

ABSTRACT CURRICULUM VITA

VICTOR J. HUNT

Research Assistant Professor
University of Cincinnati Infrastructure Institute
721 Engineering Research Center (ML 30)
Cincinnati, Ohio 45221-0030

Phone: 513-556-3687 (Office)
513-271-2641 (Home)
Fax: 513-556-7326
Email: Victor.Hunt@uc.edu

EDUCATION: w/ an emphasis on structural testing, condition assessment, system control, health monitoring, & information technology

Ph.D. in Electrical Engineering from the University of Cincinnati, 2000 4.0 GPA.
M.S. in Electrical Engineering, Honors Program, from the University of Cincinnati, 1991 4.0 GPA.
B.S. in Electrical and Computer Engineering from the University of Cincinnati, 1988 3.5 GPA.

EMPLOYMENT:

University of Cincinnati Infrastructure Institute (UCII), Research Engineer 1994-Present.
Interdisciplinary and international research on the lifetime instrumentation, nondestructive testing, structural identification, load and fatigue rating, and condition assessment of civil infrastructure systems.
Wright-Patterson Air Force Base (WPAFB), Materials Laboratory, Research Fellowship 1988-1993.
Designed, implemented, and patented a computer control system for material deposition processes.
Researched the optimization of redundant control systems for health monitoring and fault tolerance.
Cincinnati Milacron, Electronic Systems Division, Cooperative Education 1985-1987.
Design of a parts/components database for the manufacturing plant with several security levels.
Member of product group during pre-production of a new control board for robotic product line.

AWARDS and ACTIVITIES:

Member of the Institute of Electronic and Electrical Engineers (IEEE),
the Society for Experimental Mechanics (SEM), and
the Eta Kappa Nu (EKN) Electrical Engineering Honor Society.
Undergraduate schooling: Supported by Ohio Board of Regents Scholarship, 1983-1988.
Graduate schooling: Who's Who Among College Students, 1989.
Supported by Air Force Laboratory Research Fellowship, 1990-1994.

ASSOCIATED RESEARCH and CONSULTING:

- “Degradation Rates for Various Ohio Bridge Types;” Sponsor: UCII, ODOT, FHWA;
\$136,000 (2005-2008).
The statistical history of Organizational Performance Indices (OPIs), which are based upon a set of visual bridge inspection ratings, will be modelled to trend and predict them according to bridge design, location, etc.
- “Load Testing of Fort Washington Way, Bridges 22, 23, and 29;” Sponsor: UCII, ODOT, FHWA
Burgess and Niple, Inc., City of Cincinnati,; \$56,000 (2004-2005).
Two segmental box bridges are instrumented to measure truckload stress and deflection of critical spans which have begun to exhibit extensive cracking problems.

- “Instrumentation of the Ironton-Russell Bridge;” Sponsor: UCII, Michael Baker Jr., Inc., ODOT, FHWA; \$797,000 (2004-2009).
Instrumented the superstructure of a cable-stayed, steel-stringer bridge for ambient stay vibration and truckload testing in order to compare with the assumed design values, to track the construction process, and to facilitate maintenance of this landmark bridge in downtown Ironton, Ohio, across the Ohio River.
- “Instrumentation of the Maumee River Crossing;” Sponsor: UCII, UT, HNTB, ODOT, FHWA; \$487,000 (2002-2006).
Instrumented the superstructure of a cable-stayed, concrete segmental box bridge for ambient stay vibration and truckload testing in order to compare with the assumed design values, to track the construction process, and to facilitate maintenance of this landmark bridge in downtown Toledo, Ohio, across the Maumee River.
- “Instrumentation of the US Grant Bridge for Monitoring of Fabrication, Erection, In-Service Behavior;” Sponsor: UCII, ODOT, FHWA; \$600,000 (2002-2007).
Instrumented the superstructure of a cable-stayed, steel-stringer bridge for ambient stay vibration and truckload testing in order to compare with the assumed design values, to track the construction process, and to facilitate maintenance of this landmark bridge in downtown Portsmouth, Ohio, across the Ohio River.
- “Objective Condition Assessment of Deteriorated and Damaged Bridges in Ohio;” Sponsor: UCII, ODOT, FHWA; \$204,000 (2001-2005).
Instrumented the superstructure of ten posted steel-stringer bridges for modal impact and truckload testing for comparison with the assumed design conditions and nominal design values.
- “Bridge-Type-Specific Management of Steel-Stringer Bridges: Verification and Demonstration of Experimental Tools;” Sponsor: UCII, ODOT, FHWA; \$1,108,000 (1996-2005).
Instrumented the superstructure of a closed steel-stringer bridge and initiated various damage scenarios for comparison with the assumed design conditions and nominal design values. Verified the accuracy and expediency of modal impact and truckload testing for damage detection, condition assessment, load rating, and calibration of finite element models.
- "Instrumentation, Testing and Monitoring of Reinforced Concrete Deck-On-Steel Girder Bridges;" Sponsor: UCII, ODOT, FHWA; \$1,068,000 and \$250,000 of in-kind support (1993-2003).
Instrumented the foundation and superstructure of a local steel-stringer bridge during construction for comparison with the assumed design conditions and nominal design values.
Designed and implemented the teleremote health monitoring of steel-stringer highway bridges with Internet connectivity for on-line traffic service and environmental condition assessment.
- “Instrumented Monitoring and Field Calibrated Modeling of WAS-339-2013 Prior to, During, and After Superload;” Sponsor: UCII, ODOT, FHWA; \$88,000 (2001-2002).
Tested and evaluated a critical steel-stringer bridge in the overload path for rating under such conditions. Load rating was pre-verified and then proven acceptable for the overload, in spite of BARS results.
- "Nondestructive Testing and Evaluation of the Ironton-Russell Bridge;" Sponsor: Ohio Department of Transportation (ODOT) and Federal Highway Administration (FHWA); \$212,000 (1999-2002).
Instrumented the superstructure of a steel truss bridge for load and fatigue rating of critical members. Design values were verified in spite of a very poor rating from visual inspection.
- “Field Performance Evaluation of Multiple Fiber Reinforced Polymer Bridge Deck Systems Over Existing Girders – Phase II;” Sponsor: UCII, ODOT, FHWA; \$1,388,000 (1999-2005).

Instrumented the superstructure of a 5-span steel-stringer bridge, retrofitted with fiber reinforced panels as decking, during construction for comparison with the assumed design conditions and nominal design values.

- “Instrumentation, Testing and Monitoring of Steel-Stringer Bridges #6 and #8 on Fort Washington Way, Cincinnati, Ohio;” Sponsor: UCII, Parsons Brinkerhoff Ohio, Inc. (PB); \$35,000 (2000). Instrumented the superstructure of a curved steel-stringer bridge during construction for verification of design assumptions and nominal stresses from deadload and truckload, in spite of construction mishaps:
1) improper alignment of crossbraces on curve, and 2) poor staging of concrete pour on curve.
- “Instrumentation and Monitoring of Deadload Response for Steel Box Girder Bridge #18 on Fort Washington Way, Cincinnati, Ohio;” Sponsor: UCII, PB; \$3,000 (1999). Instrumented the superstructure of a curved box girder bridge during construction for verification of design assumptions and nominal stresses from deadload.
- "Instrumentation, Proof-Testing and Monitoring of Three Reinforced Concrete Deck-On-Steel Girder Bridges Prior To, During, and After Superload;" Sponsor: ODOT, FHWA; \$89,000 (1996). Tested and evaluated three critical bridges in the overload path for load rating under such conditions. Load rating was pre-verified and then proven acceptable for the overload, in spite of BARS results.
- “Composites for Infrastructure Research;” Sponsor: UCII, Owens Corning; \$40,000 (1996).
- "Technologies for Infrastructure Assessment;" Sponsor: Ohio Board of Regents Investment Fund, Research Consortia Centers of Excellence Program; \$1,060,000 (1993-1997).
- "Redundant Structures for Fault-Tolerant Control," Master's Thesis; Sponsor: Materials Laboratory Fellowship, WPAFB; \$100,000 (1990-1993).
- "A Hierarchical Control System for Molecular Beam Epitaxy," U.S. Patent #05461559; Sponsor: Manufacturing Research Group, Materials Laboratory, WPAFB \$75,000 (1988-1993).

SAMPLE PUBLICATIONS:

A. Refereed Journal Articles

1. 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.
2. 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.
3. 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.
4. Reising R., Shahrooz B., Hunt V., Neumann A., Helmicki A., "Performance Comparison of Four Fiber Reinforced Polymer Deck Panels," *Journal of Composites for Construction*, ASCE, Volume 8, Issue 3, pp. 265-274, June, 2004.
5. Reising R., Shahrooz B., Hunt V., Neumann A., Helmicki A., Hastak M., "A Close Look at Construction Issues and Performance of Four Fiber Reinforced Polymer Composite Bridge Decks," *Journal of Composites for Construction*, ASCE, Volume 8, Issue 1, pp. 33-42, February, 2004.

6. 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, pp. 113-123, 2001.
7. Lenett M., Hunt V., Helmicki A., 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.
8. Aktan, A., Helmicki, A., Hunt, V., "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.
9. Aktan, A., Farhey, D., Helmicki, A., Hunt, V., Lee, K., Levi, A., "Structural Identification for Condition Assessment: Experimental Art." *ASCE Journal of Structural Engineering*, Vol. 123, No. 12, pp. 1674-1685, 1997.
10. Helmicki, A., Aktan, A., Hunt, V., "Issues in Bridge Control Systems Applications." *Infrastructure*, Vol. 2, No. 4, pp.30-40, 1997.
11. Aktan, A., Dalal, V., Farhey, D., Helmicki, A., Hunt, V., Shelley, S., "Condition Assessment for Bridge Management," *ASCE Journal of Infrastructure Systems*, Vol. 2, No. 3, pp. 108-117, September, 1996.
12. Garrett, P., Heyob, J., Hunt, V., LeClair, S., Patterson, O. "Decoupled Flux Control for Molecular Beam Epitaxy." *IEEE Transactions on Semiconductor Manufacturing*, Vol. 6, No. 4, November 1993.

B. Publications in Books

1. Helmicki, A., Hunt, V., Dalal, V., Aktan, A., "Information Technology in Civil Infrastructure Systems: Multi-Modal Testing and Monitoring of a Highway," *Structural Health Monitoring*, Stanford Press, 1999.

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. McConnell, K.B., Wagner, M., Urbina, E., Daniels, S., Helmicki, A., Hunt, V., Amin, R.S., "Central Aortic Pressure Wave Changes with Sleep Stage and Disordered Breathing in Children Estimated by Application of an Arterial Transfer Function to Peripheral Blood Pressure," *Conference of the IEEE Engineering in Medicine and Biology Society*, San Francisco, California, September, 2004.
6. Kangas, S., Wang, X., Padur, D., Li, Z., Lui, L., Helmicki, A., Swanson, J., Hunt, V., "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. Hunt, V., Helmicki, A., "Field Testing and Condition Evaluation of a Steel-Stringer Bridge for Superload," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, pp. 56-62, September 2002.
8. Helmicki, A., Hunt, V., Lenett, M., "Non-Destructive Testing and Evaluation of the Ironton-Russell Bridge," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, pp. 139-146, September 2002.

9. Shahrooz, B., Reising, R., Hunt, V., Helmicki, A., Neumann, A., "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, pp. 147-154, September 2002.
10. Kangas, S., Hunt, V., Helmicki, A., "Modal Test-Based Condition Assessment," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, pp. 267-274, September 2002.
11. Kambli, S., Helmicki, A., Hunt, V., "Dedicated Real Time Monitoring of a Steel-Stringer Highway Bridge," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, pp. 283-290, September 2002.
12. Padur, D., Wang, X., Turer, A., Swanson, J., Helmicki, A., Hunt, V., "Non-Destructive Evaluation/Testing Methods – 3D Finite Element Modeling of Bridges," *Proceedings of ASNT Structural Materials Technology V: An NDT Conference*, Cincinnati, OH, pp. 209-216, September 2002.
13. Lenett, M., Hunt, V., Helmicki, A., Brown, D., "Identifying Bridge Behavior And Condition Through Multi-Reference Impact Data," *Proceedings of International Modal Analysis Conference XX*, Los Angeles, CA, United States, February 2002.
14. Lenett, M., Helmicki, A., Hunt, V., Aktan, A., "Condition Assessment/Damage Identification of an Aged, Deteriorated Steel-Stringer Bridge", *Proceedings of ASCE 2001 Structures Congress*, May 2001.
15. Lenett, M., Hunt, V., Helmicki, A., Turer, A. "Field-Testing and Evaluation of the Ironton-Russell Truss Bridge." *Proceedings of ASCE 2001 Structures Congress*, May 2001.
16. Lenett, M., Hunt, V., Helmicki, A., Shahrooz, B.: "Influence of FRP Decking As Measured Through Impact Test Data", *Proceedings of International Modal Analysis Conference XIX*, Kissimmee, FL, pp. 1118-1125, February, 2001.
17. Lenett, M., Hunt, V., Helmicki, A., Turer, A.: "Health-Monitoring of the Ironton-Russell Truss Bridge", *Proceedings of Condition Monitoring and Diagnostic Engineering Management (COMADEM) 2000 Conference*, December, 2000.
18. Helmicki, A., Hunt, V., Lenett, M., Turer, A. "Structural Identification and Statistical Database Development for a Class of Bridges: Towards Type-Specific Management." *Proceedings of the 2000 American Control Conference*, Chicago, IL, June 2000.
19. Lenett, M., Helmicki, A., Hunt, V.: "Multi-Reference Impact Testing of FRP Bridge Deck Material", *Proceedings of International Modal Analysis Conference XVIII*, San Antonio, TX, pp. 8-13, February, 2000.
20. Lenett, M., Brown, D., Hunt, V., Helmicki, A.: "Performing Bridge Condition Assessment With Spliced Multi-Reference Impact Data", *Proceedings of International Modal Analysis Conference XVIII*, San Antonio, TX, pp. 1307-1312, February, 2000.
21. Hunt, V., Shell, M., Turer, A., Lenett, M., Helmicki, A., Barrish, R., Aktan, A., "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. Lenett, M., Hunt, V., Helmicki, A., Catbas, F., Aktan, A., "Condition Assessment of a Decommissioned Bridge Using Nondestructive Experimental Methods," *Proceedings of the Society of Experimental Mechanics Annual Conference*, Cincinnati, OH, June, 1999.
23. Helmicki, A., Hunt, V., Lenett, M., Greismann, A., Aktan, A., "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, pp. 4506-4510, June 1999.
24. Lenett, M., Helmicki, A., Hunt, V., Aktan, A., "Condition Assessment and Damage Identification of a Steel Stringer Bridge using System Identification Methods," *Proceedings of the 1999 American Control Conference*, San Diego, CA, pp. 1124-1128, June 1999.
25. Lenett, M., Hunt, V., Helmicki, A., Brown, D., Catbas, F.N. "Condition Assessment of Commissioned Infrastructure Using Modal Analysis and Flexibility," *Proceedings of International Modal Analysis Conference XVII*, Kissimmee, FL, pp. 1251-1259, February, 1999.

26. Catbas, F.N., Lenett, M., Aktan, A., Brown, D., Helmicki, A., Hunt, V., "Modal analysis as a bridge monitoring tool," *Proceedings of International Modal Analysis Conference XVII*, Kissimmee, FL, pp. 1230-1235, February, 1999.
27. Hunt, V., Gao, Y., Helmicki, A., Aktan, A., "Bridge Monitoring: State of the Art," *Proceedings of the Structural Engineers World Congress*, San Francisco, CA, July, 1998.
28. Hunt, V., Turer, A., Gao, Y., Levi, A., Helmicki, A., "Instrumented Monitoring and Nondestructive Evaluation of Highway Bridges," *Proceedings of Structural Materials Technology III - An NDT Conference*, San Antonio, TX, Technomic Publishing, Lancaster, Pennsylvania, pp. 472-481, April, 1998.
29. Catbas, F.N., Lenett, M., Aktan, A., Brown, D., Helmicki, A., Hunt, V., "Damage Detection and Condition Assessment of Seymour Bridge," *Proceedings of International Modal Analysis Conference XVI*, Orlando, FL, February, 1998.
30. Helmicki, A., Aktan, A., Barrish, R., Gao, Y., Hunt, V., Iyer, S., Levi, A., "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.
31. Helmicki, A., Aktan, A., Hunt, V., Wilson, A., "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.
32. Hunt, V., Helmicki, A., Aktan, A., "Informational Issues in Bridge Health Monitoring," *Proceedings of the International Workshop on Structural Health Monitoring*, Stanford, CA, 1997.
33. Hunt, V., Helmicki, A., Aktan, A., "Instrumented Monitoring and Nondestructive Evaluation of Highway Bridges," *Proceedings of the ASCE Infrastructure Condition Assessment Conference*, Boston, MA, pp. 121-130, August, 1997.
34. Aktan, A., Farhey, D.N., Helmicki, A., Hunt, V., Lee, K.L., Levi, A., "Structural Identification for Condition Assessment of Civil Infrastructure," *Proceedings of the 1997 American Control Conference*, Albuquerque, NM, pp. 873-877, June, 1997.
35. Aktan, A., Helmicki, A., Dalal, V., Hunt, V., "Instrumented Monitoring and Nondestructive Evaluation of Highway Bridges," *Proceedings of the ASCE 1997 Structures Congress*, Portland, OR, pp. 1513-1517, April, 1997.
36. Aktan, A., Helmicki, A., Shelley, S., Lennett, M., Catbas, F.N., Hunt, V., "Bridge-Type-Specific Management of Steel-Stringer Bridges in Ohio," *Proceedings of the ASCE 1997 Structures Congress*, Portland, OR, April, 1997.
37. Aktan, A., Brown, D., Farrar, C., Helmicki, A., Hunt, V., Yao, J., "Objective Global Condition Assessment," *Proceedings of International Modal Analysis Conference XV*, Orlando, FL, February, 1997.
38. Lenett, M., Catbas, F.N., Hunt, V., Aktan, A., Helmicki, A., Brown, D., "Issues in Multi-Reference Impact Testing of Steel-Stringer Bridges," *Proceedings of International Modal Analysis Conference XV*, Orlando, FL, February, 1997.
39. Levi, A., Hunt, V., Helmicki, A., Aktan, A., "Instrumented Monitoring and Diagnostic Load Testing of Steel Stringer Bridges," *Proceedings of International Modal Analysis Conference XV*, Orlando, FL, February, 1997.
40. Aktan, A., Dalal, V., Helmicki, A., Hunt, V., Lenett, M., Catbas, F.N., Levi, A., "Objective Bridge Condition Assessment for Serviceability," *Proceedings of the Third Conference on Nondestructive Evaluation of Civil Structures and Materials*, Boulder, CO, September, 1996.
41. Aktan, A., Farhey, D.N., Hunt, V., Lenett, M., Levi, A., "Objective Bridge Condition Assessment." *Proceedings of Structural Materials Technology II - An NDT Conference*, Boulder, CO, Technomic Publishing, Lancaster, Pennsylvania, pp. 228-232, 1996.

42. Hunt, V., Levi, A., Barrish, R., Grimmelsman, K., Aktan, A., Helmicki, A., "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.
43. Lenett, M., Catbas, F.N., Hunt, V., Aktan, A., Helmicki, A., Shelley, S., "Bridge-Type-Specific Management of Steel-Stringer Bridges in Ohio." *Proceedings of the SEM Nondestructive Testing in Infrastructure Conference*, Nashville, TN, June, 1996.
44. Aktan, A., Helmicki, A., Hunt, V., "Issues Related to Intelligent Bridge Monitoring." *Proceedings of the ASCE 1996 Structures Congress*, Chicago, IL, pp. 750-757, April 1996.
45. Aktan, A., Farhey, D.N., Hunt, V., Helmicki, A., Brown, D., Shelley, S., "Objective Bridge Condition Assessment." *Proceedings of the International Symposium on Non-Destructive Testing in Civil Engineering*, pp. 51-60, Berlin, Germany, September, 1995.
46. Aktan, A., Levi, A., Hunt, V., Helmicki, A., "Issues in Bridge Health Monitoring." *Proceedings of the 1995 Meeting of the International Association for Bridge and Structural Engineering*, San Francisco, CA, August, 1995.
47. Helmicki, A., Aktan, A., Hunt, V., "Issues in Implementation of Structural Monitoring to Constructed Facilities for Serviceability with Damageability Considerations." *Proceedings of the 1995 American Control Conference*, Seattle, WA, 1995.
48. Aktan, A., Hunt, V., Lally, M., Stillmaker, R., Brown, D., Shelley, S., "Field Laboratory for Modal Analysis and Condition Assessment of Highway Bridges." *Proceedings of the International Modal Analysis Conference XIII*, Nashville, TN, 1995.
49. Hunt, V., Levi, A., Sobecks, B., Barrish, R., Helmicki, A., Aktan, A., "Progress Report on Bridge Instrumentation and Monitoring." *Society of Engineering Mechanics Annual Conference*, Grand Rapids, MI, June, 1995.
50. Aktan, A., Hunt, V., Helmicki, A., Shelley, S., "Instrumentation and Intelligence Issues in Bridge Health Monitoring." *SPIE Conference on Smart Structures and Materials*, San Diego, CA, pp. 106-116, February, 1995.
51. Hunt, V., Levi, A., Dietz, D., Sobecks, B., Helmicki, A., Aktan, A., "Issues in Bridge Instrumentation and Monitoring," *Society of Engineering Mechanics Annual Conference*, Baltimore, MD, May, 1994.
52. Garrett, P., Heyob, J., Hunt, V., LeClair, S., Patterson, O., "Decoupled Flux Control for Molecular Beam Epitaxy." *IEEE Transactions on Semiconductor Manufacturing*, Vol. 6, No. 4, November 1993.
53. Hunt, V., "Dual-Difference Redundant Structure in Fault-Tolerant Control," *Proceedings of the 5th Aerospace Applications of Artificial Intelligence Conference*, Dayton, OH, 1989.

REFERENCES

Dr. Arthur Helmicki, Department of Electrical and Computer Engineering and Computer Science, University of Cincinnati, OH, 45221-0030. Phone: (513) 556-6069, Email: arthur.helmicki@uc.edu

Dr. Michael Baseheart, Department of Civil and Environmental Engineering, University of Cincinnati, OH, 45221-0071. Phone: (513) 556-3700, Email: michael.baseheart@uc.edu

Dr. Michael Lenett, Transystems Corporation, 720 East Pete Rose Way, Ste 360, Cincinnati, OH, 45202. Phone: (513) 621-1981, Ext. 36022, Email: mslenett@transystems.com

Dr. Bruce Walker, NASA Space Engineering Center for System Health Management Technologies, University of Cincinnati, OH, 45221-0070. Phone: (513) 556-4751, Email: bruce.walker@uc.edu