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COLLEGE EDUCATION:

Ph.D. in Mechanical Engineering, Purdue University, Indiana, 1976.
M.Sc. in Mechanical Engineering, Stanford University, California, 1971.
B. Tech. in Aeronautical Engineering, Indian Institute of Technology, Kanpur, India, 1970.

EXPERIENCE:

September 1979 – Present, Department of Mechanical (Mechanical and Aerospace) Engineering, The Ohio State University, Columbus, Ohio: Professor Emeritus (June 2020 – Present), Professor (Sept. 1990- May 2020), Associate Professor (Sept. 1983-Aug. 1990), Assistant Professor (Sept. 1979-Aug. 1983). Teaching and research interests are in system dynamics and control with special emphasis on control applications to fluid power, automotive applications, robotics and manufacturing.

July 2000 – June 2012: Professor and Chairperson (Department of Mechanical Engineering (2000 – 2010) and Department of Mechanical and Aerospace Engineering (2010 – 2012)), The Ohio State University: Responsibilities include academic and administrative leadership of the departments.

July 1998 – June 2000, College of Engineering, The Ohio State University, Columbus, Ohio: Associate Dean for Research (July 1999 – June 2000), Acting Associate Dean for Research (July 1998 – June 1999). Responsibilities include promotion of, and support for, research activities in the College of Engineering.

September 1992-August 1994, National Science Foundation, Washington, D.C.: Program Director, Manufacturing Machines and Equipment Program; Acting Program Director, Materials Processing and Manufacturing Program (January 1994-August 1994); Division of Design, Manufacturing, and Industrial Innovation. Responsibilities included management of named programs with an annual budget in excess of $9 million used to support research primarily in academic institutions in the areas of future generation manufacturing processes and machines. The programs funded nearly 150 projects annually.

February 1975 - July 1979, Shell Development Company, Houston, Texas: Senior Research Engineer (Feb. 1979-July 1979), Research Engineer (Feb. 1975-Jan. 1979). Responsibilities included development of special purpose flow and motion measurement and signal processing instrumentation for oilfield applications. The work resulted in three U.S. patents.

September 1971 - January 1975, School of Mechanical Engineering, Purdue University, West Lafayette, Indiana: Teaching and Research Assistant. Helped teach lab courses on measurement, system dynamics and control. Assisted in laboratory development. Research work performed was related to the active control of chatter in machining operations.

HONORS AND AWARDS:

- Above and Beyond Award, Pi Tau Sigma, Mechanical Engineering Honors Society, Pi Mu Chapter, Columbus, Ohio, 2015
- President and Provost's Award for Distinguished Faculty Service, OSU, 2012
- Fellow, Society of Manufacturing Engineers, 2005
- The Clara M. and Peter L. Scott Faculty Award for Excellence in Engineering Education, College of Engineering, The Ohio State University, 2000
- Fellow, American Society of Mechanical Engineers, 1997
- Award for Excellence in Undergraduate Education, Mechanical Engineering Industrial Advisory Board, The Ohio State University, May 1991 and May 1996.
- OSU College of Engineering Research Award, 1990.
- Stanford University Fellowship, 1970-71.
- Best Outgoing Aeronautical Engineering Graduate, Indian Institute of Technology, Kanpur, July 1970.
- First Prize for Academic Excellence in 3-year Core Curriculum, Indian Institute of Technology, Kanpur, India, 1968.
- Merit Scholarships for all five years of undergraduate study, Indian Institute of Technology, Kanpur, 1965-1970.

RESEARCH INTERESTS:

- Dynamic modeling and control of manufacturing processes and machines
- Dynamic modeling and control of mechanical systems including robotic devices and automotive applications
- Control system design for linear and nonlinear systems
- Modeling and control of fluid power systems

TEACHING INTERESTS:

- System dynamics
- Control system analysis and design
- Modeling and control of fluid power systems
- Measurement systems

SUMMARY OF ADMINISTRATIVE ACCOMPLISHMENTS:

Academic Leadership

- Appointed as Chairperson of the department for a four-year term in 2000, and reappointed in 2004 and 2008. Stepped down as Chairperson in June 2012 to return to faculty position
- The new home of the department, the Peter and Clara Scott Laboratory, was constructed between 2003 and 2006, and represents a premier state-of-the-art facility for engineering education nationwide. The 240,000 sq. ft. facility cost $ 71.1 M, of which the State of Ohio provided $ 49.4 M, with the remaining $ 21.7 M coming from private gifts raised by the department and college of engineering.
- Oversaw two mergers, first with faculty from the Applied Mechanics section and later with the Department of Aerospace Engineering, the merged department being called the Department of Mechanical and Aerospace Engineering. The integration of these faculty members into the fabric of our departmental life has progressed very well and both mergers are widely recognized as having been very successful.
- The department, with 56 faculty members in 2012, is the largest department in OSU's college of engineering. The department administers two undergraduate programs (Mechanical Engineering, Aerospace Engineering) and three graduate programs (Mechanical Engineering, Aerospace Engineering, Nuclear Engineering). Over the last twelve years, support staff size has increased by over 50%, graduate teaching associates have nearly tripled, undergraduate enrollments have nearly doubled, graduate enrollments have nearly doubled, annual sponsored research expenditures have more than doubled, and degrees granted annually at the undergraduate (BS) and graduate (MS, PhD) levels have nearly tripled in each of the three degree categories.
- Departmental research strategic planning helped define focus areas for departmental investment – advanced transportation systems, bioengineering, energy and environmental quality, materials and manufacturing, and micro/nanotechnology.

Graduate and Undergraduate Programs

- US News World Reports ranked our Mechanical Engineering graduate program 18th among schools that grant doctoral degrees in Mechanical Engineering, in its latest assessment reported in April 2012.
- The ME doctoral program was ranked in the top-third of 91 doctoral programs at the Ohio State University following an extensive peer review conducted by the university.
- Since Autumn 2000, OSU has been offering a graduate program to General Electric Aviation employees in partnership with the GE Edison Program. Full-time employees of the company participate in the program, and work toward a MS or PhD degree while being paid a full salary. Annually, more than 20 students join the department as part of this program. We are piloting a customized MS graduate program for Honda R&D employees that allows them to work on projects related to their on-the-job duties for academic credit, in addition to requiring course work.
- Our range of graduate courses in automotive engineering, taken via global distance education by students in industry and simultaneously by OSU students, has increased, along with short courses. An Automotive Certificate program is available for distance education students taking courses through a curriculum strategically-aligned with industry priorities.
- The department has adopted an ME undergraduate curriculum under semesters, effective Fall 2012, with significantly increased emphasis on experiential learning, based on significant input from alumni, employers, peer institutions, and current students. Changes include introduction of a new sophomore design course, a new design and manufacturing course for seniors, mandatory year-long design-build-test capstone experiences for all seniors, introduction of an open-ended laboratory experience, and expanded options for technical electives allowing for refinement of student soft skills.

PUBLICATIONS:

a. Books, Chapters

1. "State-Space Methods for Dynamic Systems Analysis," K. Srinivasan, Chapter 17, pp. 717 – 756, in Mechanical Engineers' Handbook, Third Edition, *Instrumentation, Systems, Controls, and MEMS*, Editor: Meyer Kutz, John Wiley & Sons Inc., New Jersey, 2006.

2. "Control System Design Using State-Space Methods," K. Srinivasan, Chapter 18, pp. 757 – 790, in Mechanical Engineers' Handbook, Third Edition, *Instrumentation, Systems, Controls, and MEMS*, Editor: Meyer Kutz, John Wiley & Sons Inc., New Jersey, 2006.

3. "State-Space Methods for Dynamic Systems Analysis and Control," K. Srinivasan, Part IV, pp. 8.184-8.225, Chapter 8, Automatic Control, in Eshbach's Handbook of Engineering Fundamentals, Fourth Edition, Editor: B. Tapley, John Wiley & Sons, New York, March 1990.

4. "Computer Aided Design and Manufacture of Dies and Molds," ASME PED Vol. 32, Editors: K. Srinivasan and W. R. DeVries, 294 pages, New York, 1988.

5. "Grinding Chatter and Vibrations," K. Srinivasan, Chapter 6, Handbook of Modern Grinding Technology, pp. 119-169, Editors: Dr. R. I. King and R. S. Hahn, Chapman & Hall, New York, 1986.

6. "Modeling, Sensing and Control of Manufacturing Processes," ASME PED Vol. 23, DSC Vol. 4, Editors: K. Srinivasan, D. E. Hardt, and R. Komanduri, 344 pages, New York, 1986.

b. Refereed Journals and Refereed Proceedings

1. "Automated calibration of gearshift controllers using iterative learning control for hybrid systems," Kirti D. Mishra, Guy Cardwell, Krishnaswamy Srinivasan, *Control Engineering Practice*, Journal of IFAC, International Federation of Automatic Control, In Review

2. "Robust Iterative Learning Control for Interval Linear Systems," Kirti Deo Mishra and Krishnaswamy Srinivasan, Proceedings of DSCC 2020, Paper DSCC2020-3267, ASME 2020 Dynamic Systems and Control Conference, Pittsburgh, October 4-7, 2020

3. "Iterative Learning Control for Hybrid Systems," Kirti Deo Mishra and Krishnaswamy Srinivasan, Proceedings of DSCC 2020, Paper DSCC2020-3191, ASME 2020 Dynamic Systems and Control Conference, Pittsburgh, October 4-7, 2020

4. "Improved Integrated Powertrain Control of Gearshifts Using Linear Parameter Varying Control," Kirti Deo Mishra and Krishnaswamy Srinivasan, Proceedings of the American Control Conference, Philadelphia, July 10 – 12, 2019

5. "Modeling, Control, and Adaptation for Shift Quality Control of Automatic Transmissions," Kirti Deo Mishra, Gilbert Caldwell, and Krishnaswamy Srinivasan, SAE Technical Paper 2019-01-1129, Detroit, April 2019

6. "Robust Control and Estimation of Clutch-to-Clutch Shifts," Kirti Deo Mishra and Krishnaswamy Srinivasan, *Control Engineering Practice*, A Journal of IFAC, International Federation of Automatic Control, Vol. 65, pp. 100 – 114, Aug. 2017

7. “On-Line Identification of a Torque Converter Model,” Kirti Deo Mishra and Krishnaswamy Srinivasan, IFAC World Congress, Toulouse, France, July 9 – 14, 2017

8. “Robust Nonlinear Estimation and Control of Clutch-to-Clutch Shifts,” Kirti Deo Mishra and Krishnaswamy Srinivasan, American Control Conference, Boston, July 6 – 8, 2016

9. "Robust Nonlinear Control of Inertia Phase in Clutch-to-Clutch Shifts," Kirti D. Mishra and K. Srinivasan, 4th IFAC Workshop on Engine and Powertrain Control, Simulation, and Modeling, IFAC Papers OnLine 48 – 15, 277 – 284, Columbus, Ohio, August 2015

10. "Estimation of Wet Clutch Friction Parameters in Automotive Transmissions," M. Barr and K. Srinivasan, SAE World Congress, SAE Paper No. 15PFL - 0842, Detroit, April 2015

11. “Implementation of On-Line Clutch Pressure Estimation for Stepped Automatic Transmisssions,” S. Watechagit and K. Srinivasan, Proceedings of the 2005 Automatic Control Conference, pp. 1607 - 1612, Portland, Oregon, June 2005.

12. “Contouring Control of Stewart Platform Based Machine Tools,” D. Garagic and K. Srinivasan, Proceedings of the 2004 American Control Conference, pp. 3831 – 3838, Boston, Massachusetts, July 2004

13. “On-Line Estimation of Operating Variables for Stepped Automatic Transmissions”, S. Watechagit and K. Srinivasan, Proceedings of IEEE Conference on Control Applications, Istanbul, Turkey, June 2003

14. “Modeling and Simulation of a Shift Hydraulic System for a Stepped Automatic Transmission”, S. Watechagit and K. Srinivasan, SAE International Congress and Exposition, SAE Paper No. 2003-01-0314, Detroit, March 2003

15. “Adaptive Friction Compensation for Stewart Platform Machine Tool Structures”, D. Garagic and K. Srinivasan, IFAC Symposium on Mechatronics, University of California, Berkeley, California, December 2002. Also appeared in *IFAC Journal of Control Engineering Practice*, Vol. 12, pp. 1451 – 1464, 2004.

16. **“**Application of Nonlinear Adaptive Control Techniques to an Electrohydraulic Velocity Servomechanism”, D. Garagic and K. Srinivasan, Proceedings of the American Control Conference, Anchorage, Alaska, May 2002. Also appeared in *IEEE Transactions on Control Systems Technology*, volume 12, issue 2, pp. 303 – 314, March 2004.

17. “Kinematic and Dynamic Analysis of Stewart Platform-Based Machine Tool Structures,” Harib, K., and Srinivasan, K., Volume 21, No. 5, pp. 541-554, *Robotica*, October 2003.

18. “Optimal engine-transmission control of neutral-idle clutch application,” Quan Zheng, K. Srinivasan, and G. Rizzoni, pp 463-472, *JSAE Review*, Vol. 22, No. 4, Oct. 2001

19. “Integrated Engine-Transmission Control of Neutral-Idle Shifts,” Quan Zheng, K. Srinivasan, and G. Rizzoni, Presented at AVEC 2000, 5th International Symposium on Advanced Vehicle Control, Aug. 22-24, 2000, Ann Arbor, Michigan.

20. “Transmission Clutch Pressure Control System: Modeling, Controller Development and Implementation”, Q.Zheng and K.Srinivasan, SAE International Congress and Exposition, Detroit, March 6-9, 2000. Also published in *SAE Transactions Journal of Passenger Cars – Mechanical Systems*, 2001.

21. “Dynamic Modeling and Controller Design for a Piezoelectric Actuation System Used for Machine Tool Control,” P.Mayhan, K.Srinivasan, S.Watechagit, and G.Washington, Proceedings of the Symposium on Adaptive Systems Applications, ASME Aerospace Engineering Division, International Mechanical Engineering Congress amd Exposition, Nashville,Tennessee, Nov. 1999. Also published in *Journal of Smart Material Systems and Structures*, Vol. 11, No. 10, pp. 771 – 780, 2000.

22. “Evaluation of Control Algorithms for High Speed Motion Control of Machine Tool Structures Based on Stewart Platforms,” K.Harib and K.Srinivasan, Invited Paper, Proceedings of the First European-American Forum on Parallel Kinematic Machines – Theoretical Aspects and Industrial Requirements, Milan, Italy, Aug.-Sept. 1998. Also published in *Parallel Kinematic Machines – Theoretical Aspects and Industrial Requirements*, C.R.Boer, L. Molinari-Tosatti, and K.S.Smith, Editors, pp. 217 – 226, Springer-Verlag, London, 1999.

23. “Transmission Shift Controller Design Based on a Dynamic Model of Transmission Response,” Q.Zheng, K. Srinivasan, and G.Rizzoni, *IFAC Journal of Control Engineering Practice*, vol. 7, pp. 1007 – 1014, July 1999.

24. “High Speed Contouring Control Algorithms for Stewart Platform Based Machine Tools,” K. Harib and K. Srinivasan, Proceedings of the Japan-USA Symposium on Flexible Automation, Osaka, Japan, July 1998.

25. “Dynamic Modeling and Characterization of Transmission Response for Controller Design”, SAE Paper No. 981094, Quan Zheng, K. Srinivasan, and G. Rizzoni, SAE International Congress and Exposition, Detroit, Feb. 23-26, 1998. Also published in *SAE Transactions, Journal of Passenger Cars*, 1999.

26. “Application of Iterative Learning Control to Coil-to-Coil Control in Rolling,” S.S.Garimella and K. Srinivasan, *IEEE Transactions on Control Systems Technology*, Special Issue on Control in the Metal Processing Industries, vol.6, no.2, pp.281-293, Mar. 1998. Also published in Proceedings of the American Control Conference, Seattle, Washington, pp.1230-1234, June 1995.

27. “Machine Tool Feed Drives and Their Control - A Survey of the State of the Art,” K.Srinivasan and T.-C.Tsao, 75th Anniversary Issue of the *ASME Journal of Manufacturing Science and Engineering*, vol.119, pp.743-748, November 1997.

28. “An Overview of Robot-Assisted Die and Mold Polishing with Emphasis on Process Modeling,” L.Guvenc and K.Srinivasan, *SME Journal of Manufacturing Systems*, vol.16, no.1, pp. 48-58, January 1997.

29. "Application of Repetitive Control to Eccentricity Compensation in Rolling Processes," S.S. Garimella and K. Srinivasan, *Transactions of the ASME, Journal of Dynamic Systems, Measurement,* and Control, vol. 118, no.4, pp. 657-664, December 1996. Also published in Proceedings of the American Control Conference, pp.2904-2908, Baltimore, June 1994

30. "Transient Response of Repetitive Control Systems," S.S. Garimella and K. Srinivasan, *Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control*, vol. 118, no.4, pp. 795-797, December 1996. Also published in Proceedings of the American Control Conference, pp.2909-2913, Baltimore, June 1994.

31. "A Design Procedure for Repetitive Control Systems," K.Srinivasan, H.Ozbay, and I.S.Jung, Proceedings of the ASME Dynamic Systems, Measurement, and Control Division, DSC vol.57-1, pp.581-593, International Mechanical Engineering Congress amd Exposition, San Francisco, California, Nov. 1995.

32. "Extended Precision Tracking Control of Discrete-Time Nonminimum Phase Systems," L.Guvenc, K. Harib, and K. Srinivasan, Proceedings of the ASME Dynamic Systems, Measurement, and Control Division, DSC vol.57-1, pp.151-158, International Mechanical Engineering Congress amd Exposition, San Francisco, California, Nov. 1995.

33. "Force Controller Design and Evaluation for Robot Assisted Die and Mold Polishing," L. Guvenc and K. Srinivasan, *Journal of Mechanical Systems and Signal Processing*, vol.9, no.1, pp.31-49, Jan. 1995.

34. "Application of MIMO Repetitive Control to Eccentricity Compensation in Rolling," S.S.Garimella and K.Srinivasan, International Mechanical Engineering Congress and Exposition, Proceedings of the Symposium on Rolling Technology, PED-vol. 68-2, pp.627-639, Chicago, Illinois, Nov. 1994.

35. "Friction Compensation and Evaluation for a Force Control Application," L. Guvenc and K. Srinivasan, *Journal of Mechanical Systems and Signal Processing*, Vol. 8, No. 6, pp.623-638, Nov.1994.

36. "Discrete-Time Repetitive Control System Design Using the Regeneration Spectrum," F.-R. Shaw and K. Srinivasan, *Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control*, Vol. 115, No. 2, pp. 228-237, June 1993. Also published in Proceedings of the American Control Conference, pp. 2628-2633, Boston, Massachusetts, June 1991

37. "Robust State Estimation for Linear Systems," S.S. Garimella and K. Srinivasan, *Transactions of the ASME, Journal of Dynamic Systems, Measurements, and Control*, Vol. 115, No. 1, pp. 193-196, March 1993.

38. "On-line Estimation of Net Engine Torque from Crankshaft Angular Velocity Measurement Using Repetitive Estimators," K. Srinivasan, G. Rizzoni, M. Trigui, and G. C. Luh, Proceedings of the American Control Conference, pp. 516-520, Chicago, Illinois, June 1992.

39. "Part Weight Control in Thermoplastic Injection Molding Operations," K. Srinivasan, T. Srinivasan, and G. P. Maul, SPE ANTEC Conference Proceedings, pp. 2204-2208, Detroit, May 1992.

40. "Learning Control of Melt Pressure in Injection Molding Processes," K. Srinivasan and T. Srinivasan, Proceedings of the ASME Symposium on Control of Manufacturing Processes, DSC-Vol. 28, PED-Vol. 52, pp. 157-159, ASME Winter Annual Meeting, Atlanta, Georgia, December 1991.

41. "Analysis and Design of Repetitive Control Systems Using the Regeneration Spectrum," K. Srinivasan and F.-R. Shaw, *Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control*, Vol. 113, No. 2, pp. 216-222, June 1991.

42. "Improvements in Closed Loop Control of Thermoplastic Injection Molding Processes," K. Srinivasan, T. Srinivasan, and G. P. Maul, SPE ANTEC Conference Proceedings, pp. 343-345, Montreal, May 1991.

43. "Adaptive Control of Force in End Milling Operations - An Evaluation of Available Algorithms," B. K. Fussell and K. Srinivasan, *Journal of Manufacturing Systems*, Vol. 10, No. 1, pp. 8-20, 1991.

44. "Self-Tuning Control Application to Closed Loop Servohydraulic Material Testing," S. R. Lee and K. Srinivasan, *Transactions of the ASME, Journal of Dynamic Systems, Measurement and Control*, Vol. 112, No. 4, pp. 680-689, Dec. 1990.

45. "Regeneration Spectrum Application to Repetitive Control of Multivariable Systems," F. R. Shaw and K. Srinivasan, ASME Winter Annual Meeting, Symposium on Adaptive and Learning Control, DSC - Vol. 21, pp. 63-72, Dallas, Texas, Nov. 1990.

46. "Robot Assisted Die and Mold Polishing," L. Guvenc and K. Srinivasan, ASME Winter Annual Meeting, Symposium on Monitoring and Control for Manufacturing Processes, PED - Vol. 44, pp. 299-318, Dallas, Texas, Nov. 1990.

47. "A Solution for the Force Distribution Problem in Redundantly Actuated Closed Kinematic Chains," J. F. Gardner, K. Srinivasan, and K. J. Waldron, *Transactions of the ASME, Journal of Dynamic Systems, Measurement and Control*, Vol. 112, No. 3, pp. 423-426, Sept. 1990.

48. "Cross-Coupled Control of Biaxial Feed Drive Servomechanisms," K. Srinivasan and P. K. Kulkarni, *Transactions of the ASME, Journal of Dynamic Systems, Measurement and Control*, Vol. 112, No. 2, pp. 225-232, June 1990.

49. "Closed Loop Trajectory Control of Walking Machines," J. F. Gardner, K. Srinivasan and K. J. Waldron, *Robotica*, Vol. 8, pp. 13-22, Jan.-March 1990.

50. "Computer Aided Analysis and Design for a Class of Nonlinear Systems," S. B. Reddy, S. S. Garimella and K. Srinivasan, *IEEE Control Systems Magazine*, Vol. 10, No. 1, pp. 26-33, Jan. 1990.

51. "Bandwidth Enhancement of Position Measurements Using Measured Acceleration," F. R. Shaw and K. Srinivasan, *Journal of Mechanical Systems and Signal Processing*, Vol. 4(1), pp. 23-38, Jan. 1990.

52. "On-Line Identification of End Milling Process Parameters," B. K. Fussell and K. Srinivasan, *Transactions of the ASME, Journal of Engineering for Industry*, Vol. 111, pp. 322-330, Nov. 1989.

53. "An Analytical and Experimental Study of the Dynamic Behavior of a Quick-Acting Hydraulic Fuse," S. R. Lee and K. Srinivasan, *Transactions of the ASME, Journal of Dynamic Systems, Measurement and Control*, Vol. 111, pp. 528-534, Sept. 1989.

54. "On Line Identification of Process Models in Closed Loop Material Testing," S. R. Lee and K. Srinivasan, *Transactions of the ASME, Journal of Dynamic Systems, Measurement and Control*, Vol. 111, pp. 172-179, June 1989.

55. "Optimal Contouring Control of Multi-Axial Feed Drive Servomechanisms," Kulkarni, P. K. and Srinivasan, K., *Transactions of the ASME, Journal of Engineering for Industry*, Vol. 111, pp. 140-148, May 1989.

56. "An Investigation of the End Milling Process Under Varying Machining Conditions," Fussell, B. K. and Srinivasan, K., *Transactions of the ASME, Journal of Engineering for Industry*, Vol. 111, pp. 27-36, Feb. 1989.

57. "A New Method for Controlling Forces in Redundantly Actuated Closed Kinematic Chains," J. F. Gardner, K. Srinivasan, and K. J. Waldron, ASME Winter Annual Meeting, Symposium on Robotics, DSC Vol. 11, pp. 315-324, Chicago, Illinois, Nov. 1988.

58. "Model Reference Adaptive Control of Force in End Milling Operations," B. K. Fussell and K. Srinivasan, Proceedings of the American Control Conference, pp. 1189-1194, Atlanta, Georgia, June 1988.

59. "Multivariable Analysis and Controller Design for Coordinated Multi-Axial Motion Control," K. Srinivasan and R. Fosdick, Proceedings of the American Control Conference, pp. 95-101, Atlanta, Georgia, June 1988.

60. "Performance Evaluation of a Quick Acting Hydraulic Fuse," 1988 *Journal of National Conference on Fluid Power*, S. R. Lee and K. Srinivasan, pp. 165-178, 1988.

61. "A Method for the Determination of Transient Hydraulic Flow Rates from Dynamic Pressure Measurements," S. R. Lee and K. Srinivasan, Paper No. 87-WA/DSC-36, ASME Winter Annual Meeting, Boston, Massachusetts, December 1987.

62. "Computer Aided Analysis and Design Procedures for Nonlinear Systems," S. S. Garimella and K. Srinivasan, Proceedings of the 1987 ASME International Computers in Engineering Conference, pp. 359-368, New York, August 1987.

63. "A General Multivariable Structure for Coordinated Control Applications," K. Srinivasan, Proceedings of the American Control Conference, pp. 430-439, Minneapolis, Minnesota, June 1987.

64. "Application of Multivariable Controller Design Techniques to an Electrohydraulic Circuit for Coordinated Motion Control," J. A. Dworak and K. Srinivasan, Proceedings of the American Control Conference, pp. 53-65, Minneapolis, Minnesota, June 1987.

65. "Multivariable Analysis of Multi-Axial Machine Tool Feed Drive Controllers," K. Srinivasan, Proceedings of the 15th North American Manufacturing Research Conference, pp. 586-592, Bethlehem, Pennsylvania, May 1987. Acceptance based on review of extended abstract.

66. "Digital Control of a Hydraulic Circuit for a Walking Vehicle," Dworak, J. A., Srinivasan, K., and Waldron, K. J., ASME Winter Annual Meeting, Paper No. 86-WA/DSC-7, Anaheim, California, December 1986.

67. "Cross-Coupled Controllers for Multi-Axial Feed Drive Servomechanisms," Kulkarni, P. K. and Srinivasan, K., Proceedings of the Japan-USA Symposium on Flexible Automation, pp. 585-594, Osaka, Japan, July 1986.

68. "An Interactive Computer-Aided Design Procedure for Feedback Control Systems," Lee, A. J. and Srinivasan, K., Proceedings of the ASME International Computers in Engineering Conference, Vol. 1, pp. 335-347, Chicago, July 1986.

69. "Two Experiments in Legged Locomotion," Waldron, K. J., Vohnout, V. J., Brown, Y. F., Kinzel, G. L., and Srinivasan, K., Proceedings of the 9th Applied Mechanisms Conference, Vol. 1, pp. III.1 to III.5, Kansas City, Kansas, October 1985.

70. "Cross Coupled Compensators for Contouring Control of Multi-Axial Machine Tools," Kulkarni, P. K. and Srinivasan, K., Proceedings of the 13th North American Manufacturing Research Conference, pp. 558-566, Berkeley, California, May 1985. Acceptance based on review of extended abstract.

71. "Identification of Discrete Time Dynamic Models for Machine Tool Feed Drives," Kulkarni, P. K. and Srinivasan, K., Proceedings of the Symposium on Sensors and Controls for Automated Manufacturing and Robotics, pp. 1-20, ASME Winter Annual Meeting, New Orleans, Louisiana, December 1984.

72. "Digital Control Algorithms for Electrohydraulic Machine Tool Feed Drive Servomechanisms," Srinivasan, K. and Dogan, C., Proceedings of the 1984 American Control Conference, pp. 449-457, San Diego, California, June 1984.

73. "Simulation and Discrete Time Modeling of Machine Tool Feed Drive Dynamics," Kulkarni, P. K., Srinivasan, K., and Johnson, W. C., Proceedings of the 1984 American Control Conference, pp. 474-481, San Diego, California, June 1984.

74. "Digital Control Algorithms for Electromechanical Machine Tool Feed Drives," Johnson, W. C. and Srinivasan, K., Proceedings of the XIIth North American Manufacturing Research Conference, pp. 447-453, Houghton, Michigan, May 1984. Acceptance based on review of extended abstract.

75. "Design and Testing of a Digitally Controlled Hydraulic Actuation System for a Walking Vehicle Leg Mechanism," Gardner, J. F., Dworak, J. A., Srinivasan, K., and Waldron, K. J., Proceedings of the Eighth Applied Mechanisms Conference, pp. 201-217, St. Louis, Missouri, September 1983.

76. "The Use of Microcomputers in a Mechanical Engineering Controls Course," Srinivasan, K., Gardner, J. F., and Merchant, A. I., Proceedings of the ASME International Computers in Engineering Conference, pp. 289-295, Chicago, Illinois, August 1983.

77. "Digital Control of an Electrohydraulic Position Servomechanism Using a Microcomputer," Srinivasan, K. and Merchant, A. I., *Journal of Microcomputer Applications*, Vol. 2, No. 3, pp. 76-80, Acta Press, 1983.

78. "The Design and Evaluation of a Hydraulic Actuation System for a Legged Rough-Terrain Vehicle," Srinivasan, K., Waldron, K. J., and Dworak, J. A., Symposium on Robotics Research and Advanced Applications, pp. 9-26,ASME Winter Annual Meeting, Phoenix, Arizona, November 1982.

79. "The Use of Mechanical Energy Storage in an Unconventional, Rough Terrain Vehicle," Waldron, K. J., Frank, A. A., and Srinivasan, K., Proceedings of the 17th Intersociety Energy Conversion Engineering Conference, pp. 1973-1980, Los Angeles, California, August 1982.

80. "Application of the Regeneration Spectrum Method to Wheel Regenerative Chatter in Grinding," Srinivasan, K., *Transactions of the ASME, Journal of Engineering for Industry*, Vol. 104, pp. 46-54, February 1982.

81. "Application of the Regeneration Spectrum Method to Workpiece Regenerative Chatter in Grinding," Srinivasan, K., Proceedings of the 9th North American Manufacturing Research Conference, pp. 283-289, University Park, Pennsylvania, May 1981. Acceptance based on review of extended abstract.

82. "Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum," Srinivasan, K., and Nachtigal, C. L., *Transactions of the ASME, Journal of Dynamic Systems, Measurement and Control*, Vol. 100, pp. 191-200, September 1978.

83. "Investigation of the Cutting Process Dynamics in Turning Operations," Srinivasan, K., and Nachtigal, C. L., *Transactions of the ASME, Journal of Engineering for Industry*, Vol. 100, pp. 323-331, August 1978.

84. "Identification of Machining System Dynamics by Equation Error Minimization," Srinivasan, K. and Nachtigal, C. L., *Transactions of the ASME, Journal of Engineering for Industry*, Vol. 100, pp. 332-339, August 1978.

85. "The Regeneration Spectrum - A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems," Srinivasan, K. and Nachtigal, C. L., ASME Paper No. 77-WA/Aut-9, ASME Winter Annual Meeting, Atlanta, Georgia, November 1977.

86. "Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems," Srinivasan, K. and Nachtigal, C. L., ASME Paper No. 77-WA/Aut-8, ASME Winter Annual Meeting, Atlanta, Georgia, November 1977.

c. Unrefereed Publications

1. "Toward Broader Education in Control System Design for Mechanical Engineers: Actuation System Selection and Controller Co-Design", *Advances in Mechanisms, Robotics, and Design Education and Research*, Springer Series on Mechanisms and Machine Science, Vol. 14, Editors: V. Kumar, J. Schmiedeler, S.V. Sreenivasan, and H. J. Su, pp.329 - 347, May 2013

2. “Transmission Shift Controller Design Based on a Dynamic Model of Transmission Response,” Q.Zheng, K.Srinivasan, and G.Rizzoni, Proceedings of the IFAC Workshop on Advances in Automotive Control, Loudonville, Ohio, Feb. - March 1998.

3. “Computer Aided Analysis and Design of Linear and Nonlinear Feedback Control Systems," S. S. Garimella and K. Srinivasan, Proceedings of the Fifth National Conference on University Programs in Computer-Aided Engineering, Design and Manufacturing, p. 54, Columbus, Ohio, June 1987.

4. "Performance Evaluation of a Quick-Acting Hydraulic Fuse," K. Srinivasan and S. R. Lee, Proceedings of the 42nd National Conference on Fluid Power, pp. 183-190, Chicago, Illinois, March 1987.

5. "On the Design of Digital Controllers for Machine Tool Feed Drive Servomechanisms," Kulkarni, P. K. and Srinivasan, K. Computer Aided Manufacturing Symposium, University of Cincinnati, Cincinnati, Ohio, October 1984.

6. "Control of a Hydraulically Powered Walking Machine Leg," Srinivasan, K., Holloway, M. K., and Waldron, K. J., Proceedings of the First Fluid Power National Educational Seminar, pp. 115-134, Iowa State University, Ames, Iowa, August 1984.

7. "Microprocessor Controlled Continuously Variable Rubber V-Belt Transmission for an Automobile," Srinivasan, K., Houser, D. R., Kinzel, G. L., and Mattern, D. L., SAE Paper No. 820745, Passenger Car Meeting, Troy, Michigan, June 1982.

8. "A Design Philosophy for Instrumentation Equipment in a Dynamic Systems and Measurements Laboratory," Nachtigal, C. L., Srinivasan, K., et al, Proceedings of the Annual Conference of the American Society of Engineering Education, Ft. Collins, Colorado, 1975.

d. Limited Access Reports

1. "Characterization of Geometric Effects in Automated Die Polishing," W. Chaabane and K. Srinivasan, NSF Engineering Research Center Report No. ERC/NSM-D-92-41, Aug. 1992.

2. "Closed Loop Control of Melt Pressure in Thermoplastic Injectio Molding," K. Srinivasan and T. Srinivasan, NSF Engineering Research Center Report No. ERC/NSM-P-91-50, Sept. 1991.

3. "Part Weight Control in Thermoplastic Injection Molding," T. Srinivasan, K. Srinivasan, and G. P. Maul, NSF Engineering Research Center Report No. ERC/NSM-P-91-49, Sept. 1991.

4. "Robot Assisted Die Polishing With Compliant Polishing Tools," K. Srinivasan and L. Guvenc, NSF Engineering Research Center Report No. ERC/NSM-91-05, Feb. 1991.

5. "Design and Control Enhancements for the Rimrock M-7 Materials Handling Robot: Part II - Modeling and Control," L. A. Hodgett Jr., K. Srinivasan and G. L. Kinzel, Final Report to The Thomas Alva Edison Partnership Program, Sept. 1989.

6. "Design and Control Enhancements for the Rimrock M-7 Materials Handling Robot: Part I - Mechanical Design Enhancements," A. M. Przemieniecki, G. L. Kinzel, K. Srinivasan and M. Forry, Final Report to The Thomas Alva Edison Partnership Program, Jan. 1989.

7. "Development of Integrated Computer-Aided Analysis and Design Software for Kinematics and Controls: Part IV - Linear System Analysis and Control. Project Detailed Description," M. Krishnamurthy, K. Srinivasan and G. L. Kinzel, Final Report to The Thomas Alva Edison Partnership Program, March 1990.

8. "Development of Integrated Computer-Aided Analysis and Design Software for Kinematics and Controls: Part III - Nonlinear System Analysis and Control. Project Detailed Description," S. B. Reddy, S. S. Garimella, K. Srinivasan and G. L. Kinzel, Final Report to The Thomas Alva Edison Partnership Program, Oct. 1989.

9. "Design of Integrated Computer-Aided Analysis and Design Software for Kinematics and Controls: Part II - Nonlinear System Analysis and Control. Project Summary," S. B. Reddy, S. S. Garimella,

K. Srinivasan, and G. L. Kinzel, Final Report to The Thomas Alva Edison Partnership Program, Oct. 1989.

10. "Design of Integrated Computer-Aided Analysis and Design Software for Kinematics and Controls: Part I - Kinematics," G. L. Kinzel, K. Srinivasan and K. J. Waldron, Final Report to The Thomas Alva Edison Partnership Program, Dec. 1988.

11. "Robot Assisted Die Polishing," K. Srinivasan, K. P. Moore and A. Chandy, NSF Engineering Research Center Report No. ERC/NSM-88-36, Oct. 1988.

12. "Closed Loop Control of Thermoplastic Injection Molding," K. Srinivasan and S. S. Garimella, NSF Engineering Research Center Report No. ERC/NSM-88-35, Oct. 1988.

13. "Laboratory Tests on Load Cells," Srinivasan, K., Technical Progress Report, Bellaire Research Center, Shell Development Company, Houston, Texas, 1976.

14. "Single-Phase Liquid and Gas Flow Measurement with the Production Surveillance Monitor," Srinivasan, K., Technical Progress Report BRC 56-77, Bellaire Research Center, Shell Development Company, Houston, Texas, February 1978.

15. "A Digital Data Acquisition System for the Sucker Rod Diagnostic Technique," Srinivasan, K., Technical Progress Report BRC 90-78, Bellaire Research Center, Shell Development Company, Houston, Texas, January 1979.

PATENTS HELD:

1. Method for Automated Calibration and Online Adaptation of Automatic Transmission Controllers, Co-inventor: Kirti Deo Mishra, US Patent Application Serial No. 62/775,618, Filed Dec. 5, 2018

2. Single Phase Flow Measuring Device - 1982. U.S. Patent No. 4,347,747

3. Gas Flow Monitor for Measuring Flow Rates of Dry and Wet (Mist Flow) Natural Gas - 1980 U.S. Patent No. 4,183,243. Co-inventor: M. M. Patterson.

4. Strain Gage Accelerometer for Measuring Rod Pump Acceleration on Sucker Rod Pumped Wells - 1977. U.S. Patent No. 4,064,763.

PRESENTATIONS:

a. Meetings and Conferences

1. "Improved Integrated Powertrain Control of Gearshifts Using Linear Parameter Varying Control," American Control Conference, Philadelphia, July 10 – 12, 2019

2. "Modeling, Control, and Adaptation for Shift Quality Control of Automatic Transmissions," SAE World Congress and Exposition WCX, Detroit, April 2019

3. "On-Line Identification of a Torque Converter Model," Kirti Deo Mishra and Krishnaswamy Srinivasan, IFAC World Congress, Toulouse, France, July 9 – 14, 2017

4. "Robust Nonlinear Estimation and Control of Clutch-to-Clutch Shifts," American Control Conference, Boston, July 6 – 8, 2016

5. "Robust Nonlinear Control of Inertia Phase in Clutch-to-Clutch Shifts," 4th IFAC Workshop on Engine and Powertrain Control, Simulation and Modeling, Columbus, Ohio, August 2015

6. "Estimation of Wet Clutch Friction Parameters in Automotive Transmissions," SAE World Congress, Detroit, April 2015

7. "Implementation of On-Line Clutch Pressure Estimation in Stepped Automatic Transmissions," American Control Conference, Portland, Oregon, June 2005

8. "Contouring Control of Stewart Platform Based Machine Tools," American Control Conference, Boston, Massachusetts, July 2004

9. "On-Line Estimation of Operating Variables for Stepped Automatic Transmissions", IEEE Conference on Control Applications, Istanbul, Turkey, June 2003

10. "Modeling and Simulation of a Shift Hydraulic System for a Stepped Automatic Transmission", SAE International Congress and Exposition, Detroit, March 2003

11. "Adaptive Friction Compensation for Stewart Platform Machine Tool Structures", IFAC Symposium on Mechatronics, University of California, Berkeley, California, December 2002.

12. **“**Application of Nonlinear Adaptive Control Techniques to an Electrohydraulic Velocity Servomechanism”, American Control Conference, Anchorage, Alaska, May 2002.

13. “Transmission Clutch Pressure Control System: Modeling, Controller Development and Implementation”, SAE International Congress and Exposition, Detroit, March 6-9, 2000.

14. “New Dynamic Modeling and Controller Design for a Piezoelectric Actuation System Used for Machine Tool Control,” Symposium on Adaptive Systems Applications, ASME Aerospace Engineering Division, International Mechanical Engineering Congress aNd Exposition, Nashville, Tennessee, Nov. 1999.

15. “Evaluation of Control Algorithms for High Speed Motion Control of Machine-Tool Structures Based on Stewart Platforms,” First European-American Forum on Parallel Kinematic Machines – Theoretical Aspects and Industrial Requirements, Milan, Italy, Aug.-Sept., 1998.

16. “High Speed Contouring Control Algorithms for Stewart Platform Based Machine Tools,” Japan-USA Symposium on Flexible Automation, Osaka, Japan, July 1998.

17. “Dynamic Modeling and Characterization of Transmission Response for Controller Design”, SAE International Congress and Exposition, Detroit, Feb. 23-26, 1998.

18. "A Design Procedure for Repetitive Control Systems," International Mechanical Engineering Congress and Exposition, San Francisco, California, Nov. 1995.

19. "Extended Precision Tracking Control of Discrete-Time Non-minimum Phase Systems," International Mechanical Engineering Congress and Exposition, San Francisco, California, Nov. 1995.

20. "Application of Iterative Learning Control to Coil-to-Coil Control in Cold Rolling," American Control Conference, Seattle, Washington, June 1995.

21. "Application of MIMO Repetitive Control to Eccentricity Compensation in Rolling," International Mechanical Engineering Congress and Exposition, Chicago, Illinois, Nov. 1994.

22. "Application of Repetitive Control to Eccentricity Compensation in Rolling Processes," The American Control Conference, Baltimore, June 1994.

23. "Transient Response of Repetitive Control Systems," The American Control Conference, Baltimore, June 1994.

24. "Learning Control of Melt Pressure in Injection Molding Processes," ASME Winter Annual Meeting, Atlanta, Georgia, December 1991.

25. "Discrete-Time Repetitive Control System Design Using the Regeneration Spectrum," American Control Conference, Boston, Massachusetts, June 1991.

26. "Improvements in Closed Loop Control of Thermoplastic Injection Molding Processes," SPE ANTEC Conference, Montreal, Canada, May 1991.

27. "Regeneration Spectrum Application to Repetitive Control of Multivariable Systems," ASME Winter Annual Meeting, Dallas, Texas, Nov. 1990.

28. "Robot Assisted Die and Mold Polishing," ASME Winter Annual Meeting, Dallas, Texas, Nov. 1990.

29. "Robot Assisted Polishing and Finishing Systems," Polishing and Finishing Workshop, Southeast Manufacturing Technology Center and Center for Advanced Manufacturing, Clemson University, Clemson, South Carolina, Nov. 1990.

30. "Analysis and Design of Repetitive Control Systems Using the Regeneration Spectrum," American Control Conference, San Diego, California, May 1990.

31. "Self-Tuning Control Application to Closed Loop Servohydraulic Material Testing," ASME Winter Annual Meeting, San Francisco, California, Dec. 1989.

32. "A New Method for Controlling Forces in Redundantly Actuated Closed Kinematic Chains," ASME Winter Annual Meeting, Chicago, Illinois, Nov. 1988.

33. "On-Line Identification of Milling Process Parameters," Second Joint USA-Japan Symposium on Flexible Automation, Minneapolis, Minnesota, July 1988.

34. "Model Reference Adaptive Control of Force in End Milling Operations," American Control Conference, Atlanta, Georgia, June 1988.

35. "On-Line Identification of Process Models in Closed Loop Material Testing," American Control Conference, Atlanta, Georgia, June 1988.

36. "Multivariable Analysis and Controller Design for Coordinated Multi-Axial Motion Control," American Control Conference, Atlanta, Georgia, June 1988.

37. "A Method for the Determination of Transient Hydraulic Flow Rates from Dynamic Pressure Measurements," ASME Winter Annual Meeting, Boston, Massachusetts, December 1987.

38. "Computer Aided Analysis and Design Procedures for Nonlinear Systems," ASME International Computers in Engineering Conference, New York, August 1987.

39. "A General Multivariable Structure for Coordinated Control Applications," American Control Conference, Minneapolis, Minnesota, June 1987.

40. "Application of Multivariable Controller Design Techniques to an Electrohydraulic Circuit for Coordinated Motion Control," American Control Conference, Minneapolis, Minnesota, June 1987.

41. "Multivariable Analysis of Multi-Axial Machine Tool Feed Drive Controllers," 15th North American Manufacturing Research Conference, Bethlehem, Pennsylvania, May 1987.

42. "Computer Aided Analysis and Design of Linear and Nonlinear Feedback Control Systems," Fifth National Conference on University Programs in Computer-Aided Engineering, Design and Manufacturing, Columbus, Ohio, June 1987.

43. "Performance Evaluation of a Quick-Acting Hydraulic Fuse," 42nd National Conference on Fluid Power, Chicago, Illinois, March 1987.

44. "Digital Control of a Hydraulic Circuit for a Walking Vehicle," ASME Winter Annual Meeting, Anaheim, California, December 1986.

45. "An Analytical and Experimental Study of the Dynamic Behaviour of a Quick Acting Hydraulic Fuse," ASME Winter Annual Meeting, Anaheim, California, December 1986.

46. "Cross-Coupled Controllers for Multi-Axial Feed Drive Servomechanisms," Japan-USA Symposium on Flexible Automation, Osaka, Japan, July 1986.

47. "An Interactive Computer-Aided Design Procedure for Feedback Control Systems," ASME International Computers in Engineering Conference, Chicago, July 1986.

48. "Cross-Coupled Control of Machine Tool Feed Drives," 12th NSF Conference on Advanced Systems for Manufacturing, University of Wisconsin-Madison, Madison, Wisconsin, May 1985.

49. "Cross Coupled Compensators for Contouring Control of Multi-Axial Machine Tools," 13th North American Manufacturing Research Conference, Berkeley, California, May 1985.

50. "Identification of Discrete Time Dynamic Models for Machine Tool Feed Drives," ASME Winter Annual Meeting, New Orleans, Louisiana, December 1984.

51. "On the Design of Digital Controllers for Machine Tool Feed Drive Servomechanisms," Computer Aided Manufacturing Symposium, University of Cincinnati, Cincinnati, Ohio, October 1984.

52. "Control of a Hydraulically Powered Walking Machine Leg," First Fluid Power National Educational Seminar, Iowa State University, Ames, Iowa, August 1984.

53. "Digital Control Algorithms for Electrohydraulic Machine Tool Feed Drive Servomechanisms," American Control Conference, San Diego, California, June 1984.

54. "Simulation and Discrete Time Modeling of Machine Tool Feed Drive Dynamics," American Control Conference, San Diego, California, June 1984.

55. "Digital Control Algorithms for Electromechanical Machine Tool Feed Drives," XIIth North American Manufacturing Research Conference, Houghton, Michigan, May 1984.

56. "The Use of Microcomputers in a Mechanical Engineering Controls Course," ASME International Computers in Engineering Conference, Chicago, Illinois, August 1983.

57. "The Design and Evaluation of a Hydraulic Actuation System for a Legged Rough-Terrain Vehicle," ASME Winter Annual Meeting, Phoenix, Arizona, November 1982.

58. "Digital Control of an Electrohydraulic Position Servomechanism Using a Microcomputer," 23rd ISMM International Symposium on Mini and Microcomputers and their Applications, San Antonio, Texas, Dec. 1983.

59. "Application of the Regeneration Spectrum Method to Wheel Regenerative Chatter in Grinding," ASME Winter Annual Meeting, Washington, DC, Dec. 1981.

60. "Application of the Regeneration Spectrum Method to Workpiece Regenerative Chatter in Grinding," 9th North American Manufacturing Research Conference, University Park, Pennsylvania, May 1981.

61. "The Regeneration Spectrum - A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems," ASME Winter Annual Meeting, Atlanta, Georgia, November 1977.

62. "Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems," ASME Winter Annual Meeting, Atlanta, Georgia, November 1977.

63. "Investigation of the Cutting Process Dynamics in Turning Operations," ASME Winter Annual Meeting, Atlanta, Georgia, Nov. 1977.

64. "Identification of Machining System Dynamics by Equation Error Minimization," ASME Winter Annual Meeting, Atlanta, Georgia, Nov. 1977.

b. Workshops

1. "Robust Nonlinear Control of Inertia Phase in Clutch-to-Clutch Shifts," K. Mishra and K. Srinivasan, 4th IFAC Workshop on Engine and Powertrain Control, Simulation, and Modeling, The Ohio State University, Columbus, Ohio, August 2015

2. “Critical Review and Assessment of International Research and Development in Manufacturing Sensing and Control,” NSF-sponsored Workshop, University of Wisconsin, Madison, Wisconsin, June 2, 2003.

3. “Transmission Shift Controller Design Based on a Dynamic Model of Transmission Response,” IFAC Workshop on Advances in Automotive Control, Loudonville, Ohio, Feb.26 – Mar.1, 1998.

4. “High-Speed Contouring Control of Stewart Platform Based Machine Tools - Work in Progress”, Second Hexapod User Group Meeting, National Institute for Standards and Technology, Gaithersburg, Maryland, March 26, 1997.

5. "Dynamic Modeling and Control of the Cold Rolling Process," Workshop on Nonlinear Dynamics of Material Processing and Manufacturing, Institute of Mechanics and Materials, La Jolla, California, March 20-22, 1995.

c. Invited Seminars

1. “Manufacturing Machine and Process Control – An Overview and Perspective”, Technical University of Dortmund, Germany, March 18, 2016

2. "Toward Broader Education in Control System Design for Mechanical Engineers," Department of Mechanical, Aerospace, and Nuclear Engineering, Rensselaer Polytechnic Institute, Troy, New York, April 30, 2014

3. "Toward Broader Education in Control System Design for Mechanical Engineers," Department of Mechanical Engineering, University of California, Berkeley, California, April 12 and 17, 2013

4. “High-Speed Contouring Control of Stewart Platform Based Machine Tools,” Department of Mechanical and Industrial Engineering, University of Illinois at Urbana/Champaign, Illinois, December 1, 1998.

5. "Dynamic Modeling and Control of the Cold Rolling Process," Department of Mechanical, Industrial, and Manufacturing Engineering, University of Toledo, Toledo, Ohio, May 5, 1995.

6. "Dynamic Modeling and Control of the Cold Rolling Process," Department of Mechanical Engineering, The University of Michigan, Ann Arbor, October 21, 1994.

7. “A Perspective on the Control of Manufacturing Processes and Machinery,” Department of Industrial and Welding Systems Engineering, The Ohio State University, Columbus, Ohio, Fall 1994.

8. Panelist in discussion on "Controls Research at NSF," American Control Conference, San Francisco, California, June 1993.

9. Panelist in discussion on "Manufacturing Research," US-Taiwan Symposium on Manufacturing Research, Georgia Institute of Technology, Atlanta, Georgia, Feb. 1993.

10. "The Manufacturing Machines and Equipment Program at NSF,": Presentations at The Pennsylvania State University and University of Nebraska, Lincoln, April 1994; The NSF Design and Manufacturing Systems Grantees' Conference, January 1994; Purdue University, Sept. 1993; University of Wisconsin-Madison, June 1993; University of Illinois-Urbana, Dec. 1992; University of Florida, Gainesville, Florida, Dec. 1992; University of Michigan, Ann Arbor, Nov. 1992; Wayne State University, Detroit, Nov. 1992.

EXTERNAL SUPPORT OF RESEARCH AND TEACHING:

Acronyms used:
NSF - National Science Foundation
ERC/NSM - Engineering Research Center for Net Shape Manufacturing
DARPA - Defense Advanced Research Projects Agency.

a. **RESEARCH/TEACHING GRANTS AND PEER-REVIEWED INSTRUCTIONAL GRANTS (with K. Srinivasan as P.I. or Co-P.I.):**

	Project Title	Grant Agency	Grant Amount	Grant Duration
1.	IRES – Forming and Manufacturing Research in Germany (co-PI: G. Daehn)	NSF	$ 249,974	May 2017 - Apr. 2021
2.	Model-based approach to automatic transmission estimation and control and integrated powertrain control	CAR Consortium	$ 80,000	Jan. 2017 - Dec. 2018
3.	Faculty leadership, curriculum development, and translational innovation capability in advanced actuation and sensing	Parker Hannifin Foundation	$ 250,000	Jan. 2013 - Dec. 2014
4.	Development of a Photonic Force Microscopic System for Visualization and Manipulation of Biological Structures and Systems (co – PI)	NSF Major Research Instrumentation Program	$ 704,500	Sept. 2006 - Aug. 2009
5.	Development of an Automated Visually Guided AFM System for Multi-Scale Imaging and Manipulation of Biological and Engineered Systems (co-PI)	NSF Major Research Instrumentation Program	$ 600,000	Sept. 2004 - Aug. 2007
6.	Access for Engineering Excellence (co-PI)	NSF CSEMS Program	$ 400,000	Sept. 2004 - Aug. 2008
7.	Acquisition of a Thermo-Mechanical Simulation System for Metalworking Processes (co-PI)	Defense University Research Instrumentation Program (DURIP) Office of Naval Research	$ 334,221	June 2002 – June 2003
8.	Computer Simulation of Powetrains with Emphasis on Automatic Transmissions	Delphi Automotive Systems	$ 105,608	March 2001 - June 2004
9.	Model-Based Diagnosis of Industrial Processes	Alcoa Foundation	$ 20,000	July 1998- Aug. 2000
10.	High Speed Contouring Control of Stewart Platform Based Machine Tools	NSF/GOALI/FSI, Manufacturing Processes and Equipment Program	$ 60,692	Aug. 1996- Sept. 2000
11.	High Speed Contouring Control of Stewart Platform Based Machine Tools	National Institute of Standards and Technology	$ 63,932	Aug. 1996- Sept. 2000

12. H^{∞} Optimal Repetitive Control of Closed Loop Servohydraulic Testing - Supplement (Co-PI: Ozbay)	NSF, Dynamic Systems and Control Program	$ 18,875	July 1, 1996-Mar.31,1997
13. Laboratory Equipment for Improved Undergraduate Education in Fluid Power Actuation and Control (Co-PI: Menq)	NSF, Instrumentation for Laboratory Improvement Program	$ 41,940 (OSU cost share: $ 41,940)	Aug.1,1995-Jan.31, 1999
14. Powertrain Modeling and Control - Development of a 3-Course Sequence (Co-PIs: Rizzoni and Yurkovich)	General Motors	$ 50,000	July 1995-June 1996
15. H^{∞} Optimal Repetitive Control of Closed Loop Servohydraulic Testing (Co-PI: Ozbay)	NSF, Dynamic Systems and Control Program	$149,943	July 1, 1992-Sept. 30, 1996
16. Estimation and Identification of Periodic and Near Periodic Systems: Theory and Application to Automotive Failure Diagnosis (Co-PI: Rizzoni)	Transportation Research Endowment Program (TREP) at OSU	$27,000	July 1, 1991-Mar. 31, 1992
17. Process Control for Precision Injection Molding	NSF ERC/NSM at OSU	$74,675	July 1, 1989-April 30, 1992
18. Robot Assisted Die Polishing	NSF ERC/NSM at OSU	$130,793	July 1, 1988-April 30, 1992
19. An Investigation of Robotic Light Machining	NSF ERC/NSM at OSU	$9,290	July 1, 1986-Mar. 31, 1988
20. Design and Control Enhancements for the RimrockM-7 Material Handling Robot (Co-PI: Kinzel)	Ohio Edison Program. Co-sponsor: Rimrock Corp., Columbus, Ohio	$49,996	July 1, 1986-Mar. 31, 1988
21. Development of Integrated Computer Aided Analysis and Design Software for Kinematics and Controls (Co-PI: Kinzel)	Ohio Edison Program. Co-Sponsor: International Techne Group Inc., Milford, Ohio	$270,000	Aug. 1, 1985-Sept. 30, 1988
22. An Integrated Cell for Machining and Polishing of Dies, Molds and Other Complex Shaped Objects (Co-PIs: Bagchi, Altan, Lewis)	NSF, Production Research Program, Equipment Grant	$183,480	July 1, 1986-June 30, 1988

23. Projects involving modeling and control of hydraulic systems	OSU Fluid Power Laboratory	$12,000 per year	1984-1988
24. Control Issues in the Use of Robots for Machining Applications	OSU Seed Grant	$12,000	Sept. 1, 1985-Dec. 31, 1986
25. Machine Tool Controls for Computer Assisted Manufacturing	NSF, Production Research Program, Equipment Grant	$77,730	Oct. 1, 1984-Sept. 30, 1985
26. Dynamic Testing and Analysis of a Quick-Acting Hydraulic Fuse	Hansen Couplings, Cleveland, Ohio	$7,300	Mar. 1, 1984-Dec. 31, 1984
27. Microcomputer Control of Machine Tool Feed Drives	NSF, Mechanical Systems Program	$79,983	Sept. 1981-March 1984
28. Microcomputers for 29. Mechanical Engineering Education	NSF, Instructional Science Equipment Program	$27,130	Oct. 1981-Mar. 1984
30. Adaptive Control Algorithms for Machining Operations Foundation	Society of Manufacturing Engineering Education	$3,788	Jan. 1981-Sept. 1981
31. Microcomputer Implementable Digital Control Algorithms for Electrohydraulic Servomechanisms	OSU Small Grants Program	$4,500	Oct. 1980-Sept. 1981

b. **PRIVATE FUNDS RAISED**

Private funds in excess of $ 1.3 M raised from alumni, friends, and corporations to support undergraduate curriculum enhancements implemented as part of the academic calendar change from quarters to semesters in the 2012 - 2013 academic year

c. **OTHER RESEARCH GRANTS (with K. Srinivasan as investigator):**

Project Title	Grant Agency	Grant Amount	Grant Duration	Grant P.I./Co-P.I.
1. An Experimental Study of an Ultra-Mobile Vehicle for Off-Road Transportation	DARPA	$3,330,000	Oct. 1981-Sept. 1984	K. J. Waldron/ R. B. McGhee
2. Design Study for an Actively Terrain Adaptive Off-Road Vehicle	DARPA	$250,000	Dec. 1980-Sept. 1981	K. J. Waldron/ R. B. McGhee
3. Microcomputer	Dayco Corp.,	$100,000	Jan. 1980-	D. R. Houser

Control of a Continuously Variable Transmission for an Automobile	Missouri	Dec. 1981

d. **EQUIPMENT GRANTS FOR TEACHING**

(a) Microcomputers for Control Applications. Grant from the Ohio Board of Regents Program Excellence Award to the Mechanical Engineering Department. Share of Grant: $56,000. Grant matched by donations from Intel Corporation valued at $112,000 in 1985.

(b) Two General Electric Series Three Programmable Controllers (Model PC3) and one IBM compatible programmer (Model LM1-3). Donated by General Electric Company, Fairfield, Connecticut, 1984 and 1985. Equipment Value: $12,870.

(c) Digitally controlled Wiring Machine, Model CIT Alcatel K-6, Equipment donated by Western Electric in 1984. Equipment Value: $92,800.

(d) Microcomputer Equipment Donation by Texas Instruments, Inc., Dallas, Texas, to the Microcomputer Applications Laboratory in 1982, Equipment Value: $63,175.

(e) Grant from Battelle Memorial Institute, Columbus, Ohio for course and laboratory development in the area of Microcomputer Control of Physical Systems. Grant Amount: $7,213. Grant Period: October 1981 - September 1982.

GRADUATE STUDENTS SUPERVISED:

a. Ph.D. Theses Supervised:

	Name	Thesis Title	Grad. Date
1.	K. D. Mishra	Robust Iterative Learning Control for Linear and Hybrid Systems with Application to Automotive control	Dec. 2020 (Expected)
2.	S. Watechagit	Modeling and Estimation for Stepped Automatic Transmission with Clutch-to-Clutch Shifting Technology	Aug. 2004
3.	D. Garagic	Contouring Control of Stewart Platform Based Machine Tools	Mar. 2002
4.	A. Al-Rubaian	Advanced Temperature Control in Injection Molding Machines	Mar. 2000
5.	Q.Zheng	Modeling and Control of Powertrains with Stepped Automatic Transmissions (co-Advisor: G.Rizzoni)	Dec. 1999
6.	K.Harib	Dynamic Modeling, Identification, and Control of Stewart Platform-Based Machine Tools	Sept. 1997
7.	S.S.Garimella	Application of Repetitive Control and Iterative Learning Control to Cold Rolling Processes	Dec. 1994
8.	L. Guvenc	Control Issues in Robot Assisted Die and Mold Polishing	Sept. 1992
9.	F.-R. Shaw	Repetitive Control of Closed Loop Material Testing	June 1991
10.	S. R. Lee	Self-Tuning Control Application to Closed Loop Material Testing	Mar 1989
11.	J. F. Gardner	Force Distribution and Trajectory Control for Closed Kinematic Chains with Applications to Walking Machines (Co-Advisor: K. J. Waldron)	Sept. 1987
12.	B. K. Fussell	Modeling and Adaptive Force Control of End Milling Operations	Mar 1987
13.	P. K. Kulkarni	Identification and Contouring Control of Multi-Axial Machine Tool Feed Drives	Dec. 1986
14.	J. A. Dworak	Digital Control of the Hydraulic Actuators of an Adaptive Suspension Vehicle	Mar 1985

b. Current Positions of Past Ph.D. Students

	Name	Position and Address
1.	S. Watechagit	Chairperson Department of Mechanical Engineering Mahidol University Nakon Pathom 73170 Thailand
2.	D. Garagic	Chief Scientist Advanced Systems and AI Sarcos Robotics Salt Lake City, Utah
3.	A. Al-Rubaian	Research Engineer King Abdul Aziz City for Science and Technology Saudi Arabia
4.	4. Q.Zheng	Manager – 948TE Calibration Chrysler Group LLC Impact Office Building Chelsea Proving Grounds 3700 South M-52, Chelsea, MI 48118
5.	K.Harib	Associate Professor Dept. of Mechanical Engineering UAE University Al-Ain United Arab Emirates
6.	S.S.Garimella	Global Leader Additive Manufacturing Center of Excellence Eaton Corporation Southfield, MI
7.	L. Guvenc	Professor Dept. of Mechanical and Aerospace Engineering 201 W 19th Avenue The Ohio State University Columbus, Ohio 43210
8.	F.-R. Shaw	Manager, Systems & Electronics Engineering Apitech, Div. of Applied Power Butler, Wisconsin
9.	S. R. Lee	Department of Mechanical Engineering Keonyang University San 30, Naedongri, Nonsan, Chungnam, 320-800, South Korea

10. J. F. Gardner — Director, CAES Efficiency Research Institute
Professor of Mechanical Engineering
Boise State University
Boise, Idaho

11. B. K. Fussell — Professor of Mechanical Engineering
University of New Hampshire
Durham, NH 03824

12. P. K. Kulkarni — Director of Engineering and Operations
DG Technologies
Farmington Hills, Michigan

13. J. A. Dworak — Deceased

c. M.S. Theses Supervised:

	Name	Thesis Title	Grad. Date
1.	R. Nakahata (Co-advisor: S. Seetharaman)	Analysis and Control-Oriented Model Development of Incremental Profile Forming	Dec. 2020
2.	K. D. Mishra	Robust Nonlinear Estimation and Control of Clutch-to-Clutch Shifts	Dec 2015
3.	M. Barr	Transmission Modeling and Control Application to Dual Clutch Transmissions	May 2014
4.	S.Watechagit	Two-Stage Actuator Position Control: Modeling and Controller Design	June 1999
5.	P.Mayhan	Dynamic Modeling and Control of a Piezoelectric Actuator Used for a Two-Stage Actuation Scheme	June 1998
6.	M. Mohanasundaram (Co-advisor: R.Shivpuri)	Modeling of Transient Thermomechanical Phenomena and Evolution of Microstructure in Hot Rolling	March 1998
7.	L.K.Chen	Describing Function Methods for the Analysis of Stability and Performance of Repetitive Control of Servohydraulic Systems	Sept.1996
8.	G. Manjunath	Design of Repetitive Controllers for Closed Loop Material Testing	Sept. 1993
9.	S.N. Pellican	Optimization of Actuation and Sensing Schemes Through Degree of Controllability and Observability Analysis	June 1993
10.	R. Van Belkum	Identification of Dynamic Models of the	Mar 1993

	Injection Molding Process	
11. K. Harib	An Evaluation of Controllers for Multi-Axial Contouring Applications	Mar 1993
12. W. Chaabane	Characterization of Geometric Effects in Automated Die Polishing	Sept. 1992
13. L. A. Hodgett	A Dynamic Model of the Rimrock M-7 Material Handling Robot	June 1992
14. M. Trigui	Estimation and Identification of Periodic and Near Periodic Systems: Theory and Application to Failure Diagnosis in Automotive Engines and Milling Processes	June 1992
15. T. Srinivasan	Improved Control for Thermoplastic Precision Injection Molding Processes	Sept. 1991
16. V. Jaikamal	Coordinated Control of Bi-axial Feed Drives	Mar 1991
17. M. Krishnamurthy	Computer Aided Design of Linear Control Systems	June 1990
18. K.P. Moore	Integration of a Robot with a CAD/CAM System	June 1989
19. T. C. Chouikh	Computer Aided Design of Linear Two Degree-of-Freedom Systems	Dec. 1988
20. V. Murthy	Control for a Robot With Elastic Joints	Oct. 1988
21. R. Fosdick	Multivariable Controller Design for Multi-Axial Motion Control and Other Coordinated Control Applications	Aug. 1988
22. F. R. Shaw	A Dynamic End Point Position Measuring Scheme for a Flexible Arm	June 1988
23. B. S. Reddy	Computer Aided Design for Nonlinear Control Systems	Mar 1988
24. J. Linerode	Computer Aided Design of Simple Compensators	Mar 1988
25. A. Chandy	Evaluation of the Dynamic Characteristics of the PUMA 560 Robot for Light Machining Tasks	Dec. 1987
26. S. Hari	Computer Aided Control System Design for Minor Loop Feedback Systems	Sept. 1987
27. S. S. Garimella	Computer Aided Control System Design for a	Mar 1987

	Class of Linear and Nonlinear Systems	
28. G. W. Nelson	Active Control of the Structural Vibrations of a Flexible Single Link Robot Arm	Dec. 1986
29. A. J. Lee	Computer Aided Control System Design Techniques for Machine Tool Feed Drives and Other Feedback Control Systems	June 1986
30. M. Zahlen	An Accuracy Study of the Feed Drives of a Computer Numerical Control Horizontal Machining Center (Co-Advisor: G. L. Kinzel)	June 1986
31. S. R. Lee	Analytical and Experimental Study of the Dynamics of a High Performance Hydraulic Fuse	Sept. 1985
32. M. K. Holloway	Dynamics and Control of a Hydrostatically Actuated Walking Machine Leg	Mar 1985
33. C. Dogan	Digital Control Algorithms for Electrohydraulic Machine Tool Feed Drives	Dec. 1983
34. A. I. Merchant	Digital Control of an Electrohydraulic Position Servomechanism Using a Microcomputer	Sept. 1983
35. Y. B. Ro	The Dynamics of Electrohydraulic Systems Used in Material Testing Applications	Sept. 1983
36. J. F. Gardner	Modeling and Control of the Hydraulic Drive System for a Walking Machine Leg	June 1983
37. W. C. Johnson	Digital Control Algorithms for Electromechanical Machine Tool Feed Drives	Dec. 1982
38. T. F. Brown Jr.	Dynamic Study of a Four-Bar Linkage Walking Machine Leg (Co-Advisor: G. L. Kinzel)	Aug. 1982
39. D. L. Mattern (Co-advisor: D. R. Houser)	Digital Control of a Continuously Variable Rubber V-Belt Transmission for an Automobile	Aug. 1981

d.M.S. (Non Thesis) Students Supervised

Name	Project Title	Grad. Date
1. M. Turk	A Preliminary Investigation of Measures of Degree of Controllability and Observability of Linear Dynamic Systems	June 1992
2. J. Foreman	Internal Model Control Structure and Design Method	Mar 1992

e. BS Honors Theses Supervised

Name	Thesis Title	Grad. Date
1. A. Volchko	Machine Control System Modeling and Design for Incremental Profile Forming of Metal Tubular Structures	May 2019
2. R. Nakahata	Optical Sensing of 3 – D Contours for Online Control in Incremental Profile Forming	May 2019
3. E.Kline	Experimental Determination of the Friction Characteristics of Hydraulic Cylinders	Dec. 1996
4. M. E. Shriver	Modeling of the Dynamic Response of Barrel Temperature Control Loops in an Injection Molding Machine	June 1992
5.T. J. Boesch	Development and Evaluation of Alternative Models of the Nonlinear Behavior of Electrohydraulic Servovalves	Sept. 1991
6.C. P. Lim	Comparative Study of Matrix and CSMP and Parameter Identification of a Hydraulic Material Testing Stand	June 1990

COURSES TAUGHT:

All of the following courses have been taught at The Ohio State University.

a. Undergraduate

- ME 281 System Dynamics
- ME 382 Mechanical Engineering Analysis
- ME 482 System Dynamics and Electromechanics (replaced ME 382)
- ME 571 Principles of Automatic Control
- ME 581 Experimental Methods
- ME H681 Undergraduate Honors Program Research
- ME 3360 System Integration and Control (Semester equivalent of ME 482 and ME 571)
- ME 4870 Mechanical Engineering Capstone Laboratory

b. Undergraduate/Graduate

- ME 671 Measurement System Application and Design
- ME 672 Control System Design
- ME 673/773 Applied Digital Control (course introduced by K. Srinivasan)
- ME 675 Design and Analysis of Fluid Power Systems
- ME 5372 Design and Control of Mechatronic Systems

c. Graduate

- ME 880/780 Lumped Parameter Systems Analysis
- ME 873 State Space Methods for Dynamic System Analysis and Control (course introduced by K.Srinivasan)
- ME 887 Mechanical Engineering Design Seminar
- ME 781 Powertrain Modeling (45% responsibility for course. Other 55 % taught by G.Rizzoni. Course developed jointly with Rizzoni)
- ME 7236 Semester version of ME 781, Powertrain Modeling (45% responsibility for course)
- ME 894Z/782 Advanced Topics in Powertrain Modeling and Control (33% responsibility for course. Course co-taught with Rizzoni and Yurkovich)

COURSES DEVELOPED

1. ME 673, Applied Digital Control (4 Cr.). Introduced in 1982. Introduces students to the analysis and design of digital control systems using classical methods of analysis. Requires a 2-hr laboratory each week. This course is one of only two laboratory based courses introduced in the ME department in the period 1982-1990. It is the only such course in the same time period developed and maintained by a single faculty member.

2. ME 873, State Space Methods for Dynamic System Analysis and Control (3 Cr.). Introduced in 1984. Introduces students to the analysis and design of control systems using state space methods.

3. ME 781 and 783, Powertrain Modeling (3 Cr.) Advanced Topics in Powertrain Control (3 Cr.) Introduced in Fall 1995 and Spring 1996. These courses are taken by OSU students and by GM engineers at a number of GM locations via tape delayed video. The courses have been part of a strategic sequence of courses promoted by GM North American Operations. ME 781 introduced students to the modeling of the dynamic behavior of automotive powertrain, including the engine and transmission, and ME 783 consisted of a number of seminars on advanced topics in control, and students had to undertake quarter long projects in powertrain modeling and control. ME 7236 is a semester-long version of ME 781.

LABORATORIES DEVELOPED:

1. Laboratory experiments were developed to provide laboratory support for ME 673, Applied Digital Control. The 10-week laboratory sequence followed by the students introduces them to a specific microcomputer system, techniques for interfacing computers to analog devices, periodic sampling, and use of computers for digital control of simulated and physical systems. The type of computers used was changed four times in the period 1982-1992, the experiments also being modified as many times.

2. Laboratory experiments have been developed for ME 672, Control System Design. Previously, the laboratory sessions in the course consisted of lectures/demonstrations. A lab manual has also been written.

3. Laboratory experiments have been developed for ME 482, System Dynamics and Electromechanics, and ME 571, Principles of Automatic Control. Many of the experiments have been borrowed from older courses but new experiments have also been added, including experiments emphasizing fluid power modeling and control. The laboratory manuals have also been updated and revised extensively.

SERVICE TO THE TECHNICAL COMMUNITY:

a. Societies

Member, American Society of Mechanical Engineers (ASME), 1980-Present. Fellow
Senior Member, North American Manufacturing Research Institute (NAMRI) of the Society of Manufacturing Engineers, 1985-Present
Member, Board of Directors, North American Manufacturing Research Institute/Society of Manufacturing Engineers, 1989-1991
Member, Tau Beta Pi
Member, Sigma Xi
Member, American Association for the Advancement of Science

b. Professional Committees

Member, IFAC Industry Committee, 2017 – Present
Member, Pi Tau Sigma Awards Selection Committee, ASME, 2015 – 2016
Member, Organizing Committee, Dynamic Systems and Control Conference, October 2015, Columbus, Ohio
Member, Program Committee, 4th International Workshop on Advanced Motion Control, March 1996, Tsu-City, Japan
Chairman, Organizing Committee, 17th North American Manufacturing Research Conference, May 24-26, 1989, The Ohio State University, Columbus, Ohio
Member, Program Committee, Japan-USA Symposium on Flexible Automation, Boston, Massachusetts, July 1996; Kobe, Japan, July 1994; San Francisco, California, July 1992; Osaka, Japan, July 1986.
Member, Scientific Committee, North American Manufacturing Research Conference, 1986-1995
Chairman, Technical Panel on Machine Tool Sensors and Control, American Society of Mechanical Engineers Production Engineering Division, 1986 - 1995
Member, Manufacturing Technology Panel, American Society of Mechanical Engineers Dynamic Systems and Control Division, 1981 - 1992
Member, Drilling and Production Committee, American Society of Mechanical Engineers Petroleum Division, 1978-1981

c. Organization of Technical Sessions

Co-organizer of Four Invited Sessions on Modeling and Control of Manufacturing Processes in the 1995 American Control Conference, Seattle, Washington. Co-chaired all four sessions
Co-Organizer of the 17th North American Manufacturing Research Conference, The Ohio State University, May 24-26, 1989
Co-Organizer of Symposium on Computer Aided Design and Manufacture of Dies and Molds at the Winter Annual Meeting of the American Society of Mechanical Engineers, Chicago, Illinois, Dec. 1988
Co-Organizer of Symposium on Modeling, Sensing and Control of Manufacturing Processes at the Winter Annual Meeting of the American Society of Mechanical Engineers, Anaheim, California, Dec. 1986
Organizer of Session on Multiphase Flow Measurement at the Energy Technology and Conference Exhibition of the American Society of Mechanical Engineers, Feb. 1978

Session Chairman/Co-Chairman for the following sessions at the North American Manufacturing Research Conferences of the Society of Manufacturing Engineers:

(i) Session on Machining, Oklahoma State University, Stillwater, Oklahoma, May 1993.
(ii) Session on Metal Cutting, University of Missouri, Rolla, May 1991.
(iii) Session on Chatter and Machine Tool Dynamics, Lehigh University, Pennsylvania, May 1987

(iv) Session on Machine Tool Controls, University of California, Berkeley, California, May 1985

Session Chairman for session on Process Modeling and Control at the Japan-USA Symposium on Flexible Automation, Osaka, Japan, July 1986

Session Chairman/Co-Chairman for the following sessions at meetings of the American Society of Mechanical Engineers:

(i) Session on Control of Manufacturing Processes, Anaheim, California Nov. 1992.
(ii) Session on Control of Manufacturing Processes, Atlanta, Georgia, Dec. 1991
(iii) Session on Control Strategies for Manufacturing, Dallas, Texas, Nov. 1990
(iv) Session on Control of Manufacturing Processes, Dallas, Texas, Nov. 1990
(v) Session on Manufacturing Methods I, Chicago, Illinois, Dec. 1988
(vi) Session on Dynamics and Control in Robotics, Chicago, Illinois, Dec. 1988
(vii) Session on Process Monitoring and Control, Anaheim, California, Dec. 1986
(viii) Session on Sensors and Controls for Manufacturing, Miami Beach, Florida, Nov. 1985
(vix) Session on Chatter in Machining, New Orleans, Louisiana, Dec. 1984
(x) Session on Machine Tool Vibrations and Chatter, Chicago, Illinois, Nov. 1980
(xi) Session on Multiphase Flow Measurement, New Orleans, Louisiana, Feb. 1978

d. Technical Paper/Proposal/Program Review

Reviewer for Transactions of the American Society of Mechanical Engineers, Journal of Manufacturing Science and Engineering (formerly Journal of Engineering for Industry) and Journal of Dynamic Systems, Measurement and Control; Control Systems Magazine of the Institute of Electrical and Electronics Engineers; IEEE Transactions on Control Systems Technology; SME Journal of Manufacturing Systems, and the North American Manufacturing Research Conference of SME/NAMRI.

Reviewer for NSF Proposals. NSF Proposal Review Panel, Manufacturing Machines and Equipment Program, May 1991, June 1992, June 1995, Dec. 1998, and Nov. 1999. NSF CAREER Review Panel, Manufacturing Machines and Equipment Program, Jan. 1997. Also, as Program Director of the Manufacturing Machines and Equipment Program, handled about 150 research proposals a year, Sept. 1992-August 1994; as Acting Program Director of the Materials Processing and Manufacturing Program, handled an additional 200 research proposals, Jan. 1994-August 1994.

Member, Committee of Visitors, NSF Division of Design, Manufacturing, and Industrial Innovation, March 2003

NSF Workshop participant, “Critical Review and Assessment of International Research and Development in Manufacturing Sensing and Control,” June 2003

e. Memberships in Editorial Boards

Associate Editor, ASME Transactions, Journal of Engineering for Industry, June 1988-Sept. 1992.

f. Other

Member, Industrial and Professional Advisory Committee, Department of Mechanical and Nuclear Engineering, Pennsylvania State University, University Park, PA (2010 – 2015)

SERVICE TO OSU:

a. University

i) Member, Graduate Council (Aug 2013 – July 2016), and Chairperson (Aug. 2015 – July 2016)
ii) Member, Committee for Evaluation of Central Administrators, (July 2009 – June 2012)
iii) Chairperson, Senate Fiscal Committee (July 2007 – June 2008)
iv) Chair, Ad Hoc Committee for Funding of Doctoral Programs Based Upon Quality (Aug. 2006 – March 2007)
v) OSU Senate Fiscal Committee (Oct. 2005 – June 2008)
vi) OSU Conflict of Interest Advisory Committee (Oct. 2003 – Present)
vii) OSU Budget Advisory Committee (Oct. 2001 – August 2002)
viii) OSU Representative on Dayton Area Graduate Studies Institute (DAGSI) Operating Committee (July 1998 – 2000)
ix) Alternate, Board of Governors, FAA Airworthiness Assurance Center of Excellence (Nov. 1998 – 2000)
x) OSU Representative on Ohio Aerospace Institute (OAI) Advisory Committee (July 1998 – June 2000)
xi) OSU-India Trip Steering Committee (July 1998 – June 1999)
xii) University Technology Partnerships Task Force (July 1998 – Jan. 1999)
xiii) OSU Y2K Task Force (Aug. 1998 – Jan. 2000)
xiv) Interdisciplinary Research Task Group (June 1999 – Sept. 1999)

b. College

i) Member, Faculty Oversight Committee, CDME, 2017 – 2020
ii) Member, Faculty Professional Leave Committee (Aug 2013 - July 2015)
iii) Member, CoE Action Learning Team, Project CEOS, NSF ADVANCE Program for Institutional Transformation (July 2010 - Dec 2012)
iv) Executive Committee, College of Engineering (July 1998 – June 2012)
v) Member, College Budget Advisory Committee (March 2006 – June 2007, October 2008 – April 2011)
vi) Member, Ad Hoc College Strategic Planning Committee for Administration (Oct. 2005 – July 2006)
vii) Chairperson, Search Committee for Associate Dean for Research (March 2005 – June 2005)
viii) Chairperson, Ad Hoc Committee on Budget Restructuring (March 2002 – August 2002)
ix) Chair, Research Awards Committee (July 1998 – Sept. 1999)
x) Honors and Awards Committee (Oct. 1999- June 2000)
xi) Honors Committee (Oct. 1999 – June 2000)
xii) Engineering Experiment Station Advisory Council (March 1999 – June 2000)
xiii) Committee Chair, College P & T Advisory Committee (1997-98)
xiv) Coordinating Committee for Manufacturing Systems Engineering and Associate Director of Manufacturing and Systems Engineering Program, 1984-1990: Primarily responsible for designing the overall structure and the details of the Manufacturing Systems and Engineering Program
xv) Committee on Petitions and Reinstatements, 1980-1981
xvi) Ad hoc Committee on a Microcomputer Course, 1979-1980
xvii) Committee on Dismissals, 1980-1982

c. Department

i) Chair, Search Committee, Product Design, October 2018 – May 2019
ii) Member, Search Committees for Design and Robotics Faculty, Aug. 2016 – April 2017
iii) Faculty Director for Alumni Relations, July 2016 - Present
iv) Chairperson, Design and Manufacturing Cluster Hire, August 2012 – July 2015

v) Chairperson, Clinical Faculty Hire for Laboratory Courses, August 2014 – July 2015
vi) Member, MAE P&T Committee (Jan 2014 – Dec. 2017)
vii) Member, ME CQI Committee (Aug 2012 - Present)
viii) Member, ME Undergraduate Committee (Aug 2012 - July 2015)
ix) Faculty Liaison (Aug. 2014 - Present) and Chair (July 2012 - July 2014): Department Alumni Relations Committee
x) Chair, Department Executive Committee (July 2000 – June 2012)
xi) Chair, Internal Campaign Committee (July 2000 – June 2012)
xii) Chair, Honors and Awards Committee (July 2000 – June 2004, July 2007 – June 2012)
xiii) Awards Subcommittee 1997-98
xiv) Appointments, Promotion, and Tenure Document Committee, 1997-98
xv) Faculty Advisor, ASME Student Section, Sept. 1997 – Dec. 1998
xvi) ME Department Executive Committee, 1994-1995, 1995-1996, 1997-1998
xvii) ME Department Promotion and Tenure Committee, Calendar years 1994 and 1995; Chairman, 1995.
xviii) ME Department Space Committee, 1994-1996, 1979-1982
xix) Chairman, Dynamic Systems, Measurement, and Control Interest Group, 1994-1996, 1997-1998
xx) Chairman, Dynamic Systems, Measurement, and Control Search Committee, 1995; Member, Dynamics and Controls Search Committee, 1989; Member, Mechanical Systems Search Committee, 1988; Chairman, Design and Manufacturing Search Committee, 1987; Member, Design Section Search Committee, 1981-1982
xxi) Chairman, ME Graduate Studies Committee, 1991-1992; Member, ME Graduate Studies Committee, 1982-1986, 1989-1991, 1997-1998
xxii) Member Dynamic Systems Area Qualifying Exam Committee, 1995-1996; Chairman, ME Qualifying Exam Committee, 1990-1991; Member, ME Qualifying Exam Committee, 1984-1986, 1989-1990
xxiii) ME Fundamentals Exam Committee, 1981-1984
xxiv) Diagnostic and Qualifying Exam Committee, Spring 1980, Fall 1981, Spring 1982