

CURRICULUM VITAE

Arthur Helmicki

1. PERSONAL DATA

Professor
Director, Applied Systems Research Laboratory
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2. EDUCATION

1989	Ph.D.	Electrical Engineering	Rensselaer Polytechnic Institute
1988	M.S.	Electrical Engineering	Rensselaer Polytechnic Institute
1983	B.S.	Electrical Engineering	Boston University

3. EMPLOYMENT

2004-present	Professor	University of Cincinnati
1996-2004	Associate Professor	University of Cincinnati
1990-1996	Assistant Professor	University of Cincinnati
1989-1990	Postdoctoral Research Fellow	Georgia Institute of Technology
1988-1989	Graduate Research Associate	Rensselaer Polytechnic Institute
1987-1988	Staff Instructor	Rensselaer Polytechnic Institute
1983-1987	Graduate Research Associate	Rensselaer Polytechnic Institute
1983, 1984	Engineering Intern	Raytheon Company

4. RESEARCH AND TEACHING INTERESTS

The focus of my research and teaching have been in the core area of Systems/Controls, with specialization in the development and application of practical, nondestructive evaluation techniques for damage identification, system identification and parameter estimation, condition assessment, health monitoring, remote monitoring/sensing, and associated information technologies. This includes the development of all necessary hardware, software, and algorithms for instrumentation, signal processing and data interpretation. I have worked on extensive application of these techniques in the areas of civil infrastructure systems, biomedicine, and aerospace.

5. PROFESSIONAL RECOGNITION

- Recipient of the Eta Kappa Nu Outstanding Electrical Engineering Teacher of the Year Award, University of Cincinnati Chapter, 2004.
- Co-recipient of ASCE Civil Engineering Research Foundation 1997 Charles Pankow Award for Innovation for *Passive Sensor-based Condition Assessment* research conducted jointly with Strain Monitoring Systems, Inc., Federal Highway Administration, and Georgia Department of Transportation.
- Appointed to the All-University Graduate Faculty at the University of Cincinnati, 1993.
- Recipient of National Science Foundation Research Initiation Award, 1992.
- Recipient of William H. Middendorf Research Excellence Award, Electrical and Computer Engineering, University of Cincinnati, 1992.
- Twice recipient of NASA/ASEE Summer Faculty Fellowship in the Structures and Dynamics Laboratory at the NASA Marshall Space Flight Center, Huntsville, AL, 1992, 1991.
- Recipient of General Electric Corporate Research and Development Center Research Fellowship, 1988.
- Recipient of Hewlett-Packard Faculty Development Program Fellowship, 1983.

6. PUBLICATIONS

A. Refereed Journal Articles

1. Wang, X., Swanson, J. A., Helmicki, A. J., and Hunt, V. J., "Development of Static Response Based Objective Functions for Finite Element Modeling of Bridges," Submitted to *Journal of Bridge Engineering*, ASCE, June 2004.
2. Wang, X., Kangas, S., Swanson, J., Helmicki, A. J., Hunt, V. J., "Dynamic Characterization of Slab on Steel Stringer Bridges," *Journal of Materials Evaluation*, ASNT, October, 2005, Vol. 63, Num. 10, Pgs. 1039-1045.
3. Wang, X., Kangas, S., Padur, D., Liu, L., Swanson, J., Helmicki, A. J., Hunt, V. J., "Overview of a Modal Based Condition Assessment Procedure," *Journal of Bridge Engineering*, ASCE, July/Aug 2005, Vol. 10, Num. 4, Pgs. 460-467.
4. Li, Z., Swanson, J. A., Helmicki, A. J., Hunt, V. J., "Modal Contribution Coefficients in Bridge Condition Evaluation," *Journal of Bridge Engineering*, ASCE, Volume 10, Number 2, pp. 169-178, March/April, 2004.
5. Reising R., Shahrooz B., Hunt V., Neumann A., Helmicki A., "Performance Comparison of Four Fiber Reinforced Polymer Deck Panels," *Journal of Bridge Engineering*, ASCE, Volume 8, Issue 3, pp. 265-274 (May/June 2004).
6. Reising R., Shahrooz B., Helmicki A., Hunt V., Neumann A., Hastak M., "A Close Look at Installation Issues and Performance of Four Fiber Reinforced Polymer Composite Bridge Decks," *Journal of Composites for Construction*, ASCE, Volume 8, Issue 1, pp. 33-42 (January/February 2004).

7. Choi JW, Oh JW, Thomas JH, Heineman WR, Halsall HB, Nevin JH, Helmicki AJ, Henderson TH, Ahn CH: "An integrated microfluidic biochemical detection system with magnetic bead-based sampling and analysis capabilities," *Lab on a Chip*, Vol. 2, No. 1, 2002, pp. 27-30.
8. Reising R., Shahrooz B., Hunt V., Lenett M., Christopher S., Neumann A., Helmicki A., Miller R., Kondury S., Morton S., "Performance of a Five-Span Steel Bridge with Fiber Reinforced Polymer Composite Deck Panels," *Transportation Research Record*, 1770 (2001): 113-123.
9. Lenett M., Hunt V., Helmicki A., and Turer A.: "Health-Monitoring of the Ironton-Russell Bridge for Rating Purposes", *Transportation Research Record*, 1770(2001): 67-78, also listed in *2001 TRB Catalog of Practical Papers*, Raymond Moore, ed., TRB Press, 2001.
10. Choi, JW; Oh, KW; Han, A; Wijayawardhana, C. Ajith; Lannes, C; Bhansali, S; Schlueter, K; Heineman, WR; Halsall, H; Nevin, J; Helmicki, A; Henderson, H; Ahn, C: "Development and Characterization of Microfluidic Devices and Systems for Magnetic Bead-Based Biochemical Detection," *Biomedical Microdevices*, Vol. 3, No. 3, 2001, pp. 191-200.
11. Aktan, A. and Helmicki, A., "Issues In Civil Infrastructure Systems Engineering," Paper TS 9711-614M, *Technology*, Vol. 7, pp. 9-19, 2000.
12. D. Melvin, A. Helmicki, and D. Glos, "A Miniature Circulatory Support Power Transformer," *ASAIO Journal*, 46:495-502, 2000.
13. Lenett M., Griessmann A., Helmicki A., and Aktan A.: "Subjective and Objective Evaluations of Bridge Damage", *TRR 1688, Transportation Research Board 1999*, pp: 76-86.
14. A. Aktan, A. Helmicki, and V. Hunt, "Issues in Health Monitoring for Intelligent Infrastructure." *Journal of Smart Materials and Structures*, IOP Publishing Ltd., Vol. 7, No. 5, pp: 674-692, July, 1998.
15. A. Aktan, D. Farhey, A. Helmicki, V. Hunt, K. Lee, A. Levi, "Structural Identification for Condition Assessment: Experimental Art." *ASCE Journal of Structural Engineering*, Vol. 123, No. 12, pp. 1674-1685, 1997.
16. A. Helmicki, A. Aktan, and V. Hunt, "Issues in Bridge Control Systems Applications." *Infrastructure*, Vol. 2, No. 4, pp.30-40, 1997.
17. D. Melvin, D. Glos, D. Nebrigic, A. Helmicki, R. Brown, P. Purcell, and T. Henderson, "In Vivo Comparison of two Enteric Pouch Power Transformers for Circulatory Support," *Artificial Organs*, Vol. 21, No. 8, pp. 935-947, 1997.
18. A. Helmicki, D. Melvin, T. Henderson, D. Nebrigic, V. Rangan, and D. Glos, "Development of a High Permeability Cored Transintegumental Power Transformer," *ASAIO Journal*, Vol. 42, No. 5, pp. M624-M629, Sept/Oct, 1996.
19. A. Aktan, V. Dalal, D. Farhey, A. Helmicki, V. Hunt, and S. Shelley, "Condition and Reliability Evaluation for Bridge Management," *ASCE Journal of Infrastructure Systems*, Vol. 2, No. 3, pp. 108-117, September, 1996.
20. K. Kolcio and A. Helmicki, "Development of a Liquid Equation of State From First Principles for Use in Propulsion System Modeling," *AIAA Journal of Propulsion and Power*, Vol. 12, No. 1, pp. 213-218, January, 1996.

21. M. Polycarpou and A. Helmicki, "Automated Fault Diagnosis and Accommodation: A Learning Systems Approach," *IEEE Transactions on Systems, Man, and Cybernetics*, Vol. 25, No. 11, pp. 1447-1458, November, 1995.
22. A. Helmicki, C. Jacobson, and C. Nett, "Least Squares Methods for H_∞ Control-Oriented System Identification," *IEEE Transactions on Automatic Control*, pp. 819-826, May 1993.
23. A. Helmicki, C. Jacobson, and C. Nett, "Control-Oriented Modeling of Distributed Parameter Systems," *ASME Journal of Dynamic Systems, Measurement, and Control*, pp. 339-346, September, 1992.
24. A. Helmicki, C. Jacobson, and C. Nett, "Worst-Case/Deterministic Identification in H_∞ : The Continuous-Time Case," *IEEE Transactions on Automatic Control*, 604-610, May 1992.
25. A. Helmicki, C. Jacobson, and C. Nett, "On Zero-Order Hold Equivalents of Distributed Parameter Systems," *IEEE Transactions on Automatic Control*, pp.488-491, April 1992.
26. A. Helmicki, C. Jacobson, and C. Nett, "Control-Oriented System Identification in H_∞ : A Worst-Case/Deterministic Approach," *IEEE Transactions on Automatic Control*, pp. 1163-1176, October, 1991.
27. A. Helmicki, C. Jacobson, and C. Nett, "Ill-Posed Distributed Parameter Systems: A Control Viewpoint," *IEEE Transactions on Automatic Control*, pp.1053-1056, September 1991.

B. Publications in Books

1. A. Helmicki, V. Hunt, V. Dalal, A. Aktan, "Information Technology in Civil Infrastructure Systems: Multi-Modal Testing and Monitoring of a Highway," *Structural Health Monitoring*, Stanford Press, 1999.
2. A. Helmicki, A. Aktan, L. Comfort, M. Kam, "Information Technology in Civil Infrastructure System Modeling: Opportunities and Issues," *Structural Health Monitoring*, Stanford Press, 1997, pp. 396-410.
3. A. Helmicki, C. Jacobson, and C. Nett, "Control-Oriented Modeling and Identification of Distributed Parameter Systems," in *New Trends and Applications of Distributed Parameter Control Systems*, Chapter 10, ed. G. Chen, et. al., Marcel Dekker, Inc., 1990.
4. A. Helmicki, C. Jacobson, and C. Nett, "Identification in H_∞ : A Robustly Convergent, Nonlinear Algorithm," in *Realization and Modeling in Systems Theory*, ed. M. A. Kaashoek, et. al., Birkhauser, Inc., pp. 449-462, 1990.

C. Refereed Conference Proceedings

1. Hunt, V., Helmicki, A., and Swanson, J., "Instrumentation and Monitoring of the U.S. Grant Bridge," *Proceedings of ASNT Structural Materials Technology VI: An NDT Conference*, Columbus, OH, October, 2005.
2. Jambotkar, O., Hunt, V., Helmicki, A., and Swanson, J., "Investigation of Lateral Distribution Factors for Bridge Rating," *Proceedings of ASNT Structural Materials Technology VI: An NDT Conference*, Columbus, OH, October, 2005.

3. Ruth, N., Kangas, S., Mittal, S., Helmicki, A., Swanson, J., and Hunt, V., "Field Testing and Analysis of 40 Steel Stringer Bridges," *Proceedings of ASNT Structural Materials Technology VI: An NDT Conference*, Columbus, OH, October, 2005.
4. Sexton, R., Koganti, S., Helmicki, A., Hunt, V., and Swanson, J., "Aspects of Health Monitoring for Cable Stay Bridges," *Proceedings of ASNT Structural Materials Technology VI: An NDT Conference*, Columbus, OH, October, 2005.
5. K. McConnell, M. Wagner, E. Urbina, S. Daniels, A. Helmicki, R. Amin, "Estimation of central aortic pressure wave changes with sleep stage and disordered breathing in children by application of an arterial transfer function to peripheral blood pressure waveforms," *Proceedings of the 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, September, 2004, San Francisco, California.
6. S. Kangas, X. Wang, D. Padur, Z. Li, L. Lui, A. Helmicki, J. Swanson, V. Hunt, "Field Test-Based Calibration of Bridge Finite Element Models for Condition Assessment," *Proceedings of ASNT Structural Materials Technology VI: An NDT Conference*, Pittsburgh, PA, October, 2003.
7. D. Padur, X. Wang, A. Turer, J. Swanson, A. Helmicki, V. Hunt, "Non Destructive Evaluation/Testing Methods – 3D Finite Element Modeling of Bridges," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, September, 2002, pp. 209-216.
8. V. Hunt, A. Helmicki, "Field Testing and Condition Evaluation of a Steel-Stringer Bridge for Superload," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, September, 2002, pp. 56-62.
9. A. Helmicki, V. Hunt, M. Lenett, "Non-Destructive Testing and Evaluation of the Ironton-Russell Bridge," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, September, 2002, pp. 139-146.
10. B. Shahrooz, R. Reising, V. Hunt, A. Helmicki, A. Neumann, "Testing and Monitoring of a Five-Span Bridge with Fiber Reinforced Polymer Deck Systems," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, September, 2002, pp. 147-154.
11. S. Kangas, V. Hunt, A. Helmicki, "Modal Test-Based Condition Assessment," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, September, 2002, 267-274.
12. S. Kampli, A. Helmicki, V. Hunt, "Dedicated Real Time Monitoring of a Steel-Stringer Highway Bridge," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, September, 2002, pp. 283-290.
13. M. Lenett, V. Hunt, A. Helmicki, D. Brown, "Identifying bridge behavior and condition through multi-reference impact data." *Proceedings of SPIE - The International Society for Optical Engineering*. v. 4753 II (2002) p. 1587-1591 *Proceedings of IMAC-XX: A Conference on Structural Dynamics*. Los Angeles, CA, United States, Feb 4-7 2002.
14. Lenett M.S., Helmicki A.J., Hunt V., and Aktan A.E.: "Condition Assessment/Damage Identification of an Aged, Deteriorated Steel-Stringer Bridge", *Proceedings of ASCE 2001 Structures Congress*, May 2001.

15. Lenett M.S., Hunt V.J., Helmicki A.J., Shahrooz B.: "Influence of FRP Decking As Measured Through Impact Test Data", *Proceedings of International Modal Analysis Conference XIX*, Kissimmee, FL, February 2001, pp. 1118-1125.
16. Choi JW, Oh JW, Thomas JH, Heineman WR, Halsall HB, Nevin JH, Helmicki AJ, Henderson TH, Ahn CH: "An integrated microfluidic biochemical detection system with magnetic bead-based sampling and analysis capabilities," *14th IEEE International Conference on MEMS*, January 2001, pp. 447-450.
17. Lenett M.S., Hunt V.J., Helmicki A.J., and Turer A.: "Health-Monitoring of the Ironton-Russell Truss Bridge", *Proceedings of Condition Monitoring and Diagnostic Engineering Management (COMADEM) 2000 Conference*, December, 2000.
18. Lenett M.S., Helmicki A.J., and Hunt V.: "Multi-Reference Impact Testing of FRP Bridge Deck Material", *Proceedings of the 18th International Modal Analysis Conference*, San Antonio, TX, February, 2000, pp. 8-13.
19. Lenett M.S., Brown D., Hunt V. and Helmicki A.: "Performing bridge condition assessment with spliced multi-reference impact data", *Proceedings of the 18th International Modal Analysis Conference*, San Antonio, TX, February, 2000, pp. 1307-1312.
20. Heineman WR, Wijayawardhana A, Purushothama S, Schlueter K, Halsall HB, Ridgway TH, Kradtap S, Choi JW, Lannes C, Helmicki A, Ahn C, Nevin J, Henderson N: "Biomems immunoassay with electrochemical detection," *Abstracts of Papers of the American Chemical Society*, 219:200, March, 2000.
21. V. Hunt, M. Shell, A. Turer, M. Lenett, A. Helmicki, R. Barrish, A. Aktan, "Design Verification and Performance Monitoring of a Recently Constructed Steel-Stringer Bridge," *Proceedings of the Society of Experimental Mechanics Annual Conference*, Cincinnati, OH, June, 1999.
22. M. Lenett, V. Hunt, A. Helmicki, F. Catbas, A. Aktan, "Condition Assessment of a Decommissioned Bridge Using Nondestructive Experimental Methods," *Proceedings of the Society of Experimental Mechanics Annual Conference*, Cincinnati, OH, June, 1999.
23. A. Mehta and A. Helmicki, "Design and Control Oriented Modeling of Microfluidic System Components," *Proceedings of the 1999 American Control Conference*, San Diego, CA, June 1999, pp. 3260-3264.
24. A. Helmicki, V. Hunt, M. Lenett, A. Greismann, and A. Aktan, "Structural Identification Based Condition Assessment: A Demonstration of Methods Applied to a Laboratory Scale Model Testbed," *Proceedings of the 1999 American Control Conference*, San Diego, CA, June 1999, pp. 4506-4510.
25. M. Lenett, A. Helmicki, V. Hunt, and A. Aktan, "Condition Assessment and Damage Identification of a Steel Stringer Bridge using System Identification Methods," *Proceedings of the 1999 American Control Conference*, San Diego, CA, June 1999, pp. 1124-1128.
26. A. Aktan, C. Tikos, and A. Helmicki, "Health Monitoring for Intelligent Transportation Systems," *Proceedings of SPIE's 6th Annual International Symposium on Smart Structures and Materials*, Newport Beach, CA, March 1999.
27. M. Lenett, V. Hunt, A. Helmicki, D. Brown, and N. Catbas, "Condition Assessment of Commissioned Infrastructure Using Modal Analysis and Flexibility," *Proceedings of IMAC XVII*, Kissimmee, FL, February, 1999, pp. 1251-1259.

28. Catbas, F.N.; Lenett, M.; Aktan, A.E.; Brown, D.L.; Helmicki, A.J.; Hunt, V., "Modal analysis as a bridge monitoring tool," *Proceedings of IMAC XVII*, Kissimmee, FL, February, 1999, pp. 1230-1235.
29. B. Sobecks, J. Nevin, and A. Helmicki, "Behavioral modeling of analog circuits using neural networks," *Proceedings of ANNIE '98*, St. Louis, MO, November, 1998, pp. 817-823.
30. Sharp, T.D, Helmicki, A.J., "Application of the Ecological Interface Design Approach to Neonatal Intensive Care", *Proceedings of the Human Factors and Ergonomics Society, 42nd Annual Meeting*, Chicago, IL, October, 1998, pp. 350-354.
31. A. Helmicki and A. Aktan, "Challenges and Opportunities in Health Monitoring of Civil Infrastructures," *Proceedings of the 5th International Workshop on Material Properties and Design*, Bauhaus University, Weimar, October 1998, pp 441-453.
32. A. Mehta and A. Helmicki, "First Principles Based Approach to Modeling of Micro-Fluidic Systems," *Proceedings of SPIE's 1998 Symposium on Micromachining and Microfabrication*, Santa Clara, CA, September 1998, pp. 205-216.
33. B. Sobecks, J. Nevin, and A. Helmicki, "Performance Modeling of Analog Circuits via Neural Networks: The Design Process View," *Proceedings of the 41st Midwest Symposium on Circuits and Systems*, August, 1998, pp. 28-32.
34. A. Aktan, and A. Helmicki, "Intelligent Infrastructure: System Identification Challenges," *Proceedings of the Structural Engineers World Congress*, San Francisco, CA, July, 1998.
35. V. Hunt, Y. Gao, A. Helmicki, A. Aktan, "Bridge Monitoring: State of the Art," *Proceedings of the Structural Engineers World Congress*, San Francisco, CA, July, 1998.
36. S. Wadia-Fascetti, B. Gunes, A. Aktan, M. Lenett, M. Sanayei, B. Arya, A. Helmicki, and A. Wilson, "Structural Identification: A Tool for Bridge Reliability Evaluation," *Proceedings of the Structural Engineers World Congress*, San Francisco, CA, July, 1998.
37. A. Helmicki and A. Aktan, "On the Role of Information Technology in Civil Infrastructure System Health Monitoring and Condition Assessment," *Second World Congress on Structural Control*, Kyoto, Japan, June, 1998.
38. A. Aktan and A. Helmicki, "Challenges and Opportunities in Health Monitoring of Constructed Facilities," *Second World Congress on Structural Control*, Kyoto, Japan, June, 1998.
39. Hunt, V.J., Turer, A., Gao, Y., Levi, A., Helmicki, A.J., "Instrumented Monitoring and Nondestructive Evaluation of Highway Bridges," *Proceedings, Structural Materials Technology III*, San Antonio, TX, April, 1998, pp. 472-481.
40. F. Catbas, M. Lenett, A. Aktan, D. Brown, A. Helmicki, V. Hunt, "Damage Detection and Condition Assessment of Seymour Bridge," *Proceedings of the International Modal Analysis Conference*, Orlando, FL, February, 1998.
41. A. Helmicki, A. Aktan, R. Barrish, Y. Gao, V. Hunt, S. Iyer, A. Levi, "Interface Design for PC-based Real Time Tele-Remote Operation of an Instrumented Bridge Condition Monitoring System," *Proceedings of the Worldwide ECCE Symposium on Computers in the Practice of Civil Engineering*, Lathi, Finland, September, 1997.
42. A. Helmicki, A. Aktan, V. Hunt, A. Wilson, "Documentation and Data Archival of Civil Infrastructure Research using Multimedia CD-ROM," *Proceedings of the Worldwide ECCE*

Symposium on Computers in the Practice of Civil Engineering, Lathi, Finland, September, 1997.

43. A. Aktan, A. Helmicki, V. Hunt, "Instrumented Monitoring and Nondestructive Evaluation of Highway Bridges," *Proceedings of the ASCE Infrastructure Condition Assessment Conference*, Boston, MA, August, 1997, pp. 121-130.
44. A. Aktan, A. Helmicki, A. Levi, "Type Specific Management Strategy for Steel Stringer Bridges," *Proceedings of the US-Canada-Europe Workshop on Bridge Engineering*, Zurich, Switzerland, July, 1997.
45. A. Aktan, D.N. Farhey, A.J. Helmicki, V.J. Hunt, K.L. Lee, A. Levi, "Structural Identification for Condition Assessment of Civil Infrastructure," *Proceedings of the American Control Conference*, Albuquerque, NM, June, 1997, pp. 873-877.
46. A. Aktan, and A. Helmicki, "Issues in Civil Infrastructure Systems Engineering," *Proceedings of the Architectural Surety Conference*, Sandia National Laboratory, Albuquerque, NM, May, 1997.
47. A. Aktan, A. Helmicki, V. Dalal, and V. Hunt, "Instrumented Monitoring and Nondestructive Evaluation of Highway Bridges." *Proceedings, ASCE Structures Congress*, Portland, OR, April, 1997, pp. 1513-1517.
48. A. Aktan, A. Helmicki, S. Shelley, M. Lennett, F. Catbas, and V. Hunt, "Bridge-Type-Specific Management of Steel-Stringer Bridges in Ohio." *Proceedings, ASCE Structures Congress*, Portland, OR, April, 1997.
49. A. Aktan, D. Brown, C. Farrar, A.J. Helmicki, V. Hunt, and J. Yao, "Objective Global Condition Assessment," *Proceedings, 15th International Modal Analysis Conference*, Orlando, FL, February, 1997.
50. M. Lennett, N. Catbas, V. Hunt, A. Aktan, A.J. Helmicki, and D. Brown, "Issues in Multi-Reference Impact Testing of Steel-Stringer Bridges," *Proceedings, 15th International Modal Analysis Conference*, Orlando, FL, February, 1997.
51. A. Levi, V. Hunt, A.J. Helmicki, and A.E. Aktan, "Instrumented Monitoring and Diagnostic Load Testing of Steel Stringer Bridges," *Proceedings, 15th International Modal Analysis Conference*, Orlando, FL, February, 1997.
52. A. Aktan, V. Dalal, A.J. Helmicki, V. Hunt, M. Lennett, N. Catbas, and A. Levi, "Objective Bridge Condition Assessment for Serviceability," *Proceedings, Third Conference on Nondestructive Evaluation of Civil Structures and Materials*, Boulder, CO, September, 1996.
53. A. Bahri and A. Helmicki, "Iterative H_{∞} Identification and Robust Control System Design." *Proceedings of the 5th IEEE Conference on Control Applications*, Dearborn, MI, September, 1996, pp. 1054-1059.
54. V. Rangan, A. Helmicki, D. Negbrivic, T. Henderson, D. Melvin, and D. Glos, "Nonlinear Robust Control of a Series Resonant DC/DC Converter for Bio-Medical Applications." *Proceedings of the 5th IEEE Conference on Control Applications*, Dearborn, MI, September, 1996, pp. 870-875.
55. Sharp, T. D., Helmicki, A. J., "Applying the Abstraction Hierarchy to Intensive Care Medicine," *Proceedings of the Symposium on Human Interaction with Complex Systems-96*, August, 1996, pp. 25-28.

56. A. Aktan, M. Baseheart, R. Miller, I. Minkarah, B. Shahrooz, D. Brown, R. Buchanan, N. Jayaraman, A. Helmicki, S. Shelley, and G. Simitzes, "Bridge Research in Progress at the University of Cincinnati." *Proceedings of the 4th NSF National Workshop on Bridge Research in Progress*, Buffalo, NY, June, 1996.
57. V. Hunt, A. Levi, R. Barrish, K. Grimmelsman, A. Aktan, and A. Helmicki, "Instrumentation, Testing, and Monitoring of the Construction and Service of a Steel-Stringer Bridge." *Proceedings of the SEM Nondestructive Testing in Infrastructure Conference*, Nashville, TN, June, 1996.
58. M. Lennett, F. Catbas, V. Hunt, A. Aktan, A. Helmicki, and S. Shelley, "Bridge-Type-Specific Management of Steel-Stringer Bridges in Ohio." *Proceedings of the SEM Nondestructive Testing in Infrastructure Conference*, Nashville, TN, June, 1996.
59. A. Helmicki, T. Henderson, D. Melvin, D. Nebragic, V. Rangan, and D. Glos, "Development of a Transintegumantal Transformer for Use with Circulatory Support Devices," *42nd Annual ASAIO Conference*, Washington, DC, May, 1996.
60. D. Melvin, A. Helmicki, T. Henderson, D. Nebragic, V. Rangan, and D. Glos, "Extended Term Implantation Trials of a Transintegumantal Power Transformer," *42nd Annual ASAIO Conference*, Washington, DC, May, 1996.
61. A. Aktan, A. Helmicki, V. Hunt, "Issues related to Intelligent Bridge Monitoring." *Proceedings of the ASCE Structures Congress 96*, Chicago, IL, April 1996, pp. 750-757.
62. A. Aktan, D. Farhey, V. Hunt, A. Helmicki, D. Brown, and S. Shelley, "Objective Bridge Condition Assessment." *Proceedings of the International Symposium on Non-Destructive Testing in Civil Engineering*, pp. 51-60, Berlin, Germany, September, 1995.
63. S. Korson and A. Helmicki, "An H_∞ Based Controller for a Gas Turbine Clearance Control System." *Proceedings of the 4th IEEE Conference on Control Applications*, Albany, NY, September, 1995, pp. 1154-1159.
64. B. Zheng and A. Helmicki, "Time-Varying Integrated Control/Diagnostic System Design: A Case Study." *Proceedings of the 4th IEEE Conference on Control Applications*, Albany, NY, September, 1995, pp. 182-183.
65. A. Aktan, A. Levi, V. Hunt, and A. Helmicki, "Issues in Bridge Health Monitoring." *Proceedings of the 1995 Meeting of the International Association for Bridge and Structural Engineering*, San Francisco, CA, August, 1995.
66. V. Hunt, A. Levi, B. Sobecks, R. Barrish, A. Helmicki, and A. Aktan, "Progress Report on Bridge Instrumentation and Monitoring." *Society of Engineering Mechanics Annual Conference*, Grand Rapids, MI, June, 1995.
67. A. Helmicki, S. Shelley, E. Aktan, and D. Brown, "Issues in Implementation of Structural Control to Constructed Facilities for Serviceability with Damage Considerations." *Proceedings of the 14th American Control Conference*, Seattle, WA, June, 1995, pp. 1906-1910.
68. A. Bahri and A. Helmicki, " H_∞ Identification-Based Robust Control System Design." *Proceedings 14th American Control Conference*, Seattle, WA, June, 1995, pp. 3556-3562.
69. A. Aktan, V. Hunt, A. Helmicki, and S. Shelley, "Instrumentation and Intelligence Issues in Bridge Health Monitoring." *SPIE Conference on Smart Structures and Materials*, San Diego, CA, February, 1995, pp. 106-116.

70. S. Shelley, A. Aktan, D. Brown, A. Helmicki, "University of Cincinnati Experience with Implementation of Active Structural Vibration Control," *Proceeding of the First World Conference on Structural Control*, Pasadena, CA, August, 1994.
71. A. Helmicki and B. Zheng, "The 4-Parameter Controller: A Linear Time Varying Treatment," *Proceedings of the 13th American Control Conference*, Baltimore MD, June, 1994, pp. 2747-2752.
72. K. Kolcio, A. Helmicki, and S. Jaweed, "Liquid Rocket Engine Modeling for Condition Monitoring and Control: Part I, Theoretical Foundations," *30th Joint Propulsion Conference*, Indianapolis, IN, AIAA-94-3227, June, 1994.
73. K. Kolcio and A. Helmicki, "Liquid Rocket Engine Modeling for Condition Monitoring and Control: Part II, Application to the Space Shuttle Main Engine," *30th Joint Propulsion Conference*, Indianapolis, IN, AIAA-94-3228, June, 1994.
74. V. Hunt, A. Levi, D. Dietz, B. Sobecks, A. Helmicki, and A. Aktan, "Issues in Bridge Instrumentation and Monitoring," *Society of Engineering Mechanics Annual Conference*, Baltimore, MD, May, 1994.
75. K. Kolcio, A. Helmicki, and S. Jaweed, "Propulsion System Modeling for Condition Monitoring and Control: A Status Report," *SAE Aerospace Atlantic Conference and Exposition*, Dayton, OH, SAE-94-1220, April, 1994.
76. Sharp, T. D., Helmicki, A. J., Donnelly, M., "The effects of feeding on heart rate can be detected by Fourier transform power spectrum analysis," *Proceedings of American Association of Medical Instrumentation*, 1992.
77. A. Helmicki, S. Jaweed, K. Kolcio, and F. Kuo, "Health Monitoring and Control for the STME: A Case Study," *Fifth Annual Health Monitoring Conference for Space Propulsion Systems*, Cincinnati, Ohio, April 1993, pp. 128-141.
78. Helmicki, C. Jacobson, and C. Nett, "Least Squares Methods for H_∞ Control-Oriented System Identification," *Proceedings of the 1992 American Control Conference*, pp. 258-264, June 1992.
79. Helmicki, F. Kuo, and D. P. Valley, "Rocket Engine Health Monitoring and Control: Some Connections and Their Implications," *Third Annual Health Monitoring Conference for Space Propulsion Systems*, Cincinnati, Ohio, November 1991.
80. A. Helmicki, C. Jacobson, and C. Nett, "Fundamentals of Control-Oriented System Identification and Their Application for Identification in H_∞ ," *Proceedings of the 1991 American Control Conference*, pp. 89-99, June 1991.
81. A. Helmicki, C. Jacobson, and C. Nett, "Identification in H_∞ : Linear Algorithms," *Proceedings of the 1990 American Control Conference*, pp. 2418-2423, May 1990.
82. A. Helmicki, C. Jacobson, and C. Nett, "Identification in H_∞ : The Continuous-Time Case," *Proceedings of the 1990 American Control Conference*, pp. 1893-1898, May 1990.
83. A. Helmicki, C. Jacobson, and C. Nett, "On Zero-Order Hold Equivalents of Distributed Parameter Systems," *Proceedings of the 1990 American Control Conference*, pp. 403-408, May, 1990.
84. A. Helmicki, C. Jacobson, and C. Nett, "Identification in H_∞ : A Robustly Convergent, Nonlinear Algorithm," *Proceedings of the 1990 American Control Conference*, pp. 386-391, May 1990.

85. A. Helmicki, C. Jacobson, and C. Nett, "H_∞ Identification of Stable LSI Systems: A Scheme with Direct Application to Controller Design," *Proceedings of the 1989 American Control Conference*, pp. 1428-1436, June 1989.
86. A. Helmicki, C. Jacobson, and C. Nett, "Practical Considerations in the Use of Distributed Parameter Systems in Modeling: A Control Point of View," *Proceedings of the 1989 American Control Conference*, pp. 1625-1633, June 1989.
87. A. Helmicki, C. Jacobson and C. Nett, "Fundamentals of Practical Controller Design for LTI Plants with Distributed Parameters: Part 1, Modeling and Well-Posedness," *Proceedings of the 1987 American Control Conference*, pp. 1203-1208, June 1987.
88. A. Helmicki, C. Nett, C. Jacobson, and M. Balas, "Stabilizing Compensators for Linear Distributed Parameter Systems: Input-Output Conditions," *Proceedings of the 23rd Annual Technical Meeting of the Society of Engineering Science*, August 1986.

D. Other Publications

1. Helmicki, A., Hunt, V., "Instrumented Monitoring and Modeling Of WAS-339-2013 Prior to, During, and After Superload," University of Cincinnati Infrastructure Institute, Cincinnati, OH, 2004.
2. Helmicki, A., Lenett, M., Hunt, V., Aktan, A. "Bridge-Type Specific Management of Steel-Stringer Bridges – Phase I." University of Cincinnati Infrastructure Institute, Cincinnati, OH, 2001.
3. Hunt, V., Helmicki, A. "Lifetime Monitor of a Highway Bridge." ODOT Research Newsletter, Ohio Department of Transportation, Fall, 2003.
4. Hunt, V., Helmicki, A. "Instrumentation, Testing and Monitoring of a Newly Constructed Reinforced Concrete Deck-On-Steel Girder Bridge - FHWA Project Report." University of Cincinnati Infrastructure Institute, Cincinnati, OH, 2002.
5. Lenett, M., Hunt, V., Helmicki, A. "Instrumentation, Testing and Monitoring of a Newly Constructed Reinforced Concrete Deck-On-Steel Girder Bridge - FHWA Project Report." University of Cincinnati Infrastructure Institute, Cincinnati, OH, 2001.
6. Lenett, M., Hunt, V., Helmicki, A., and Aktan, A. "Instrumentation, Testing and Monitoring of a Newly Constructed Reinforced Concrete Deck-On-Steel Girder Bridge - FHWA Project Report." *Report UC-CII-00*, University of Cincinnati, Infrastructure Institute, Cincinnati, OH, 2000.
7. C. Ahn, H. Henderson, W. Heineman, H. Halsall, J. Nevin, A. Helmicki, S. Bhansali, K. Schlueter, J. Choi, K. Oh, A. Han, N. Okulan, M. Patel, S. Dharmatilleke, C. Lannes, A. Wijayawardhana, S. Purushothama, "A Generic Microfluidic System for Remote Sensing," *Symposium on Nano-, Micro-, and Mesoscale Technologies in Science and Engineering*, Cincinnati, OH, May, 1999.
8. A. Levi, V. Hunt, A. Helmicki, and A. Aktan, "Instrumentation, Testing and Monitoring of a Newly Constructed Reinforced Concrete Deck-On-Steel Girder Bridge, Phases I and II – ODOT Report," Report UC-CII-98, University of Cincinnati Infrastructure Institute, Cincinnati, OH, 1998.
9. A. Levi, V. Hunt, A. Helmicki, and A. Aktan, "Instrumentation, Testing and Monitoring of Reinforced Concrete Deck-On-Steel Girder Bridges - FHWA Project Report," Report UC-CII-96, University of Cincinnati, Infrastructure Institute Cincinnati, OH, 1996.

10. S. Chase, A. Aktan, A. Helmicki, "Methods for Assessing Bridge Conditions," TRNews, March, 1996, pg. 51-52.
11. S. Chase, A. Aktan, A. Helmicki, V. Hunt, A. Levi, B. Sobecks, and R. Barrish, "Instrumentation, Testing, and Monitoring of Reinforced Concrete Deck-on-Steel Girder Bridges," Final Report, Ohio Department of Transportation and Federal Highway Administration, Columbus, OH, December, 1995.
12. A. Aktan, A. Helmicki, V. Hunt, A. Levi, B. Sobecks, and R. Barrish, "Instrumentation, Testing, and Monitoring of Reinforced Concrete Deck-on-Steel Girder Bridges," Technical Report, Ohio Department of Transportation and Federal Highway Administration, Columbus, OH, January, 1995.
13. A. Helmicki and K. Kolcio, "Aspects of Model-Based Rocket Engine Condition Monitoring and Control," Technical Report, NASA Marshall Space Flight Center, Huntsville, Alabama, December, 1993.
14. J. Anno, A. Ciric, L. Cooper, D. Greenberg, A. Helmicki, T. Henderson, R. Lin, J. Nevin, F. Weisgerber, T. Williams, R. Wysong, and J. Lemanski, "Design of a Lunar Propellant Processing Facility," NASA/USRA Design Review, Houston, TX, June, 1993.
15. A. Helmicki, "Issues in Health Monitoring and Control for the STME," Technical Report, NASA Marshall Space Flight Center, Huntsville, Alabama, September, 1992.
16. A. Helmicki, "On the Development of System Theoretic Tools for the Design of Integrated Health Monitoring and Controls for Rocket Propulsion Systems," Technical Report, NASA Marshall Space Flight Center, Huntsville, Alabama, August, 1991.

7. PRESENTATIONS

A. Invited Talks

1. Helmicki A.J., and Hunt V.: "Design and monitoring of the Ohio's First Cables Stayed Bridges, Progress to Date", Presentation to the *Ohio Transportation Engineering Conference (OTEC)*, Columbus, Ohio, October, 2003.
2. Helmicki A.J., and Hunt V.: "A review of Ohio's Instrumented Monitoring Efforts", Presentation to the *Ohio Transportation Engineering Conference (OTEC)*, Columbus, Ohio, October, 2002.
3. Helmicki A.J., and Hunt V.: "Monitoring Of Ohio's Largest Superload", Presentation to the *Ohio Bridge Engineers Workshop*, Columbus, Ohio, February, 2002.
4. Helmicki, A., Hunt, V., Lenett, M., "Presentation of NDT Evaluation for Ironton-Russell Bridge - Fatigue Study," Presentation to the *Ohio Department of Transportation*, District 9, Chillicothe, OH, November, 2001.
5. Helmicki, A., Hunt, V., Lenett, M., "Presentation of NDT Evaluation for Ironton-Russell Bridge - Pin Study," Presentation to the *Ohio Department of Transportation*, District 9, Chillicothe, OH, December, 2000.
6. Helmicki, A., Hunt, V., Lenett, M., "Presentation of NDT Evaluation for Ironton-Russell Bridge – Capacity Study," Presentation to the *Ohio Department of Transportation*, District 9, Chillicothe, OH, November, 2000.

7. Lenett M.S., Helmicki A.J., and Hunt V.: "HAM-126 Bridge Instrumentation and Monitoring of a Newly Constructed Steel-Stringer Bridge", Presentation to the *Ohio Transportation Engineering Conference (OTEC)*, Columbus, Ohio, November, 1999.
8. Helmicki, AJ, "Wireless Data Acquisition in Civil Infrastructure Monitoring," Presentation to *NSF Workshop on a Tetherfree World*," Washington, DC, February, 2000.
9. Lenett M.S., Helmicki A.J., and Hunt V.: "HAM-126 Bridge Instrumentation and Monitoring of a Newly Constructed Steel-Stringer Bridge", Presentation to the *1999 Ohio Transportation Engineering Conference (OTEC)*, Columbus, Ohio, November, 1999.
10. Lenett M.S., Helmicki A.J., Hunt V., and Turer A.: "Flexibility/Impact Test Guidelines", Tutorial Presentation to the *Ohio DOT Office of Structural Engineering*, Columbus, Ohio, February, 1999.
11. A. Helmicki, "Issues in Experimentally-Based Research on Objective Condition Assessment of Civil Infrastructures," presented to the Fifth Annual NSF Workshop on Structural Control, Reno, NV, August, 1997.
12. A. Aktan, A. Helmicki, and V. Hunt, "Fundamental Issues in Infrastructure Health Monitoring for Intelligent Structure Applications," presented to the US/Japan Workshop on Smart Structures Technology: Application to Large Civil Structures, Washington, DC, November, 1996.
13. A. Helmicki, A. Aktan, and V. Hunt, "Instrumented Monitoring of Highway Bridges," presented to the OPTIM Megadac Usergroup Workshop, Detroit, MI, January, 1996.
14. A. Aktan, A. Helmicki, V. Hunt, A. Levi, R. Barrish, and R. Kirk, "Measured Behavior of Composite Steel/Concrete Bridges," presented to the Ohio Transportation Engineering Conference, Columbus, OH, November, 1995.
15. A. Aktan, A. Helmicki, V. Hunt, A. Levi, R. Barrish, and R. Kirk, "Measured Responses of Steel Stringer Bridges," presented to the NRC Transportation Research Board Committee on Steel Bridges, 1996 TRB Meeting, Washington, DC, January, 1996.
16. A. Hunt, A. Levi, B. Sobecks, R. Barrish, A. Helmicki, and A. Aktan, "Instrumentation, Testing, and Monitoring of Reinforced Concrete Deck-on-Steel Girder Bridges," presented to the NRC Transportation Research Board Committee on Steel Bridges, 1995 TRB Meeting, Washington, DC, January, 1995.
17. A. Helmicki, K. Kolcio, and S. Jaweed, "Aspects of Model-Based Rocket Engine Condition Monitoring and Control," presented to the Structures and Dynamics Laboratory of the NASA Marshall Space Flight Center, Huntsville, Alabama, October, 1993.
18. A. Helmicki, "Issues in Health Monitoring and Control for the STME," presented to the Structures and Dynamics Laboratory of the NASA Marshall Space Flight Center, Huntsville, Alabama, September, 1992.
19. A. Helmicki, "Control-Oriented Modeling Issues for Distributed Parameter Systems," presented at the Ohio Aerospace Institute Workshop on Control and Modeling of Spatially Distributed Systems, Cleveland, Ohio, April 1992.
20. A. Helmicki, "Identification Issues in Robust Control System Design," presented at the Ohio Aerospace Institute Workshop on Trends in Robust Control, Cleveland, Ohio, October, 1991.

21. A. Helmicki, "Control-Oriented Identification: An Overview," keynote talk presented at the Ohio Aerospace Institute Workshop on Trends in System Identification, Cleveland, Ohio, August, 1991.
22. A. Helmicki, "On the Development of System Theoretic Tools for the Design of Integrated Health Monitoring and Controls for Rocket Propulsion Systems," presented to the Structures and Dynamics Laboratory of the NASA Marshall Space Flight Center, Huntsville, Alabama, August, 1991.
23. A. Helmicki, "Control-Oriented System Identification: A Status Report," presented at the 1991 American Control Conference, Boston, Massachusetts, June, 1991.

B. Conference Presentations

1. A. Aktan, A. Helmicki, and V. Hunt, "Fundamental Issues in Infrastructure Health Monitoring for Intelligent Structure Applications," presented to the US/Japan Workshop on Smart Structures Technology: Application to Large Civil Structures, Washington, DC, November, 1996.
2. A. Helmicki, A. Aktan, and V. Hunt, "Instrumented Monitoring of Highway Bridges," presented to the OPTIM Megadac Usergroup Workshop, Detroit, MI, January, 1996.
3. T. Sharp, and A. Helmicki, "Applying the Abstraction Hierarchy to Intensive Care Medicine," presented to Symposium on Human Interaction with Complex Systems, Dayton, OH, August, 1996.
4. T. Sharp, M. Donnelly, and A. Helmicki, "Long Term Fourier Transform Power Spectrum Analysis can Detect Effect of Feeding on Heart Rate," presented to Association for the Advancement of Medical Instrumentation, 30th Annual Meeting, Anaheim, CA, May, 1995.
5. V. Hunt, A. Aktan, and A. Helmicki, "Health Monitoring System for a Remote Bridge: Design and Field Testing," presented to the American Concrete Institute Fall Convention, Tarpon Springs, FL, October, 1994.
6. A. Helmicki, T. Henderson, D. Melvin, D. Glos, and D. Nebrigic, "An Enteric Pouch Transformer for Circulatory Support Devices: Analysis of a New Transformer Configuration," Biomedical Engineering Society 1993 Annual Fall Meeting, Memphis, TN, October 1993.
7. D. Melvin, D. Glos, A. Helmicki, T. Henderson, D. Nebrigic, D. Duplain, J. Saikali, and S. Hunter, "An Enteric Pouch Transformer for Circulatory Support Devices: Heat Dissipation," Biomedical Engineering Society 1993 Annual Fall Meeting, Memphis, TN, October 1993.
8. A. Helmicki, "Control-Oriented Identification as an Application of Information-Based Complexity," presented as part of the Department of Electrical and Computer Engineering seminar series, University of Cincinnati, Cincinnati, Ohio, October, 1990.
9. A. Helmicki, "On a State Space Interpretation of the Youla Parameterization," presented to the Robotics and Automation Laboratory, Department of Electrical, Computer, and Systems Engineering, Rensselaer Polytechnic Institute, Troy, New York, January, 1987.
10. A. Helmicki, "Stabilizing Compensators for Linear Distributed Parameter Systems: Input-Output Conditions," presented at the 23rd Annual Technical Meeting of the Society of Engineering Science, August 1986.

8. PATENTS

1. Transintegumental power transformers with high permeability cores, with DL Melvin and HT Henderson, US 6,032,076, issued February 29, 2000.
2. An Apparatus for Cellular Separations, with HL Rilo, B Halsall, W Heineman, K Schleuter, Provisional Patent applied for in November 2002, full patent pending.

9. GRANTS AND CONTRACTS

My research efforts have been continuously supported by external funding agencies and industries. These efforts have resulted to date in the awarding of 30 contracts and/or grants totaling \$7.1M in funded research. I have been listed as the sole Principle Investigator or Co-PI on all of these awards. Much of this research was conducted in multidisciplinary collaborations. These grants have been obtained from high quality funding sources (including NSF, the Whitaker Foundation, NIH, NASA, ODOT, FHWA, and ASNT) through rigorous peer review processes. In addition, several contracts have been obtained from industry sources.

10. TEACHING RELATED ACTIVITIES

A. Summary of Courses Taught

I have regularly taught undergraduate and graduate courses in the three areas of:

1. Circuits (Basic Circuit Analysis, Networks I and II, Measurements Lab),
2. Signals and systems (Signals and Systems I and II, Linear Systems, Foundations of Applied Systems, Applied Systems Theory, System Identification), and
3. Automatic controls (Feedback Control, Intro to Automatic Control, Advanced Control Theory, Multivariable Controls, Neuro-Fuzzy Controls, and Controls for MEMS).

B. Students Advised

Ph.D. Advising:

1. Scott Kangas (2003-present) Dissertation: "Modeling and Ambient Vibration Monitoring of a Cable Stayed Bridge."
2. Victor Hunt (1995-2000) Dissertation: "Health Monitoring Algorithms for Civil Infrastructure Systems." Currently employed as a Research Assistant Professor in the ECECS Dept. here at UC.
3. Brian Sobecks (1994-1999) Dissertation: "Performance Modeling of Analog Circuits via Neural Networks: A Design Process View." Currently employed at Motorola Corp., Chicago, IL.

4. Anju Bahri (1991-1997) Dissertation: "Control-Oriented System Identification and Robust Control System Design: Some Connections and their Implications." Currently employed at GE Corporate Research and Development Center, Schenectady, NY.
5. Thomas Sharp (1993-1996) Dissertation: "Progress Towards a Development Methodology for Decision Support Systems for Use in Time-Critical, Highly Uncertainty, and Complex Environments." Currently with his own start-up company (SDL Limited) at the Hamilton Co. Incubator.
6. Ksenia Kolcio (1991-1996) Dissertation: "Rocket Engine Modeling for Condition Monitoring and Control Design Purposes." Currently employed at TRW, Los Angeles, CA.
7. Dragan Nebrigic (1992-1996) Dissertation: "An Integrated Systems for Biomedical Implants, Including Novel Power/Data Fusion, and MEMS-Based Sensor Subsystem Concepts." Currently employed at Proctor & Gamble Co. Biomedical Research Labs, Cincinnati, OH.
8. Bing Zheng (1991-1995) Dissertation: "Integrated Control/Diagnostic System Analysis and Synthesis: A Linear Time Varying Treatment." Currently employed at the YSI Technologies Corp., Dayton, OH.

M.S. Advising:

1. Lei Lui (2002-2004) Thesis: "Gradient-based Auto-tuning and Calibration of FE Model Highway Bridge Models Using Modal Field Test Data."
2. Sachin Kambli (2001-present). Thesis: "On-line, Web-based Monitoring of a Steel Stringer Bridge."
3. Divyachapan Padur (2001-2003) Thesis: "Development and Testing of an Enhanced Finite Element Modeler software for "Deck-on-Steel stringer" bridges and a Post Processor for faster model tuning and calibration.
4. Scott Kangas (2001-2003) Thesis: "Automated Signal Conditioning and Postprocessing of Multiple Impact Reference Modal Test Data Applied to Highway Bridges."
5. Vishwas Bakshi (2000-2003) Thesis: "Automated Human Pancreatic Islet Isolation System for Islet Transplantation in Patients with Type-I Insulin Dependent Diabetes Mellitus"
6. Shirisha Kondury (1999-2001) Thesis: "Continuous and Automated Traffic Monitor for Immediate Identification and Statistical History of Influence Lines and Rating Factors." Currently employed at IBM, India.
7. Hong Li (1997-2000) Thesis: "Data Mining and Database Development for Civil Infrastructure Monitoring." Currently employed at Lucent Technologies, OH.
8. Er Zhong (1997-1999) Thesis: "Interactive, Internet-based Performance and Health Monitoring of a Highway Bridge." Currently employed at Lucent Technologies, NJ.
9. Ashish Mehta (1996-1999) Thesis: "Control-Oriented Modeling of MEMS and Microfluid Flows." Currently employed at National Instruments, Austin, TX.
10. Srinivas Iyer (1996-1999) Thesis: "Passive Sensor Development for Use in Civil Infrastructure System Monitoring." Currently employed at National Instruments, Austin, TX.
11. Yong Gao (1996-1998) Thesis: "Intelligent Bridge Health Monitoring Systems: Traffic Responses." Currently employed at Hughes Network Systems, Germantown, MY.

12. Venkat Rangan (1994-1996) Thesis: “Switched Capacitor Control of a Series Resonant Converter for Trans-Integumental Energy Transmission.” Currently employed at Qualcomm Inc., San Deigo, CA.
13. Gretchen Bandy (1992-1994) Thesis: “Control-Oriented Modeling of Flexible Structures.” Currently employed at the BelCan Corp., Cincinnati, OH.
14. Shannon Korson (1991-1993) Thesis: “An H_∞ Based Controller for a Gas Turbine Clearance Control System.” Currently employed at the GE Aircraft Engines Company, Cincinnati, OH.

Undergraduate Advising:

1. Robert Sexton (2003) Senior Project: “Web-based Monitoring of Cincinnati Weather”
2. Matthew Rensing, Christopher Reis, and Christopher Scarr (2002) Senior Project: “Position Monitoring System for Satellite Deployment”]
3. Nathan Ruth, Craig Eaton, and Rhett Trease (2002) Senior Project: “Rowing Performance Meter”
4. Josh Moses (2000) Senior Project: “Design of a Wireless Sensor System with Application to Civil Infrastructure”
5. Ben Jarrett (1999) Senior Project: “Design of a Programmable, Digital Cruise Controller”
6. John Inkrott (1999) Senior Project: “Control of a Conveyor Table at a Steel Mill”
7. Tim Mach (1999) Senior Project: “An Automated Missile Fuse Validation Test-stand Using Labview”
8. Mitchell and Wilch (1999) Senior Project: “Feedback Control: An Intelligent Model Train”
9. Dave Sims (1996) Senior Project: “The Intuitive Display and Command System”
10. Chris Durbin (1995) Senior Project: “PC-Based Satellite Antenna Actuator Controller”
11. Daryl Everding (1995) Senior Project: “An Adaptive Network for use with Human Heart Assist Devices” Co-Advisor with Prof. Thurman Henderson.
12. Beth Coleman (1995) Senior Project: “An Adaptive Network for use with Human Heart Assist Devices” Co-Advisor with Prof. Thurman Henderson.
13. Michael Sonby (1994) Senior Project: “Solar Panel Controller for Mars Rover”
14. Dharmesh Patel (1994) Senior Project: “Flight Simulator Software as Hardware-in-the-Loop Testbed for Controller Design”
15. Long Sam (1994) Senior Project: “Flight Simulator Software as Hardware-in-the-Loop Testbed for Controller Design”
16. John Penix (1993) Senior Project: “Earth-based Lunar Control Studies”
17. Hani Albayyari (1993) Senior Project: “Development of Inverted Pendulum Experimental Testbed”

C. Other Teaching Related Activities

- Serve as Pre-junior student academic advisor for ECE undergraduates (September 1991 to June 1999).

- Advisor for University of Cincinnati Student Chapter of IEEE (August 1991 to September 1993).
- Attended “Emerging Technologies in Biomedical Engineering,” held in Cincinnati, OH, November 1993 and 1994.
- Attended “University of Cincinnati College of Engineering Effective Teaching Institute Workshop,” held in Cincinnati, OH, October 1992.
- Attended “Ohio Aerospace Institute Workshop on Turbine Engine Control,” held at GE Aircraft Engines, January 1992.
- Invited participant of NSF/AFOSR sponsored workshop on “Modeling of Uncertainty in Control Systems,” held at the University of California at Santa Barbara, June, 1992.
- UC/ECE representative to “Space Education Conference” held in Cocoa Beach, FL., October 1991.
- Attended “9th Annual OSU Control Workshop,” held at Ohio State University, April 1991.
- Attended workshop on “Adaptive Control: Theory and Applications,” held at the 1989 American Control Conference, Pittsburgh, Pennsylvania, June 1989.
- Attended workshop on “Recent Advances in Linear Multivariable Control Using the Stable Factorization Approach,” held at General Electric Corporate Research and Development Center, Schenectady, New York, November 1986.

11. SERVICE ACTIVITIES

A. Committee Service

State and National Committees:

- Member, American Society of Civil Engineers Steering Committee on Structural Identification of Constructed Facilities (1998 to 2001).
- Member, ODOT MOT-49 Investigation Team Committee (1999-2000).

University Committees:

- College of Engineering Representative on Cost Accounting Standards (CAS) Task Force (November 1995 to 1996).
- College of Engineering Representative on University Honors Council (September 1996 to 1998).

College Committees:

- Served as committee member on more than 65 Ph.D. and M.S. Thesis Committees.
- Served as Associate Director of University of Cincinnati Infrastructure Institute (August 1994 to December 1997).
- Elected to serve as faculty representative on ECE/CS Department Head Search Committee (September 1995 to 1997).

- Member URC Student Summer Research Fellowship Selection Committee (1993, 1994, 1995).
- Member Space and Facilities Committee for the ECE/CS merger (September 1993 to June 1994).
- Member Steering Committee for the UC/SERC Space System Control Laboratory (March 1992).
- Member Health Monitoring Architecture Committee, NASA Health Monitoring Technology Center for Space Propulsion Systems (September 1990 to May 1991).

Departmental Committees:

- Elected to serve as Systems Area representative on ECECS Department Reappointment Promotion & Tenure Committee (June 1999 to present).
- Program Director, Applied Systems Program, Electrical and Computer Engineering Department, University of Cincinnati, Cincinnati, OH (September 1992 to June 1999).
- Group Leader, Automatic Controls and Systems Integration Group, Electrical and Computer Engineering Department, University of Cincinnati, Cincinnati, OH (August 1991 to August 1992).
- Member EE Curriculum Committee (June 1991 to 1997).
- Member ECE Undergraduate Computer Course Unification Committee (January 1995 to 1997).
- Member Steering Committee for the ECE Applied Systems Program/Faculty Focus Group (February 1992 to August 1992).
- Chair of ECE Applied Systems Faculty Search Committee (May 1992 to 1995).
- Chair of ECE Controls Faculty Search Committee (July 1991 to May 1992).

B. Professional Affiliations

- Member Institute of Electrical and Electronic Engineers (IEEE)
- Member American Society of Nondestructive Testing (ASNT)
- Member Sigma Xi, Eta Kappa Nu, and Tau Beta Pi

C. Reviewer for

- Journal/Conference Reviewer: IEEE Transactions on Automatic Controls, ASME Journal of Dynamic Systems, Measurement, and Control, IFAC Automatica, International Journal of Control, American Control Conference, Conference on Decision and Control, IEEE Conference on Control Applications
- Review Panelist, National Science Foundation
- External Advisory Panel, Rochester Institute of Technology

D. Conference Sessions Chaired

- Session Chairman for the SPIE Symposium on Micromachining and MEMS, San Jose, CA, July, 1998.
- Session Chairman for the IEEE Conference on Controls Applications, Albany, NY, September, 1995.
- Co-Organizer of North American Workshop on Instrumentation and Vibration Analysis of Highway Bridges for Condition Assessment and Damage Detection, held in Cincinnati, OH, July, 1995.
- Session Chairman for the IEEE American Controls Conference, held in Seattle, WA, June, 1995.
- Member of Technical Program Committee for IEEE Conference on Controls Applications, held in Dayton, Ohio, September, 1992.
- Session Chairman for the IEEE Conference on Controls Applications, held in Dayton, Ohio, September, 1992.