features*, August 2002 (Co-advised with Dr. Dana Nau)
12. Jun Huang, *Accessibility-Driven Spatial Partitioning: A Step towards Automated Design of Multi-Piece Molds*, December 2001

Ph.D. Dissertation in Progress

1. James Hopkins (Ph.D. Candidate) (Expected Completion in Summer 2012)
2. Yongsik Kim (Passed Qualifying Exam) (Expected Completion in Summer 2013)
3. Sagar Chowdhury (Passed Qualifying Exam) (Expected Completion in Summer 2013)
4. Carlos Morato (Passed Qualifying Exam) (Expected Completion in Summer 2013)

M.S. Thesis Completed

1. Timothy Hall, *Manufacturability Analysis of Thermally-Enhanced Polymer Composite Heat Exchangers*, August 2011
2. John Gerdes, *Design, Analysis, and Testing of a Flapping Wing Miniature Air Vehicle*, May 2010
3. Abhijit Deshmukh, *Content Based Search of Mechanical Assemblies*, October 2006
4. Ashis Banerjee, *Computer Aided Design of Side Actions in Injection Molding of Complex Parts*, October 2006
5. John Brough, *Assessment of Training Modes and Features in the Virtual Training Studio*, August 2006 (Co-Advised with Dr. D.K. Anand)
6. Brent Spranklin, *Design, Analysis, and Fabrication of A Snake Inspired Robot with a Rectilinear Gait*, June 2006

7. Ira Golden, *Function-Based Archival and Retrieval: Developing a Repository of Biologically Inspired Product Concepts*, August 2005 (Co-Advised with Dr. E.B. Magrab)
8. Greg Fowler, *Cost And Performance Evaluation Models For Comparing Multi-Shot And Traditional Injection Molding*, August 2004
9. Mukul Karnik, *Geometric Containment Analysis System for Rotational Parts*, August 2003 (Co-advised with Dr. E. B. Magrab)
10. Alok Priyadarshi, *Geometric Algorithms for Automated Design of Multi-Piece Permanent Molds*, August 2003
11. Sunil Saini, *Algorithms for Computing Cutter Engagement in 2.5D Milling Operations*, August 2002
12. Sashidhar Bellam, *Geometric Algorithms for Automated Extraction and Emulation of MEMS Devices*, August, 2001
13. Yusheng Chen, *Process/Material Selection for Mechanical Components During Embodiment Design*, August 2001
14. Malay Kumar, *Automated Design of Multi-Stage Molds for Manufacturing Multi-Material Objects*, June 2001
15. Deepak Rajagopal, *Part Family Formation of Sheet Metal Parts for Generating Shared Press-brake Setups*, June 2001
16. Anoop Samuel, *Integrating Market Research with the Product Development Process*, November 2000
17. Ujval Alva, *Automated Design of Sheet Metal Tools for Bending Multiple Parts in a Single Setup*, July 2000
18. Ramakrishna Arni, *Web-Based Manufacturability Analysis for Solid Freeform Fabrication*, June 2000
19. Savinder Dhaliwal, *Automated Design of Sacrificial Molds*, June 2000
20. Bikram Baidya, *MEMS Extraction*, May 1999 (Co-advised with Dr. T. Mukherjee)

M.S. Thesis in Progress

1. Brian Russ (Expected Completion in December 2011)
2. Tom Brewer (Expected Completion in December 2011)
3. Andrew Vogel (Expected Completion in Summer 2012)
4. Elisabeth LeBrun (Expected Completion in Summer 2012)

M.S. Scholarly Papers Completed

1. Alexander Weissman, *Selecting a Design-Stage Energy Estimation Approach for Manufacturing Processes*, August 2011
2. Jorge Diaz, *Use of Additive manufacturing for the Fabrication of Load Bearing Implants*, June 2011
3. Jeffrey Coleman, *A Reduction Selection Process for Collaborative Technologies*, December 2001
4. Krishnakumar Venkatesan, *Generation of Atomic Representations for MEMS Extraction*, May 2000

B.S. Independent Study Completed

1. R. Taeb, *Design and Functional Improvements to Four Legged Walking Platform*, December 2010
2. M. Stevens, *Design and Manufacturing of a Self-Charging Docking Station for a Robot*, December 2009
3. Z. Schramm, *Design and Manufacture a Prototype Prosthetic Hand Based on the Physiological Structure of the Human Hand*, July 2009
4. G. Ramu, *Izzy: The Lizard Robot*, May 2009
5. B. Freas, *Lizard Inspired Robot*, March 2007
6. J. Zuckerman, *Tool Design and Implementation for Polyhedral Body Editing Application*, May 2005
7. R. Gouker, *Rapid Prototyping Articulated Multi-Material Assemblies Using Multi-Piece Multi-Stage Molding*, May 2004
8. B. Spranklin, *Gelcasting of Geometrically Complex Objects*, December 2003
9. I. Golden, *Cutter Path Planning for 3D Replication*, December 2002
10. G. Fowler, *Design and Manufacturing Issues for Macroscopic Interfaces in Heterogeneous Assemblies*, December 2001
11. O. Morgan, *CNC Tool Path Generation for Three-Axis Machining of Sculptured Surfaces*, May 2000
12. D. Butler, *Using Computer Vision for Determining Vise Position for Intelligent Machining*, December 1999

Advisor for Undergraduate Students from Mannheim University of Applied Sciences, Germany

- T. Jacob (September 2000 to February 2001); K. Stoppel (September 2001 to February 2002); S. Bennewitz (September 2002 to February 2003); M. Schroeder (March 2003 to August 2003); T. Holzschuh (September 2003 to February 2004); S. Schiefner (March 2004 to August 2004); E. Eick (March 2004 to August 2004); W. Mosler (September 2004 to February 2005); F. Kerbs (September 2004 to February 2005); S. Warth (March 2005 to August 2005); A. Gfell (March 2005 to August 2005); S. Koch (March 2006 to August 2006); P. Wandji (September 2006 to February 2007); D. Muller (March 2007 to August 2007); T. Karch (September 2007 to February 2008); Kenan Ozdemir (March 2009 to August 2009); Lester Ehrlich (March 2009 to August 2009); Felix Bussemer (September 2009 to February 2010); Lester Ehrlich (March 2010 to August 2010)

Advisor for ISR REU Students

- J. Hammer (Summer 2001); A. Lo (Summer 2001); W. Dickenson (Summer 2002); B. Spranklin (Summer 2003); L. Fomundan (Summer 2003); G. Gouker (Summer 2004); N. Charoosah (Summer 2004); G. Kung (Summer 2004); N. Deshpande (Summer 2005); K. Ledoux (Summer 2005); T. Oberc (Summer 2006); G. Brock (Summer 2006); W. Miranda (Summer 2006); D. Rich (Summer 2007); Suchit Bhattarai (Summer 2008)

Ph.D. Thesis Committee Member

- Manish Kumar Govil (March 1999); Antonio Diaz-Calderon (June 2000); Rajrishi Sinha (January 2002); Sameer Joshi (March 2002); Mandar Chincholkar (June 2002); Bikram Baidya (July 2003); Xinhua Long (November 2005); Maomao Chen (April 2006); Peng Xu (2008); Anand Pillarisetti (September 2008); Ion Matei (September 2010); Mark Paul Kujawski (February 2011)

M. S. Thesis Committee Member

- S. Karthik (February 1999); S. Balasubramanian (July 1999); D. Pelinescu (September 2000); S. Saikumar (September 2000); V. Mathur (June 2001); H. Surendranath (July 2001); R. Kumar (May 2002); Z. Tuncali (May 2003); L. Gyger (August 2006); J. Krufft (January 2007)

D. STUDENT AWARDS

- Arvind Balijeppali, NRC Postdoctoral Fellowship, February 2011
- Alex Weissman, NIST ARRA Fellowship, January 2011
- Ashis Banerjee, Best Dissertation Award, Mechanical Engineering Department, University of Maryland, April 2010
- Wojciech Bejgerowski, Best poster award for poster titled “In-Mold Assembly: A New Approach to Assembly Automation”, ME Research Review Day, April 2010
- Ashis Banerjee, Outstanding George Harhalakis Systems Engineering Graduate Student Award, 2009
- Ashis Banerjee, First prize for poster presentation at Graduate Research Interaction Day, 2009
- Atul Thakur, Best poster award for poster titled “A Virtual Environment-Based System for Simulating Mechanical Assembly Operations”, ME Research Review Day, March 2009
- Arvind Ananthanarayanan, NSF Travel Grant Award to attend 2008 NSF CMI Grantees Conference
- Wojciech Bejgerowski, NSF Travel Grant Award to attend 2008 NSF CMI Grantees Conference
- Arvind Ananthanarayanan, Best poster award for poster titled “Development of In-mold Assembly Methods for Producing Articulated Joints”, ME Research Review Day, March 2008
- Arvind Ananthanarayanan, Best poster award for poster titled “Development of In-mold Assembly Methods for Producing Articulated Joints”, ME Research Review Day, March 2007
- Jeb Brough, Best Poster Award for poster titled “Utilizing Virtual Environments to Facilitate Knowledge Preservation and Accelerated Learning”, ME Research Review Day, March 2007
- Arvind Ananthanarayanan, Future Faculty Fellow (2007 to 2009)
- Arvind Ananthanarayanan, NSF Travel Grant Award to attend 2006 NSF CMI Grantees Conference.
- Alok Priyadarshi, First prize for poster presentation at Graduate Research Interaction Day, 2003

4. SERVICE

A. PROFESSIONAL ACTIVITIES

Professional Society Membership

- Fellow, American Society of Mechanical Engineers (ASME)
- Senior Member, Society of Manufacturing Engineers (SME)
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE)

Technical Committee Membership

- Chair, ASME Design for Manufacturing Committee (July 2005-June 2007)
- Vice Chair, ASME Design for Manufacturing Committee (July 2003-June 2005)

- Secretary, ASME Design for Manufacturing Committee (July 2001-June 2003)
- Awards and Honors Chair, ASME Design for Manufacturing Committee (July 1999-June 2001)

Editorship

- Associate Editor, *SME Journal of Manufacturing Processes* (April 2008 to present)
- Associate Editor, *ASME Journal of Computing and Information Science in Engineering* (January 2006 to present)
- Member, Editorial Advisory Board, *Computer Aided Design and Application* (2005 to present)
- Associate Editor, *IEEE Transaction on Automation Science and Engineering* (March 2004 to February 2006)
- Member, Editorial Advisory Board, *Assembly Automation* (2001 to present)
- Guest Co-Editor, Special issue on Feature Based Manufacturing, *Computer Aided Design Journal*, Volume 33, Number 9, August 2001
- Guest Co-Editor, Special issue on Advances in Computer Aided Manufacturing, *ASME Journal of Computing and Information Science in Engineering*, Volume 7, Number 3, September 2007
- Guest Co-Editor, Special Issue on Manufacturing and Construction, *Virtual Reality Journal*, Volume 15, Number 1, 2011

Paper Reviewer for Journals

- *Computer Aided Design; Research in Engineering Design; ASME Journal of Mechanical Design; ASME Journal of Manufacturing Science and Engineering; ASME Journal of Computing and Information Science in Engineering; IEEE Transactions on Robotics and Automation; IEEE Transaction on Automation Science and Engineering; IEEE Transactions on Robotics; IEEE Transactions on Visualization and Computer Graphics; IIE Transactions; SME Journal of Manufacturing Systems; SME Journal of Manufacturing Processes; AI in Design and Manufacturing; International Journal of Expert Systems; International Journal of Production Research; Journal of Engineering Manufacture (Proceedings of the Institution of Mechanical Engineers Part B); Virtual Reality; Computer Integrated Manufacturing*

Paper Reviewer for Conferences

- *ASME Design for Manufacturing Conference; ASME Computers in Engineering Conference; ASME International Mechanical Engineering Congress and Exposition; ASME Design Automation Conference; ASME Mechanism and Robotics Conference; ASME Winter Annual Meeting; ACM Symposium on Solid and Physical Modeling; International Symposium on Tools and Methods for Competitive Engineering; Computer Aided Design Conference; CAD and Graphics Conference; Geometric Modeling and Processing Conference; International Conference on Product Lifecycle Management; IEEE International Symposium on Assembly and Manufacturing; IEEE Conference on Automation Science and Engineering; IEEE Robotics and Automation Conference; North American Manufacturing Research Institute Conference; All India Machine Tool Design and Research Conference*

Conference Organization

- Member, Program Committee, *Performance Metrics for Intelligent Systems (PerMIS'12) Workshop*, 2012

- Member, Program Committee, *IEEE Conference on Automation Science and Engineering*, 2012
- Member, Local Organizing Committee, *International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR)*, 2012
- Member, Scientific Committee, *International Conference NEWTECH*, 2011
- Member, Program Committee, *International Conference on Design and Advances in Mechanical Engineering*, 2011
- Member, Program Committee, *International Symposium on Assembly and Manufacturing*, 2011
- Member, Program Committee, *AIMTDR*, 2010
- Member, Program Committee, *ACM Solid and Physical Modeling Symposium*, 2010
- Member, Program Committee, *Computer Aided Design Conference*, 2009
- Member, Program Committee, *ACM Solid and Physical Modeling Symposium*, 2009
- Member, Program Committee, *Computer Aided Design Conference*, 2008
- Member, Program Committee, *IEEE CASE*, 2008
- Member, Program Committee, *Virtual Manufacturing Workshop*, 2008
- Member, Program Committee, *ACM Solid and Physical Modeling Symposium*, 2008
- Session Chair, *IEEE International Symposium on Assembly and Manufacturing*, 2007
- Member, Program Committee, *IEEE International Symposium on Assembly and Manufacturing*, 2007
- Member, Program Committee, *CAD and Graphics Conference*, 2007
- Member, Program Committee, *Computer Aided Design Conference*, 2007
- Member, Program Committee, *Product Lifecycle Management Conference*, 2007
- Member, Program Committee, *Product Lifecycle Management Conference*, 2006
- Member, Program Committee, *Geometric Modeling and Processing Conference*, 2006
- Member, Program Committee, *Computer Aided Design Conference*, 2006
- Member, Program Committee, *ACM Solid and Physical Modeling Conference*, 2006
- Session Chair, *ASME International Mechanical Engineering Congress and Exposition*, 2005
- Member, Program Committee, *CAD and Graphics Conference*, 2005
- Member, Program Committee, *Computer Aided Design Conference*, 2005
- Member, Program Committee, *ACM Solid and Physical Modeling Conference*, 2005
- Session Chair, *ASME Computers and Information in Engineering Conference*, 2005
- Session Chair, *Computer Aided Design Conference*, 2005
- Session Chair, *ASME Computers and Information in Engineering Conference*, 2004
- Session Chair, *International Symposium on Tools and Methods for Competitive Engineering*, 2004
- Session Organizer, *ASME International Mechanical Engineering Congress and Exposition*, 2003
- Conference Chair, *ASME Design for Manufacturing Conference*, 2003

- Session Chair, Manufacturing and Process Planning, *ASME Computers and Information in Engineering Conference*, 2003
- Session Chair, Layered Fabrication, *ASME Design for Manufacturing Conference*, 2003
- Session Co-Chair, Geometric Reasoning and Modeling for Manufacturing, *ASME Design for Manufacturing Conference*, 2003
- Program Chair, *ASME Design for Manufacturing Conference*, 2002
- Session Chair, Design Applications, *ASME Computers and Information in Engineering Conference*, 2002
- Session Chair, Design and Manufacturing Integration, *ASME Design for Manufacturing Conference*, 2002
- Paper Review Coordinator, *ASME Design for Manufacturing Conference*, 2001
- Session Chair, Design Approaches for Assemblies and Tooling, *ASME Computers and Information in Engineering Conference*, 2001
- Session Chair, Tool Path Planning for Freeform Surfaces and Pocket Features Session, *ASME Computers and Information in Engineering Conference*, 2001
- Session Chair, Design and Manufacturing Representation Session, *ASME Design for Manufacturing Conference*, 2001
- Session Chair, Design for Manufacturing Session, *ASME Mechanical Engineering Congress and Exposition*, 2000
- Session Chair, Advanced System Assembly Analysis Session, *ASME Design for Manufacturing Conference*, 2000
- Session Co-Chair, Process Planning Session, *ASME Computers in Engineering Conference*, 2000
- Session Co-Chair, Global Manufacturing Session, *Flexible Automation and Intelligent Manufacturing Conference*, 2000
- Paper Review Coordinator, *ASME Design for Manufacturing Conference*, 2000
- Exhibit Chair, *ASME Design Engineering Technical Conference*, 2000
- Papers Chair, *ASME Design for Manufacturing Conference*, 1999
- Session Co-Chair, *ASME Design for Manufacturing Conference*, 1999
- Co-Chair, Feature Recognition Session, *ASME Computers in Engineering Conference*, 1998
- Program Co-Chair, *ASME Design for Manufacturing Conference*, 1998
- Area-Chair, Integration of CAD and Planning, *ASME Design for Manufacturing Conference*, 1997
- Chair, Integrated Computing Environments Session, *ASME Computers in Engineering Conference*, 1997
- Area-Chair, Integration of CAD and Planning, *ASME Design for Manufacturing Conference*, 1996
- Chair, Industry Panel Discussion, *ASME Design for Manufacturing Conference*, 1996
- Chair, Feature Recognition Session, *ASME Computers in Engineering Conference*, 1996
- Co-Chair, Feature-Based Process Planning Session, *ASME Computers in Eng. Conference*, 1995

- Chair, Geometric Modeling Session, *ASME Computers in Engineering Conference*, 1995
- Vice-Chair, Feature-Based Applications Session, *ASME Computer in Engineering Conference*, 1994

NSF Workshop Participation (Participation was by invitation only in these workshops)

- 2007 NSF CI-TEAM Workshop, July 9-11, Washington, DC
- 2005 NSF EXCITED Workshop, February 28 - March 1, 2005, Arlington, VA
- 2004 NSF Engineering Design Workshop, March 26-29, 2004, Phoenix, AZ

Proposal Reviewer

- National Science Foundation (12 different panels between 1997 and 2011)
- University Grant Commission, Hong Kong (reviewed more than 40 proposals between 1997 and 2006)
- Ohio University Baker Funds, 2001

B. INSTITUTIONAL SERVICES

College of Engineering

- Member, ME Chair Search Committee (Fall 2010 and Spring 2011)
- Maryland Technology Extension Service Consulting for Maryland Thermoform, Marlin Steel, Cyto Pulse, and Advanced Thermal Batteries
- Advisory Committee for NIST-ARRA Fellowship (Spring 2010 to Present)
- Member, ISR Director Search Committee (Summer 2009)
- Member, Committee for Reviewing ISR Director (Spring 2007)
- Member, Selection Committee for Venture Accelerator Director (Fall 2004)
- Mechanical Engineering Representative, College APT Committee (Fall 2003)
- Mentor for Reginald McNeill, ESTEEM program participant (Spring 2010)
- Mentor for Umaru Sillah, ESTEEM program participant (Fall 2002 and Spring 2003)
- Mentor for Stefan Roxborough, ESTEEM program participant (Summer 1999, Fall 1999, and Spring 2000)
- Mechanical Engineering Representative, Engineering Council (1998-2000)

Mechanical Engineering

- Chair, APT Committee for Promotion of Dr. Elisabeth Smela (Summer 2010 and Fall 2010)
- Member, Graduate Committee (Spring 2008 to present)
- Member, APT Committee (Spring 2008 to present)
- Mentor for Sarah Bergbreiter (Fall 2008 to present)
- Chair, Awards Committee (Spring 2007 to Summer 2010)
- Member, Risk Based Design Search Committee (Fall 2006 to Spring 2007)

- Member, APT Committee for Promotion of Dr. Peter Sandborn (Fall 2008)
- Chair, Energetics Technology Center Building Specification Committee (Spring 2007 to Fall 2007)
- Chair, Energetics Technology Center Coordinator Search Committee (Fall 2006 to Spring 2007)
- Chair, APT Committee for Appointment of Dr. Jaydev Desai as Tenured Associate Professor (Spring 2006)
- Member, Qualifying Exam Review Committee (Fall 2005 to Spring 2006)
- Co-Chair, Robotics Search Committee (Fall 2005 to Spring 2006)
- Member, Reliability-ME Integration Task Force (November 2002 to May 2003)
- Chair, Awards Committee (Spring 2002 to Summer 2004)
- Advisor, SME Student Chapter (July 2002 to June 2004)
- Chair, Adhoc Committee for Organizing SME LEAD Award Site Visit (Spring 2000)

Institute for Systems Research

- Member, Executive Committee (July 2011 to present)
- Chair, Robotics Initiative Committee (October 2009 to March 2010)
- Member, Education Committee (July 2008 to June 2010)
- Member, APT Committee (Fall 2008 to Spring 2009)
- Member, Facilities and Services Committee (July 2005 to June 2007)
- Chair, APT Committee (Fall 2005 to Spring 2006)
- Chair, Strategic Planning Committee for Product Realization and Manufacturing Systems Group (Fall 2003 to Spring 2004)
- Member, Education Committee (July 2003 to June 2004)
- Member, Adhoc Committee for Public Relations (September 2002 to June 2004)
- Member, Space and Facilities Committee (July 2001 to June 2003)
- Member, Education Committee (July 1999 to June 2001)
- Institute for Systems Research Representative, Space Planning Committee for Virtual Reality Laboratory in the New Engineering Laboratory Building (Fall 1999)
- Member, 2nd Strategic Planning Workshop (Spring 1999)